

Forests at the Limits

Forestry, Land Use and Climate Change from Political
Ecology and Environmental Communication
Perspectives– The Case of Chile & Sweden

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Doctoral Thesis
Swedish University of Agricultural Sciences
Uppsala 2015

Acta Universitatis agriculturae Sueciae

2015:5

ISSN 1652-6880

ISBN (print version) 978-91-576-8228-4

ISBN (electronic version) 978-91-576-8229-1

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Print: SLU Service/Repro, Uppsala 2015

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Abstract

This thesis is based on a comparative study of forest use and land use for forestry in Sweden and Chile. Processes of forestry development in the two countries are placed in relation to world forestry. Theoretically, the thesis draws insights and conceptualisations from historical materialism, critical theory and world systems theory to work with a framework combining political ecology and environmental communication. The thesis deals with forestry, forest use and land use in times where the importance of wood biomass is fundamental as climate change challenges are substantially defined by the use of forests and land. In this context, the changing meanings and materiality of forests, forestry and land use constitute a fundamental political process today at both national and global levels. One main focus in the research has been to explore current processes linking forestry and climate change politics and how they are materialized in two geographical areas; the study areas having been Ñuble province in Chile and Jämtland- Västernorrland in Sweden.

The thesis analyses both contemporary and past events influencing the present situation of forestry in the two countries, uses incorporated comparison as a specific comparative approach and is methodologically informed by notions of dialectics. Analysis of discourses, observations, interviews and other methods have been put together along with theoretical reasoning on the constitution and transformation of historically specific social-ecological relations. The thesis empirically shows relations between social changes associated with forestry and theoretically draws from, and elaborates on, different forms of critical theory. An important finding of this thesis is the deep interconnection between forestry in Chile and forestry in Sweden. The study also shows that forestry development in Chile influences the overall situation of forestry in Sweden and vice versa. In this regard, forestry in the two countries has been shown to form and be formed through the historical development of world forestry. The thesis also shows how climate change has transformed discursive practices of forestry in the two countries. In addition, the thesis highlights labour questions, movement of resistance related to capitalist forestry development and specific discourses articulating forestry development in the two countries. A main conclusion of the thesis is that the conflictive nature of forestry in Chile and Sweden is greatly entangled with processes of environmental communication and political ecology relations; relations that are today formed to an important degree through use value and exchange value contradictions.

Keywords: forestry, forests, land, tree plantations, political ecology, environmental communication, climate change, labour, capital.

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Dedication

Para Carina, con todo mi amor, con toda mi vida. Gracias, por todo el amor, el cariño, el apoyo, la alegría y la vida en común. No hay palabras, no hay conceptos, no hay verbos para poner aquí todo lo que quisiera decir ahora. Jag älskar dig!

Isabel, Simón y Oscar: ahora estoy de vuelta y me libere de la Universidad ladrona!. Les amo con toda mi alma y ahora quiero que nos tiremos nieve y después nos vamos a la playa y a la cordillera en Chile!

In memory of Rodrigo Alexis Cisternas Fernández

La noche de año nuevo emprendimos la caminata entre Coñaripe y Villarrica. Arribamos a esa ciudad en la madrugada del martes 1 de enero del 74 y esa misma tarde llegamos a Temuco. Ponía así término a lo que fueron días, semanas y meses de intensas batallas y sufrimientos. Luego vendrían incontables y penosos años de lo mismo, pero esos ya son dolores de otros tiempos.

José Manuel Bravo Aguilera

Cómo yugo de apretao tengo el puño esperanzao porque todo cambiará.

Victor Jara

The form of wood, for instance, is altered, by making a table out of it. Yet, for all that, the table continues to be that common, every-day thing, wood. But, so soon as it steps forth as a commodity, it is changed into something transcendent. It not only stands with its feet on the ground, but, in relation to all other commodities, it stands on its head, and evolves out of its wooden brain grotesque ideas, far more wonderful than "table-turning" ever was.

Karl Marx

Today immediacy of aesthetic comportment is exclusively an immediate relationship to the universally mediated. That today any walk in the woods, unless elaborate plans have been made to seek out the most remote forests, is accompanied by the sound of jet engines overhead not only destroys the actuality of nature as, for instance, an object of poetic celebration. It affects the mimetic impulse. Nature poetry is anachronistic not only as a subject: Its truth content has vanished.

Theodor Adorno

Where might such a revisionary assumption—that these twin planes, "communication" and "labor," could not in fact ever really be separated except for schematic purposes—leave us with regard to the history of communication study?

Dann Schiller

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Acknowledgements

Primero que nada: gracias Carina. Literalmente, gracias por todo. Isabel, Simón y Oscar: gracias por hacer de cada día una razón para decir gracias a la vida.

First of all, I would like to thank you Nadarajah Sriskandarajah and Hans Peter Hansen for all these years of work and cooperation. Sri you have been an incredibly supportive supervisor and, along with believing in my project and understanding of the deeper sources of my motivation, you have provided me fundamental guiding and caring. Words cannot describe how thankful I am! Hans Peter you have given me great support and your critical questions have contributed to my project enormously. I am very grateful for you accepting to be my supervisor in the end and for your enthusiasm. It has been a privilege to have you both as partners in this adventure!

Thanks to Anni Hoffrén, Elvira Caselunghe, Lars Hallgren, Emelie Drott and Andrew Butler. I will always remain grateful for your support during the last, but hardest, week of the whole PhD time.

The whole unit of Environmental Communication has been an incredible supportive environment for my work and has allowed me to be part of a great project. Thank you all! Especially to you Hanna Bergeå who, as a head of the unit, have provided me all the support to finish the thesis. Kristina Marquardt you have been a supportive director of postgraduate studies and I want to thank you for helping me to navigate through procedures and forms implied in the PhD process. I am deeply grateful of all you people at SOL who have made it materially possible to develop my research and work. These include Ann Djurberg, David Halim, Per-Arne Klasson, Helen Arvidsson, Karen Gould Ekström, Marithe Lindelöf, Petra Fabel, Marlén Tälleklint and Carina Lundgren. Leck and Djuwariyah, you have many mornings welcomed me to SOL and I thank you for that. I would like to express my gratitude to the whole department of Urban and Rural Development at SLU, for a friendly and supportive work environment. Especially to Klara Fischer, Daniel Bergquist and Flora Hajdu, you have been both friends and colleagues. I also want to express gratitude to Lisa

Matteses Åhrgren, Mari Kågström, Marina Queiroz and Malin Beckman. Margarita Cuadra, Seema Arora-Jonsson, Nícia Gíva, Tadesse Amera, Camilo Calderon, Opira Otto, Dil Khatri, Joseph Nagoli, Fengping Yang and Linley Chiwona Karlton you make a Global South within SLU possible and appreciate that very much. And thanks to my past and present PhD fellows.

Thank you Tarla Rai Peterson for encouragement during the process, and thank you to Tuija Hilding-Rydevik for support in the beginning of the PhD process and for keeping interest in my work. Steffen Böhm from University of Essex, you were the discussant at my final seminar and your critical feedback was a crucial point in shaping the final thesis. Thanks again Steffen. The Action Research Action Learning- Social (ARALIG) network has been a constant source of inspiration during this time. A special thanks to Carla Gonzalez, Birger Steen Nielsen, Mikaela Vasstrøm and the late Kurt Aagaard Nielsen. The PhD gave me the opportunity of spending three months as a visiting fellow at Cornell University and I want to specially thank you Marianne Krasny for that. At Cornell I participated in the seminar organized by Philip Mc Michael and that was a crucial moment in my research. Thanks Phil for all the inspiring conversations during that time. Also as part of my PhD I had the possibility of meeting people at different places and universities. Thank you Alf Hornborg for nice discussions and for inviting me to the conference Ecology and Power in 2008, which gave me the opportunity of developing initial ideas for the PhD. Thanks to Brett Clark for editorial advice when writing the article for the book originated in that conference and which is now an appendix in the thesis. Thanks to Jason W. Moore for nice exchanges and for keeping asking about my progress with my articles.

The students of the Interdisciplinary Practice and Sustainable Natural Resource Management Master courses have provided important feedback on my research and I have appreciated that. I am also grateful to former colleagues at CEMUS and CEFO who welcomed me during my first years in Sweden. When being back in Chile I have had the great opportunity to share ideas and discuss at different places. A special thanks to the people of Libreria Proyeccion and Centro Cultural Elefante Blanco. Thank you Rodolfo Quiroz, for organizing workshops that were fundamental moments in shaping my ideas for the final part of the PhD. Thanks to Paulo Contreras for providing a good map of my study area in Chile.

I would also like to thank Lena, Göran and Marianne for giving family support in the last months working overtime. Tack så mycket! Thanks to my family in Chile, for always being there and especially to Edmundo, Gaby, Carola and Felipe. Thanks to my close friends in Chile, especially to MN friends for the all night theoretical discussions before this thesis was even thought of. Finally, I would like to thank the staff at the Flöjtens förskola in Gottsunda, for taking care of Isabel y Simón when I have been working on this thesis.

Preface

On 24 November 2014 I was in the process of writing the latest version of this text. Ten years earlier, on 24 November 2004 I was arriving in Stockholm to start a new life in Sweden. I was leaving behind Chile, my work as a labour rights lawyer and physically separating from my family, friends, and my life in Chile. The decision to move to Sweden for a while and to try something different was the greatest decision of my life. At the time of moving to Sweden I was writing my MSc thesis on political philosophy and the plan was to finish the thesis in Sweden. It was only after defending my Master's thesis in Philosophy and because I was living in Sweden that the possibility of reading for a PhD became an option for me. I always liked reading and discussing, and I liked research, but I am quite a sceptic of academia and academization.

I write this preface in the middle of the snow in Sweden. But my thinking is in Chile too. At one moment I thought that a possible title for my thesis could have been *Far Away so Close!*

This work brings to an end an adventure that started in 2008 when I received a PhD scholarship at SLU. Yet, the wider history begins in Porto Alegre, Brazil where the most wonderful encounter of my life happened. It was in the middle of the Youth Camp of the World Social Forum where my life took a new route. Thus I moved to Sweden in 2004.

Before applying for a PhD position at SLU I had been thinking about forestry in Chile and Sweden in terms of critical theory and political ecology. Therefore, a PhD position in Environmental Communication really attracted me. Yet, the term environmental communication led me to ask myself the questions: How is this being conceived? What are the theory-praxis dimensions of this field? How can one research this? At the time of applying I had considered as my possible topic, Forestry in Chile and Sweden in the context of social change and sustainability questions. My interest in the development of forestry in Chile had grown after interacting with forestry workers in a series

of lectures on labour rights I gave in Southern Chile in 2003. My family connections to Southern Chile and being personally witness to the changes in the land there were also part of this growing interest in the social and ecological dynamics of forestry in Chile. Once in Sweden, and having witnessed the role of forests for Swedish people, I started to think of these two countries in comparative terms. This interest implied that even before applying for the PhD position I had initiated independent and more systematic research on the issue of forestry in Chile. This included a visit to southern Chile in 2007 where I visited different areas where conflicts related to tree plantations and pulp production were becoming more serious and I met different people involved in those conflicts. During those meetings, and because people knew I was living in Sweden, questions and comments about Sweden were often part of the discussion. The fact is that arguments about forestry and pulp production are often associated with countries like Sweden. Such more developed countries with a similar experience of development are often used with both a normative and a critical aim. This experience gave me new reasons to research the topics in a deeper way and it also confirmed that a comparison between Chile and Sweden was justified.

I articulated the previous interests into a concrete research project which I submitted as part of the application for the PhD position at the Department of Urban and Rural Development (SOL) at the Swedish University of Agricultural Sciences and eventually I was selected for the position. This thesis is the outcome of that research process. During the period of doing this thesis I have sometimes, and without deliberately aiming at this, seen and experienced how forests and tree plantations are transformed into commodities and how they circulate and arrive to places far away from the places of origin. In 2013, for example, large and modern new buildings were under construction at the SLU campus. While going to the library one day and stopping to take pictures of the building where my Department would eventually move, I recognised that the timber used in the new building was coming from my study area in Sweden. In more specific terms, this was wood produced by the company of the forest owners association I have been studying. Later in 2014, and while visiting Chile for vacation, I discovered that some carpentry work in my parent's house was based on timber coming from the forestry company I have been studying in Chile. The pictures below show this.



Left: Industrial construction work at SLU around 2013. NWP stand for Norrskog wood products. Norrskog is the forest owners association of middle Sweden. NWP is a company run by the association in order to provide services to the forest owners and also define some prices in the market. Right: carpentry work in the author's family house on the coast of central Chile. The timber was produced by Arauco a large multinational company which grew out of the privatization of companies during the dictatorship in Chile. The company produces basically in Southern Chile

I brought these two pictures in as a way of closing this preface and in doing so recognise how much the research process presented here reveals a number of processes and relations associated with the wood-form we are seeing in the pictures above. I can, in other words, move from the concrete to the abstract and tell about the conflicts and contradictions through which, or in which, the production of those commodities takes place. Walter Benjamin once wrote, commodities are the “last burning-glass of historical semblance”.

SOL in Spanish means sun. SOL has been a warm environment for me to conduct this research.

Uppsala, Quintero, Järlåsa, February 2015.

1 Introduction

This thesis is based on a comparative study of forest use and land use for forestry in Sweden and Chile. Within this context, processes of forestry development in the two countries are placed in relation to the global context of forestry. Theoretically, the thesis draws insights and conceptualisations from historical materialism, critical theory and world systems theory to work with a framework combining political ecology and environmental communication. The thesis deals with forestry, forest use and land use in times where the importance of wood biomass is fundamental as climate change challenges are substantially defined by the use of forests and land. In this context, the changing meanings and materiality of forest, forestry and land use constitute a fundamental political process today at both national and world levels. Thus, and to address the issue of how and why meanings about forests, land and forestry are produced, reproduced and contested, I have combined two fields of study; namely, political ecology and environmental communication. By focusing on a deeper theoretical connection between political ecology and environmental communication, for analytical and explanatory purposes, this thesis will contribute to both political ecology and environmental communication research. In addition, the result of the thesis will contribute to both the academic literature and the wider understanding of the current conflicts and contradictions of forestry in Chile, Sweden and beyond.

The important terms of the thesis are those of the title. First, the thesis deals with why and how forests are at the limits in different senses, and how and why those limits are transcended and are sites of struggle. In this regard, geographical limits are represented by Chile and Sweden, communication limits are represented by the many efforts to discursively and ideologically define the hegemonic, and counter-hegemonic, terms to use forests and land today, bio-physical limits are represented by the current struggle in science and politics concerning how to deal with the different possible uses of forest and land, historical limits are represented by the ways in which forests and land use

are today mediated by an unfolding climatic crisis. The terms of a world-historical political ecology of trees, land use and climate change are used to theorize definitions of forests. Within this context, I attempt to unpack the very political structures and struggles operating in the definition of trees as forests and land use as a resource for tree plantations. Here, climate change becomes a fundamental historical conjuncture revealing the social and ecological conflictivity and contradictions associated with forest use and land use for tree planting. Finally, I consider Chile and Sweden as the case study and they are understood within the terrain of world forestry. Thus the existence of social-ecological problems concerning forest use, land use for tree plantations and forestry development constitutes the starting point from which this thesis originated. In addition, increasing current attempts to use forests and land for more objectives, which are often understood as social in nature, serves to highlight the importance of the question of contradictions of forestry as a research topic.

The main historical period established for the research covers Chile and Sweden after 1973. Yet, at some points, and for explanatory reasons, the thesis goes back further in history to find and understand some key events that until the present day interplay in the way forests and land are used and changed in Chile and Sweden. The main theoretical means of this thesis are drawn from an open historical materialist, critical theoretical, and world systems theorizing. The study is a qualitative study that takes as a starting point the material existence of flows of forest resources and land used for tree plantation as a quantitative empirical reality.

A main theoretical tenet in the thesis is that we cannot properly theorize the very possibility of historical social-ecological relations without conceptualizing labour and communication in historical terms. To build this argument, and for the purpose of theorizing the relations between labour and communication, I look at the fields of political ecology and environmental communication. I do so since I believe that a combination between these two fields of studies offers important research possibilities today. In addition, I argue that by reconstructing and actualizing research orientations in critical theory, historical materialism and world systems theory we can obtain a framework for theorizing. This allows the analysis, understanding and explanation of crucial questions concerning political ecology and environmental communication. In so doing we can open such research fields for a deeper and dialectical study and we can also think about social-ecological alternatives for the future. Within this context, the thesis offers a critical assessment of how forests and land are being used today and in the more specific case of Chile, how land use changes for the purpose of tree plantations. Within this context, two important aims of

the thesis are (a) to look at how resistance and alternatives emerge and, (b) to understand and explain the relation of climate change and forestry in this context. In so doing, the wider terms of forestry development are brought into the discussion.

A substantive aspect of the thesis is the comparative approach it takes. The comparative nature of the study implies that the construction of forests, land use and the wider relations produced in Chile and Sweden are moments of world forestry. The processes through which the incorporations of Chile and Sweden into world forestry arise are then a substantive aspect of the research. This gives the opportunity to bring the terms of an incorporated comparison into the research process. In using the terms ‘forest use’ and ‘land use’, I am implying a necessary distinction which mainly originates in the fact that tree plantations in Chile are essentially a question of land use and land use change. In addition, the contestation of tree plantations is today communicatively articulated around rejecting tree plantations as forests – as it is put in Spanish, *las plantaciones no son bosques*. Thus, this terminological option is in part a manifestation of that deep struggle concerning the meanings created around trees in Chile. As a work in conceptualization and theorizing, the thesis relates several other concepts to those basic categories of environmental communication, political ecology and forestry for the inquiry.

The main reasons to justify this academic research can be stated as follows. The recent years have witnessed new and massive waves of academic and popular interest in the relations between peoples, societies, forests, trees and forestry. Globally, a mix of environmental and social concerns have often been mediated by the awareness of conflicting objectives for forests, and wood is at the root of this renewed interest. Thus what have been conceived as the social and ecological dimensions of forestry are integrated in common fields of inquiry. Incorporating an aggregate of social and ecological concerns to the definition of a climatic crisis, climate change became without a doubt a main driver in the new attention towards and interest in forest resources. In this global situation, forests are at the centre of struggles over the meaning of biomass use and development. Within this context, there are a number of countries that are especially regarded as forest nations. This stems from their global positions in relation to forested areas and also to their economic use of wood biomass. Chile and Sweden occupy leading positions in world forestry. They have leading roles in the global market for forest products where the two are among the five largest exporters of wood pulp. In addition, large Chilean and Swedish forestry companies partake in important activities in other countries and they are defined in terms of multinational forestry companies. Besides, there exists important cooperation between companies from the two

countries including a partnership to develop forestry and pulp projects in Brazil and Uruguay. In parallel to the industrial development of large forestry companies in both countries, divergent views on forest and land use, and the role of forestry in environmental terms are present in both countries. One of my points of departure is to consider that Chile and Sweden have essentially capitalist modes of production interdependent in the world capitalist system, and so forestry is highly defined by the terms of capitalist development. In making this explicit I draw a line of separation from approaches that take for granted capitalism in the analysis of forestry development. Yet this does not imply a priori knowledge of the answers to the specific questions concerning forestry in both countries.

To work with some of the terms of environmental communication and political ecology implies certain theoretical challenges. As has been widely documented and commented, social theory in the 20th century was decisively transformed by what has become known as the communication or linguistic turn and by an increasing focus on how communication technologies and information devices have shifted numerous forms of interaction. A visible consequence of this turn is that conceptualizations of communication and discourse became an important part of influential academic research agendas all over the world. In parallel to this, the environmental question has become another overarching issue in social theory. This has partly motivated what is now known as a material turn. It would be a mistake to think that the calls for a material turn go in a direction contrary to what was known as the linguistic turn. Quite the reverse is true. Important proponents of the material turns are actually also proponents of the linguistic turn and many of their most immediate philosophical sources are in fact philosophies importantly organized around semiotics, communication and discourse.¹ Within this context, a theoretical starting point here is to see environmental communication in connection with an understanding of materiality and linguistics as deeply connected processes. In many ways my original idea about the two terms making environmental communication possible as a single term was about transcending the question of either materiality or linguistics. I argue that drawing insights from historical materialism, critical theory and world system analysis constitutes a powerful theoretical alternative with which to face our most urgent social-ecological problems. This is because in addition to explanatory possibilities, those types of theorizing allow the incorporation of critique, normativity and alternatives when researching some of the fundamental social-ecological problems we face today.

¹ For example, one can mention here the new materialist literature inspired by the work of Gilles Deleuze.

1.1 Problem formulation and aims of the thesis

The research problem motivating this thesis can be stated as follows: forest, land use and forestry development today constitute integrated parts and moments of contradictory wider social-ecological processes, and neither Chile nor Sweden have managed to escape from that problematic situation. Such contradictions are historically specific and therefore they should be researched as such. Thus this research problem emerges from the recognition of contradictions in relation to forest and land use in Chile and Sweden. Consequently the theoretical and empirical aims are to understand and explain the form, dynamics and consequences of such contradictions today. Within this context, the thesis asks about the kind of relations between forestry in Chile and Sweden and how they interplay in the conflictivity of forestry in the two countries. Linked to this, the thesis focuses on two related questions concerning forestry today: (a) the problematic relation between climate change and forestry in Chile and Sweden, and (b) the place of resistance concerning the problems of forestry in the two countries.

The overall aim of the thesis is to contribute with knowledge and critical perspectives on forestry development and land use in Chile and Sweden. Within this context, the specific aims of the thesis are as follows:

1. To theoretically and empirically bring together environmental communication and political ecology in the research on forestry. Thus, the thesis aims at (a) contributing to the growing literature in the fields of environmental communication and political ecology and (b) placing both fields together and in relation to a wider theoretical framework useful for explanatory and normative purposes.
2. To compare forest and land use in Chile and Sweden by looking at forestry interactions between the two countries with a focus on how and why there are conflicts associated with forestry in the two countries.
3. To look at why and how forestry relations are materially and communicatively made and unmade in Chile and Sweden and how and why resistance and alternatives emerge in this context.
4. To empirically explore the relations between climate change and forestry in the two countries.

1.2 Research design, research questions and theoretical standpoint

The following questions guide the thesis:

1. Why and how do forest and land use imply conflicts in Chile and Sweden?
2. What are the relations between Chile and Sweden concerning forestry in the two countries?
3. Why and how do resistance and alternatives concerning forestry emerge in Chile and Sweden?
4. Why and how does the crisis of climate change transform the meaning and materiality of forestry?

To answer those questions requires theoretical work and analysis of empirical material produced during the research process. Within this context, it is crucial to analyse what can be conceived as social-ecological relations of forests and tree plantations. In addition, attention is given to how forests and forestry in these two countries contribute to forming and are formed by world forestry. The thesis presents problems of forest use, plantation use and forestry in general and it shows how and why these are problems concerning the structuring of political ecology and environmental communication relations today. Comparison, through the methodological proposal of incorporated comparison, is seen as the substance of the research process and in addition is conceived in a critical stance to both methodological nationalism and global-centrism. The empirical reconstruction of the processes of forestry and forest use during different historical moments and, emerging from this, the problematization of the role of forestry with regard to social relations, is analysed and explained. Within this process of reconstruction and problematization of forestry, special focus is placed on different dimensions of the politics of climate change and forestry today. Empirical work used in the thesis consists of fieldwork (and particularly structural fieldwork) in study areas in Chile and Sweden, and in wider places connected to the areas; interviews; and, identification, collection and selection of written texts for analysis.

The research design that resulted from the process of thinking of how to combine empirical and theoretical work for the thesis was as follows:

1. At the beginning of the research process, time was devoted to refining research questions and to read about: (a) environmental communication, (b) forestry and pulp production in Chile and Sweden, (c) current discussions in forestry research, and (d) theoretical and empirical developments in the

wide spectrum of environmental studies, for example political ecology, social theory and the environment, ecological theory and climate change.

2. Time was allocated for thinking and taking methodological decisions and as a result:

- Geographical regions in the two countries where study areas could be defined were identified. In Chile those regions were in the south of the country where the forestry industry is concentrated. In Sweden I identified areas to the north of Uppsala as appropriate areas for research.
- The definition of study areas took into consideration a number of factors such as, for example, the existence of important forestry activities, production of wood pulp in the area, conservation projects and variation in land use. To continue defining a study area in Chile, a first visit to southern Chile was planned in 2008. In Sweden, meetings with other researchers contributed to defining the study area. During the first visit to Chile I travelled within the VIII and XIX regions of the country. This finally led me to define the Ñuble province in the VIII region as the study area for the research. In Sweden I defined the area of Gävleborg as the study area. Yet that was changed in the process of research and instead of focusing on Gävleborg, the areas of Jämtland and Västernorrland seemed more appropriate. This decision was justified by the fact that a pulp mill in that area obtained an environmental authorization to increase its pulp production capacity in 2011 (see more on this below, in the methodological section).
- Once the two study areas had been defined, I started to organize fieldwork as a way to collect empirical material and research events and processes taking place nowadays in the two countries. Interviews with relevant persons and groups and observations in the study area were the two main methods used during fieldwork. The process of defining interview persons and observations was partly thought out in advance and based on my background knowledge and partly decided by the circumstances and events during the stays in the study areas.
- Besides interviews and observations within the two study areas, interviews with individuals outside the study areas were also conducted and additional observations were carried out during different events and activities of relevance to my research.
- A process of searching and selecting written documents concerning forestry and pulp production in Chile and Sweden with the aim of working with this material through the lens of discourse analysis was included in the research design.

3. The process of defining the main theoretical premises of the research project included: (a) to theoretically explore the basis for combining political ecology and environmental communication in the research, (b) to theoretically delve into the conceptualizations of communication and discourse and to use this for a conceptual inquiry into the terms of environmental communication, (c) to establish a theoretical framework to articulate conceptual elaborations, empirical material and explanations of the processes under research. Once the research process was properly under way, more specific theoretical and empirical tasks were defined.

As an introduction to the thesis, it is good to establish certain crucial theoretical and methodological points from the very beginning. As stated earlier, a main objective of this thesis is to empirically present evidence and theorize the fundamental process of forestry in Sweden and Chile today and in doing so to also lay some grounds with regard to envisioning forestry in its world dimensions. In so doing, this thesis includes empirical work, analysis, interpretation, explanation, and critique-normativity, which seem to be integral parts of the research process. As Bernstein writes:

“In the final analysis we are not confronted with exclusive choices: either empirical theory or interpretative theory or critical theory. Rather, there is an internal dialectic in the restructuring of social and political theory. When we work through any of these moments, we discover how the others are implicated. An adequate social and political theory must be empirical, interpretative, and critical (1978, p. 235).

The apt terms of Bernstein concerning theory are suitable for use with ecological theory as well. In contributing to theorizing that can be empirical, interpretative, and critical, I explicitly add that this should also offer explanations and analysis. Thus, analysis and explanations are in this thesis one of the most important goals. In so doing I also aim to contribute to the opening of political possibilities of a historical form of critical social-ecological theory aiming at articulating in a coherent conceptual framework, analysis, explanation, critique and normativity.

The presentation above has made explicit some main points concerning the conceptual problems, the empirical questions, and the theoretical standpoint with which this thesis is concerned. The theoretical standpoint this thesis defends emerges from readings on historical materialism, critical theory, and world systems theory. I argue that such a combination can today offer a space to develop the logic of a historical theorizing of social-ecological relations and that from this we can draw fundamental insights and theoretical beginnings

with which to research forest and land use. As a contribution to attaining that aim, I will develop the following complementary argument here: a combined theorizing in the terms presented above, and understanding of the methodological dimension of dialectics and of comparisons, can provide important theoretical and methodological foundations for a critical theory of social-ecological relations. In doing so, the thesis connects to the fundamental theoretical developments of social theory in the 20th century which were formed through discussions within historical materialism, critical theory and world systems theory. As the intellectual history of critical thinking in the Latin American context shows, historical materialism has had a fundamental role in stimulating and articulating fundamental theoretical discussions. Something similar happened in Europe too, where the work of Habermas, Foucault and Giddens cannot be explained without understanding that their theoretical proposals were attempts to partially leave or reconstruct historical materialism, but in a process of discussions and of even keeping some of historical materialism's most important premises.

A note of clarification is due here: when thinking in terms of historical materialism, as a project of theorizing our contemporary situation, I explicitly prefer the term over the notion of Marxism. I argue that in theoretical terms this allows better ways to go back to Marx and follow and discuss his work for the purposes of theorizing our contemporary world. To get deeper into the historical materialist project seems to be a good starting point from which to build a rational and historical theoretical framework and so this work is done in the spirit of what we can term the unfinished project of historical materialism, critical theory and world systems theory.

1.3 Structure of the thesis

In addition to this introductory chapter 1, the thesis has the following structure: Chapter 2 offers a literature review to build the theoretical framework of the thesis and offers a framework for theorizing. Chapter 3 presents and discusses the methodology and the methods used in the research process. Chapter 4 empirically focuses and analyses forest and land use in Chile, while Chapter 5 does the same with regard to Sweden. Chapter 6 deals with forestry relations between Chile and Sweden. Chapter 7 then presents a discussion and analysis along with the key findings of the study and Chapter 8 is the concluding chapter in which answers to the research questions are presented and the main contributions of the thesis are summarized.

Appendices I and II reproduce two articles published during the course of the thesis work. First one titled *Capital Accumulation, Climate Change, and Crises*

in Chile and Sweden, appeared as Chapter 16 in *Ecology and Power. Struggles over Land and Material Resources in the Past, Present and Future*, edited by Alf Hornborg, Brett Clark and Kenneth Hermele, Routledge, 2012. The second is titled *Forest research from a critical perspective – How can it contribute to new knowledge?* Co-authored with Hans Peter Hansen and published in *Scandinavian Journal of Forest Research*, Vol. 27:2, pp. 108-119 (2012). These articles are reproduced with the permission of the publishers.

Appendix III gives a detailed view of the empirical material. A note on quotations and layout: the thesis is presented by following the instructions for Doctoral Thesis presentations within the Swedish University of Agricultural Sciences. Quotes are sometimes inserted in the body text and other times they are presented in separate paragraphs. When interviews and observations are referred to, the following system is used: (a) for interviews, these are coded as INT-COUNTRY-NUMBER (Chile and Sweden are indicated as C and S) and the number refers to the list of interviews provided in Appendix III, (b) for observations, those are coded as OBS-COUNTRY-NUMBER (Chile and Sweden are indicated as C and S) and the number refers to the list of observations provided in Appendix III.

Appendix IV provides the guide used for interviews and field questions.

2 Literature review and framework for theorizing

2.1 Introduction

This chapter offers literature reviews to introduce the theoretical and empirical focuses for this research. Thus, relevant literature on forestry with an emphasis on the relations between climate change and forestry will be offered first. Then I move on to reviewing the salient literature on political ecology and environmental communication. These reviews will be used to formulate the theoretical framework of this thesis. The framework is built by bringing a number of conceptualizations within the perspectives of critical theory, historical materialism and world systems theory. Thus the chapter presents and discusses some of the basic concepts used in the thesis. In this regard, other important concepts will be brought into the discussion in the analysis of the empirical material. For example, the concept of resistance is not developed in the theoretical discussion below and will be brought into the discussion as part of the analysis of the case and the empirical material. Having made the clarifications above, this chapter develops the thesis' theoretical framework and in so doing it deals with some basic concepts for the thesis. Within this context, I elaborate on the conceptualization of environmental communication and political ecology and place them into the wider context of a theorizing of conflicts and contradictions.

2.2 Literature reviews: forestry, political ecology and environmental communication

2.2.1 From forests and land use to forestry and climate change

As in the past, wood is today used as raw material, an instrument of production, and in many parts of the world trees and forests are understood under the premises of rights and places for human livelihood or as places defining rural as opposed to urban areas. That we see forests and wood today as just one more of our materials and sources of energy can be contrasted with past periods where wood had a determining role in peoples' lives. Fernand Braudel once wrote, "*Civilizations that existed before the 18th century were civilizations of wood and charcoal*" (1973, p. 266) and in a similar vein, Werner Sombart used the expression "*wooden-age*" to distinguish the pre-industrial and the industrial era (Warde, 2006, p. 6). Wrigley in turn describes economies prior to the industrial revolution as organic economies where photosynthesis in plants was a dominant source of energy. This is in contrast to posterior economies where inorganic sources of raw materials and energy became dominant sources (1962, 1993). At the symbolic level, forests and wood have been major objects in the development of different cultures and the process of attributing significance to forests and wood can be observed in major philosophical and artistic documents (Harrison, 1992). Thus the extended presence and use of wood and forests in past periods of time can be noticed in how key philosophers referred to forests and wood in their philosophical works. We can take as an example here the case of Adam Smith's *The Theory of Moral Sentiments* from 1759, where before elaborating on the existence of an invisible hand, Smith stated:

"The pleasures of wealth and greatness, when considered in this complex view, strike the imagination as something grand and beautiful and noble, of which the attainment is well worth all the toil and anxiety which we are so apt to bestow upon it. And it is well that nature imposes upon us in this manner. It is this deception which rouses and keeps in continual motion the industry of mankind. It is this which first prompted them to cultivate the ground, to build houses, to found cities and commonwealths, and to invent and improve all the sciences and arts, which ennoble and embellish human life; **which have entirely changed the whole face of the globe, have turned the rude forests of nature into agreeable and fertile plains**, and made the trackless and barren ocean a new fund of subsistence, and the great high road of communication to the different nations of the earth" (2010, pp. 183-184, emphasis added).

Adam Smith's engagement with forests and his economic theory led him to the appraisal of deforestation (Albritton Jonsson, 2013) and his ideas had fundamental consequences for forest legislation during the end of the eighteenth and the beginning of the nineteenth century. As A. Howard Grøn noted in 1947 in an issue of *Unasylva* during the first year of the journal's publication,

“Up to about 1800 the French forest ordinance of 1669 served as a model of forestry legislation for a number of European countries. Then, under the influence of Adam Smith's economic theories, forestry legislation was repealed in most countries. This happened as early as 1791 in France, 1795 in Norway, 1805 in Finland, 1811 in Prussia, and 1828 in Sweden. Furthermore, vast areas of state forests were put up for sale” (Gron, 1947)

What we see in Smith is something that was present at the very beginning of the social constitution of groups of trees as forests. Forests, as a definition, were a definition of spaces produced in ecosystems and what humans could do in such spaces. A crucial moment in the definition of forests happened almost exactly 1,000 years ago when in the middle of social conflicts concerning the trees of England, the Danish King Canute established and regulated by law the definition of a forest and how and who could use a forest. Thus, in John Manwood's 1592 *Treatise of the Laws of the Forest*, one can read that:

“A forest is a certain territory of woody grounds and fruitful pastures, privileged for wild beasts and fowls of forest, chase, and warren, to rest and abide there in the safe protection of the king, for his delight and pleasure ... For the preservation and continuance of which said place, together with the vert and venison, there are particular officers, laws, and privileges belonging to the same, requisite for that purpose, and proper only to a forest, and to no other place” (Harris, 2009, p. 72) .

Manwood's text, as other written texts from his time, was explicitly framed in terms of a discourse: *A Treatise and Discourse of the Lawes of the Forrest*. The legal work of definition, the multiple and historical meanings of discourse and the political arrangement of agency and material ecological resources constitute here a specific place denominated forest. This legal dimension of forest is something not only pertaining to England. In Germany, for example, the term forest has a strong legal connotation (Warde, 2006). For this discussion, the case of Germany is also important since the fundamental role of wood in the development of views on society motivated an effort to manage the forests in ways other than simply accessing them and making use of them

for production. The very term 'sustainability' was first associated with practices originating in forestry. Yet we have a different account for this concerning the real effects such practices caused (See: Radkau, 2011; Warde, 2013 and Wiersum, 1995, for different accounts on this).

What is important to highlight here is that the very attempt to bring definitions and regulations to the use of forests has often been a conflictive political process in both pre-modern and modern Europe. We can get a deeper view of the inseparable connection between forest use and political processes by analysing the material and historical dimensions of the Magna Carta. As demonstrated by Peter Linebaugh (2008), the Magna Carta cannot be understood without the charter on the liberties on the forests and the struggle for defending and creating the commons it implied. The analysis of the Magna Carta provided by Linebaugh shows how collectives of people struggled to define the terms of the regulation on forests and it shows how the figure of the peasants as political subjects was decisive in that political arrangement of what we can label in terms of a pre-modern political ecology. The particularly important place of peasants or peasantries in forest conflicts shows this. There is ample evidence that the relationship between control and access to the forest and the struggles of peasants has been a key factor in different historical events concerning forests and land use. Within the unfolding of the European revolutions of 1848, for example, forest conflicts were shaped by the rise of peasantries demanding control over forests, and this took place in various countries in central Europe. Yet, forest conflicts were in the 19th century a world-wide phenomenon in countries with forest resources. The work of Eliasson on Sweden (2002), and Miller Klubock on Chile (2014) show that a pattern in those conflicts was the attempts of central powers to control the provision of forest resources and land use in the countryside. Thus a clear phenomenon of internal differentiation within nation states concerning the definition of uses of wood and land can be discerned as taking place through forests and control of lands.

In modern times, conflictivity around and in forests has persisted. The political aspects of forest use and the definitions of forests along with the inherently conflictive nature of forestry have in many cases become entangled in power relations and struggles between groups and classes. This has been studied by Peluso with a focus on Indonesia (1992), Guha on India (2000), Braum on British Columbia (2002) and Prudham (2005) on the North American Pacific Northwest. Common processes revealed by these studies are, among others, the following: (a) a clear relationship between power and the formation of forestry and silvicultural practices, (b) the central role of class relations in the definition of the terms of forests and forestry, and (c) the

historical trajectories of forest and land use change motivated in forestry development. Within the field of environmental history such topics have also been addressed and emphasis has been placed on how forestry and technological development associated with forestry is one of the crucial processes enabling what is known as global environmental change. Within this context, the work of Cronon (1991) and Merchant (1989) show how environmental changes associated with the access and use of forests have been essentially a process of articulating labour processes for the purposes of economic development through forestry and forestry technological development. For example, as McNeill consistently shows, the introduction of saw machines became a major force in changing the surface of the earth. In his account:

“Between 1950 and 1955, chainsaws revolutionized logging and pulping in North America. In eastern Canada, for example, bucksaws and axes still cut all pulpwood in 1950. By 1955, chainsaws accounted for half the total, and by 1958 all of it. Lumber and pulpwood firms had to mechanize by the 1950s, because farms had mechanized and there was no longer an available army of seasonal labor (and horses). Soon far bigger machines that looked like "giant insects from another planet" and could snip trees off at the base, took over the lumber and pulpwood business in North America. The age of the lumberjack, a distinctive figure in the cultural landscape of North America, closed.

Elsewhere the chainsaw remained cutting-edge technology. It allowed men to cut trees 100 or 1,000 times faster than with axes. Without the chainsaw, the great clearance of tropical forests [...] would either not have happened, have happened much more slowly, or have required 100 or 1,000 times as many laborers” (2000, pp. 307-308).

The previous schematic account of certain crucial historical and terminological processes associated with forest resources shows how forests are a matter of political definitions, the global scope of patterns of forestry conflicts and the overarching role of technological development in the current patterns of forestry development.

Today, and in a world where the use and flow of resources take place in an uneven and differentiated form and where persistent ideas of economic growth and development define terms of global policy, a terminological difference has been established regarding the way people in different countries use forest resources. That differentiation locates some areas in terms of modern biomass use and traditional biomass use (Elias and Victor, 2005; Goldemberg and Teixeira, 2004). What is interesting here is that a classic conceptualization within social theory (see Weber, 1978 [1925]) is replicated here in the very

context of dealing with a crucial question of sustainability and discursively establishing certain patterns of development for the whole world. Under these circumstances, the use of forests and of land for forestry purposes takes place in a historical context where international trade of forest products is truly global, as is depicted in the illustration below.

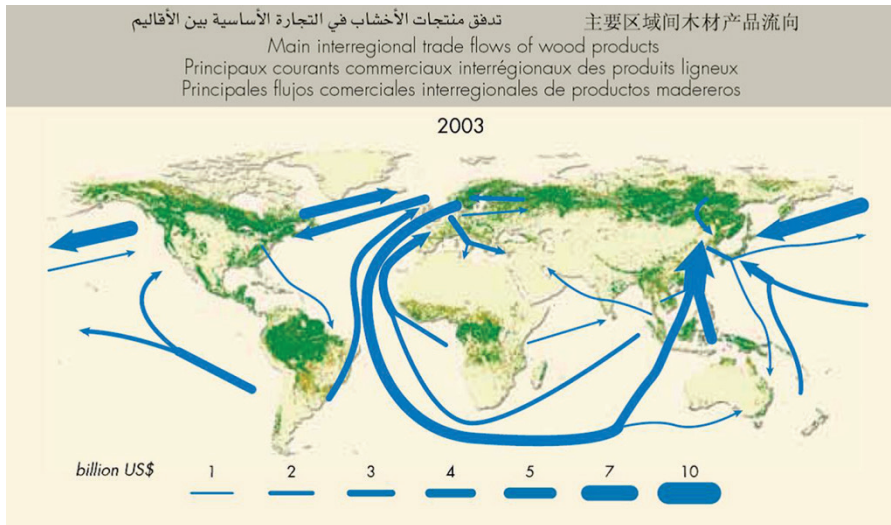


Figure 1. Global trade of forest products in 2003 (FAO, 2005).

Elsewhere I have argued that a specific new condition for conflicts with forestry development today is based on contradictions emerging from climate change politics and patterns of use of biomass energy as a replacement for fossil fuels (Alarcón 2012). Thus, when it comes to climate change and energy transitions, forest resources are in a contradictory position. These contradictions are as follows: First, forests play a definitive role in the carbon cycle yet they are also part of an industrial carbon cycle which implies changes in the net carbon sequestration attributed to forest resources. And, second, while deforestation and forestry are main sources of greenhouse gas emissions, forests and trees can also potentially sequester carbon and they are also sources of energy. Consequently, a double role for forests becomes apparent in climate change politics where the use of forests and wood is seen as a problem and as a part of the possible solution to climate change. Yet, both roles of forests are crossed by the wider dimensions of climate change and also other possible uses of woody biomass and land. Thus any assessment of forests in isolation from the wider process of climate change and energy shifts is inherently unstable. The conflictive nature of this process was indirectly recognized by the International Panel on Climate Change (henceforth IPCC) report of 2007,

where in two statements crucial terms of the contemporary discussion on forests were put forward. The IPCC's report from 2007 stated:

“the long term, a sustainable forest management strategy aimed at maintaining or increasing forest carbon stocks, while producing an annual yield of timber, fibre, or energy from the forest, will generate the largest sustained mitigation benefit” (IPCC 2007, p. 543).

However, the report also states that:

“The longer term mitigation prospects (beyond 2030) within the forestry sector will be influenced by the interrelationship of a complex set of environmental, socio-economic and political factors” (ibid, p. 577).

What in the wording of the IPCC is a complex set of environmental, socio-economic and political factors can be theorized in terms of conflicts and contradictions of forestry. The terms of the IPCC assessment are linked to the terms of the Stern review on the economics of climate change from 2006 which conceived forests and trees in Reducing Emissions from Deforestation and Forest Degradation (henceforth REDD) schemes as one of the cheapest ways of facing climate change (Stern Report 2006, pp. 537-551). This assessment resonated in the British government sponsored Eliasch review (2008), which supported the Stern review's assumption, estimating that “*the finance required to halve emissions from the forest sector to 2030 could be around \$17-33 billion per year if included in global carbon trading*” (p. 19). The Stern review was however rapidly criticized from different angles. One critique noted that Stern's assessment of reasonable limits for GHG concentrations was significantly higher than estimates from climate science. Another critique noted that although the review considered climate change as the “*market's greatest failure ever*”, Stern's proposals nonetheless rely on market mechanisms. I highlight a further critique here: Stern's assumption about the cost of REDD initiatives was inherently transient and depended on forces acting at the global political economical level, forces that within a capitalist global economy can change cost variables from one day to another. Grieg-Gran's update of the Stern Review in 2008 showed this problem when noting that the original report's estimates failed to account for market complexities and it stated that “[c]osts in a more realistic scenario which takes account of legal, practical and market restrictions on logging are somewhat less at US\$6.5 billion per year. These estimates are roughly US\$ 1.5 billion higher than the corresponding estimates presented in the original report” (Grieg-Gran, 2008, p. 11).

It would not be an exaggeration to sustain that the assessments on forestry in the IPCC and the different reports in line with Stern's review were crucial moments in the unfolding of a new way of conceiving forests in recent times. Thus, this new global dimension of forestry and forest resources has been widely recognized by scholarly literature, the literature of international organs, NGOs and others. Within this context, one of the topics that became rapidly evident was the existence of what was termed as conflicting objectives for forestry. In a period coinciding with the Stern review and the IPCC report, abundant literature highlighted the issue of conflicting objectives for forestry in the context of climate change. In 2007, Ogden and Innes published a comprehensive study presenting and reviewing literature that showed that aspects of climate change, forestry and forest management were converging. The paper showed that forests and forest management were expected to fulfil objectives such as conservation of biological diversity, maintenance of the productive capacity of forest ecosystems, maintenance of forest ecosystem health and vitality, conservation and maintenance of soil and water resources, maintenance of forest contribution to global carbon cycles and maintenance and enhancement of long-term multiple socioeconomic benefits (Ogden and Innes, 2007, pp. 715-722). Within this context, one can note that the attribution of such objectives to forests has important consequences for forest management and those have consequences embracing both strategic and operative levels of forestry. Therefore, a greater number of decisions can be made in order to fulfil and prioritize objectives for forestry within the context of climate change. Within this context, and based on an empirical study, the authors argued that there was a diversity of opinions rather than a consensus between forest managers and practitioners in relation to how to carry out principles of sustainable forest management: *"Some of the practitioners involved in this study preferred adaptation options that adapted social and economic systems to ecological change while others preferred adapting ecosystems to meet social and economic needs. Some had a preference for adaptation options that facilitate 'natural' ecosystem responses to climate change while others advocated options that are akin to engineering resistance to ecological change, some favoured an active approach to adaptation while others favoured more passive approaches"* (Ogden and Innes, 2007, p. 727).

In Sweden, Eriksson (2006) studied and analyzed the relation between different objectives and forest management in the context of forestry aimed at reducing net CO₂ emissions. Those objectives and their consequences for forest management were presented as follows:

- “...maximizing carbon storage in the forest may favour biodiversity and some social activities (e.g. recreation), but would have a negative influence on timber and pulp wood production. In contrast, maximizing the substitution effect could favour timber production, but may have a negative impact on biodiversity”
- “There is a conflict between maximizing carbon storage and substitution of fossil fuel since storing carbon requires large standing biomass while replacement of fossil fuel requires high growth rates. In a long-term perspective substitution of fossil fuel might be the best option since the biomass could replace large amounts of fossil fuel each year. Furthermore, the carbon stock in biomass is vulnerable since it could be destroyed. However, storing carbon in biomass is important to some extent since global deforestation is considered to have been responsible for a quarter of the anthropogenic emissions of CO₂ in the past 20 years (IPCC, 2001)
- “...shorter rotation period is favourable if the objective is to maximize replacement of fossil fuel [...]. However, Liski *et al.* (2001) reported that long rotations seem to be preferable, even if the revenues for forest owners decline, since they result in the largest reductions in net emissions of fossil CO₂ and use of primary energy”
- “...wood products have greater potential to reduce atmospheric CO₂ levels than biofuel, since the material that wood can replace requires a large amount of fossil energy to produce. Furthermore, replacement of energy-intensive material seems to have higher potential to reduce CO₂ emissions than sequestration of carbon in biomass and soil. These findings indicate that active forest management has the largest potential to reduce CO₂ emissions and that managing the forest for carbon sequestration has the lowest potential, especially when the forests have reached steady-state and only act as a carbon store. Then, the carbon stock is vulnerable since fire, insects, fungi, etc. could release the stored carbon. Intensive management practices, like shorter rotations [...] and fertilization [...] resulted in higher production rates of biomass that could replace other materials and fossil fuels...”
- “If the objective is to promote large carbon stocks, the forest should not be thinned [...] and the rotations should be long [...] but if the objective is to maximize the substitution potential, the forests should be managed more intensively than they are today” (Eriksson, 2006)

Bergkvist *et al.* (2008) focused on how alternative uses of timber and wood products can reduce important amounts of CO₂ and highlighted that both the use of wood for construction and bioenergy are the best uses to be given to tree biomass. In this context, FAO Forestry paper N. 154, entitled “Forest and

Energy. Key Issues”, (FAO, 2008) set out a series of topics concerning both the possibilities of producing bioenergy from tree biomass and its consequences in both social and environmental terms. One of the most relevant issues was given by the possible consequences of forest-based bioenergy for food production and biodiversity. This is shown in the box reproduced below:

Potential benefits and negative effects of bioenergy development	
<p>Potential benefits</p> <ul style="list-style-type: none"> • Diversification of agricultural output • Stimulation of rural economic development and contribution to poverty reduction • Increase in food prices and higher income for farmers • Development of infrastructure and employment in rural areas • Lower greenhouse gas emissions • Increased investment in land rehabilitation • New revenues generated from the use of wood and agricultural residues, and from carbon credits • Reduction in energy dependence and diversification of domestic energy supply, especially in rural areas • Access to affordable and clean energy for small and medium-sized rural enterprises 	<p>Potential negative impacts</p> <ul style="list-style-type: none"> • Reduced local food availability if energy crop plantations replace subsistence farmland • Increased food prices for consumers • Demand for land for energy crops may increase deforestation, reduce biodiversity and increase greenhouse gas emissions • Increased number of pollutants • Modifications to requirements for vehicles and fuel infrastructures • Higher fuel production costs • Increased wood removals leading to the degradation of forest ecosystems • Displacement of small farmers and concentration of land tenure and incomes • Reduced soil quality and fertility from intensive cultivation of bioenergy crops • Distortion of subsidies on other sectors and creation of inequities across countries

Box 1. Potential benefits and negative effects of bioenergy development (FAO, 2008, p. 38).

Brännlund and Kriström (2008) started by noting that forests are limited resources that must stretch to more and more applications and they drew attention to the direct correlations between using more forest for one purpose and the consequences of such use over other purposes. This should imply a reduction in available raw forest material. Besides, they note that there are forest values that are either not valued or undervalued, for example, forest as a place for recreation. They relate this issue to an economic rationale where *“If we want greater economic or material benefits from the forest, it is not quite so simple for us to have a great wealth of species or pleasant forests for recreation- and vice versa”* (Brännlund and Kriström, 2008, p. 331). As previously mentioned, the IPCC from 2007 became a key point in highlighting the role of the forest sector in contributing to climate change mitigation. Thus

processes of maintaining or increasing forest area, maintaining or increasing stand-level carbon density, maintaining or increasing landscape-level carbon density and increasing off-site carbon stocks in wood products and enhancing product fuel substitution were put in the perspective of global climate change politics. The chapter about forestry in the IPCC report of 2007 concludes as follows:

“Developing the optimum regional strategies for climate change mitigation involving forests will require complex analyses of the trade-offs (synergies and competition) in land-use between forestry and other land uses, the trade-offs between forest conservation for carbon storage and other environmental services such as biodiversity and watershed conservation and sustainable forest harvesting to provide society with carbon-containing fibre, timber and bioenergy resources, and the trade-offs among utilization strategies of harvested wood products aimed at maximizing storage in long-lived products, recycling, and use for bio-energy” (Nabuurs *et al.*, 2007, pp. 578-579).

Sustaining such conclusions, there was a consideration on possible options for forestry assessed in the report. Three issues are illustrative of such options. First, from an environmental point of view, both afforestation and reforestation together with bio-energy production from forestry can imply both positive and negative consequences. Second, such a possibility implicating both positive and negative consequences of afforestation and reforestation and bio-energy production from forestry can be observed from a social and economic perspective. Third, substitution of fossil intensive products by wood products can imply negative consequences from an environmental point of view while it is observed that it can imply positive consequences from an economic point of view (op. cit., 575).

The terms of the chapter on Forestry within the IPCC report were amply referred to during the International conference on Adaptation of Forests and Forest Management to Changing Climate with Emphasis on Forest Health, held in Umeå, Sweden in August 2008 (Personal observation-UMEÅ-2008). The conference in many ways prepared the terrain for the World Forestry Congress in Buenos Aires, Argentina in 2009. What is important to highlight here is that the terms of the IPCC were often unmediatedly linked to policy options. Thus the precautionary words about the dependency of the relation between forestry and climate change adaptation were not always positioned at the central place of analysis where the assumptions of good new possibilities for forestry predominated in the views of important actors within forestry (Personal observation-ARGENTINA-2009).

Concerning another aspect related to forestry, the IPCC report on Climate Change and Water (Bates *et al.*, 2008) also highlighted topics concerning forestry issues. One such issue was the relation between water use and bio-energy production. So, the report states that in relation to bio-energy from forestry, “[...] *insight is required into the water demand, and its consequences, of large-scale plantations of commercial bio-energy crops*” (Bates *et al.*, 2008, p. 136). In this regard, Noss (2001) and Hall (2000) pointed out the tendency to prefer carbon storage through using plantations rather than using native forest. Noss noted that biodiversity was missing from the Kyoto protocol and he stressed that the protocol could become a perverse incentive to replace native forests by plantations. In contrast to that outcome, he argued for a sustainable management of native forest instead of a “*conversion of primary forests to rapidly growing plantations in an attempt to sequester as much carbon from the atmosphere as possible*”, which, he continued, “*will do more harm than good*” (Noss, 2001:586). In a similar vein, Hall argued that native forests in New Zealand will be better options for carbon storage since they have among other characteristics “*...substantial potential longevity; some tolerate wet, cold, or low-fertility environments...*” (Hall 2001, p. 1623).

Winjun *et al.* (1996) compared 8 countries by using data from FAO and they highlighted the existence of forest products with long term uses (5 years or more for the authors) and wood products with short-term uses (less than 5 years for the authors). The former products imply a longer period of CO₂ uptake since this CO₂ is kept within those products during the period they are used as wood products. To consider both kinds of wood product has consequences for the evaluation of net C uptake. For example, they estimate that in their case study, 252 TgC representing 74% of the net consumption of wood commodities went into uses that had a life of 5 years or greater and 94 TgC into short-term use products.

In 2005, The Millennium Ecosystem Assessment (henceforth MEA, 2005, p. 608) offered a tentative approach to a situation in which some of the different objectives for forestry presented above are related to different actors within forest-related activities. Importantly, the MEA’s contextual approach focused on different evaluations that different actors had in relation to the importance of trees and forests. Firstly, the MEA noted a deep differentiation of interests between companies and local communities where companies were highly focused on timber and pulp production while local communities showed more interest in fuel, freshwater, non-wood forest products (Henceforth NWFP) and amenities. Secondly, carbon storage was only moderately important as a service at the level of local communities and industries, but even so, local communities had a greater interest in the issue than timber traders.

Thirdly, biodiversity was moderately important for local communities but this was not a value present in relation to either industry or timber traders. Finally, NWFPs were very important for local communities while being less important for other national actors.

As pressures over the use of forest biomass increased (FAO, 2008), different objectives for forest production became conflicting objectives. These conflicting objectives, when conceived in relation to trees and forest management practices, reveal another key issue in forestry today: there are different points at which decisions about forests and trees are made and those have consequences in relation to such conflicting objectives. Joyce (2007) highlights the relevance of different forest management practices in relation to the objectives of forest production in different climate change scenarios. In this regard the focus is on management intensity levels associated with land ownership behaviour and how this combined factor could lead to the following outcomes: *“Intensively managed lands such as plantations are more likely to be associated with management to maximize the present value of timber net income and to plant species that are adapted to the new climate. Less-intensively managed lands are assumed to rely on natural succession for regeneration, and under the climate change scenario, this option results in a longer time for species adapted to the new climate to regenerate the site”* (Joyce, 2007, p. 472). Also using climate scenarios, Perez-Garcia *et al.* (2002) suggested that the *“net effect of a warmer climate on global wood markets is a greater supply of wood fiber, lower prices and greater consumption of good products”* (Perez-Garcia *et al.*, 2002, p. 457). Reviewing other scenario-based studies about possible consequences of climate change in the US forest sector, Irland *et al.* (2001) highlighted that an overall forecast shows a situation in which *“consumers and mill owners would gain welfare (profits for mill owners) during climate change, while landowners would lose welfare”* (Irland *et al.*, 2001, p. 754).

Due to the existence of limited quantities of available forest biomass, such conflicting objectives imply direct consequences on the production of certain products. As one driving force for such production is profitability, a case where higher consumption of inputs necessary for producing those products that are more profitable was observed. For example, demands from the energy sector could move raw forest material to the energy market while reducing the availability of other forest products (FAO, 2008; Roberts, 2008). Intensive use of forests aimed at carbon storage could lead to a sharp increase in fertilizer usage, which is proposed by some researchers as a means to face increasing forest productivity (Linder *et al.*, 2008). However, market prices of for example pulp and paper and bio-energy could lead to attempts at maintaining

supplies for all the possible demand of such products, putting pressure on non-forested land to be converted into tree plantations to meet the needs of pulp production and bio-energy. Another aspect here was linked to what Schlamadinger and Marland (1996) pointed out as follows:

For carbon stored in trees and wood products we have no difficulty conceptualizing the amount of carbon which has been withheld from the atmosphere. When wood products are used to avoid the use of fossil energy by providing energy or by reducing the energy demand to make products, the net impact on greenhouse gas emissions is less obvious although it is clear that, to the extent fossil fuel burning is avoided, CO₂ is withheld from the atmosphere with equal effect” (Schlamadinger and Marland, 1996, p. 276).

Finally, it is noticeable that the emergent issue of energy supply was already in 2008 producing some trends and changes in forest use. FAO’s paper “Forest and Energy. Key Issues” (FAO, 2008) described an ongoing process which according to FAO could transform the forest sector dramatically. This was also stated by market analysts. For example, PricewaterhouseCooper’s report *Branching out, Global deal activity in the forest, paper & packaging industry* published in 2008 (Suckling *et al.*, 2008) noted that “*some pulp and panel producers in Central Europe have faced direct competition for the same fibre*”. In this case, competition was considered in terms of the impacts of bio-energy production and the consequent demand for raw forest materials.

Once the existence of such conflicting objectives for forest production has been stated, a number of issues emerge and they imply challenges both at the theoretical and practical level. Such issues span a set of conceptual definitions involving and aiming at the use of tree biomass that despite being renewable resources are based on a physically limited and temporal reality. The many questions arising from the efforts to establish a clear connection between forestry, forest management and climate change became importantly mediated by the term ‘adaptive forest management’. Adaptive forestry management has been explicitly linked to the wider process of communication about what adaptive forest management should be. In a recent special issue on forest management and climate change in the journal *Forest Ecology and Management*, the editors concluded as follows:

“It is our hope that this special issue will generate strong awareness and more intensive research on the use of adaptive forest management to mitigate climate change impacts, and that it will promote effective international communication, collaboration, and cooperation in this field. This will then contribute to a better

understanding of the role of forest management in climate change mitigation and adaptation” (Liu *et al.*, 2013, p. 2).

Within this context, abundant studies and literature on the problem of deforestation, which is a major concern and problem in the world today, became entangled with plantations as a mitigation option to face climate change. Thus, the role of tree plantations and forests again became a major locus of struggles on what is often referred to under the terms of different values for forest and land. In parallel with the problem of deforestation, the problem of forestation or reforestation through monoculture tree plantations of exotic species became major problems identified in the literature (Böhm and Brei, 2008; Kröger 2012). In addition, it has been noted that conflicts concerning loss of biodiversity, preservation and indigenous peoples’ rights in countries where deforestation is not a problem have followed industrial forestry (Lisberg Jensen, 2002; Beland Lindahl, 2008).

The process of tree plantations, the object of an early and notable study by Carrere and Lohmann, became part of the politics of climate change through the important focus on forestry as a response to climate change we have noted above. It is here that the question of plantations obtains new meanings. Yet, and now in an expanded context, Carrere and Lohmann’s observation from 1996 seems to be very pertinent today:

“Planting a tree, whether native or exotic, is in itself neither a positive nor a negative process. It is the social and geographical structures within which that tree is planted which make it one or the other” (Carrere and Lohmann, 1996, p. 5).

In turn the question of biodiversity loss in countries where neither large monocultures of exotic species nor deforestation are present is usually related to forestry practices. Such a problem can be found in countries with important resources for achieving conservation standards (Prakash, 2010, p. 11). The question of how to use forests and tree plantations in the context of climate change and global sustainability problems raises important questions about what forests are today.

At the centre of this question concerning forest use and use for tree plantations is the term ‘forestry’. Today, forestry is certainly a body of knowledge in which fundamental claims about what to do with forests and how to do it are played out. Perry, by quoting Baker (1950), offers a conventional definition where forestry is conceived as “*the scientific management of forests for the continuous production of goods and services*” (1998). In recent times forestry has been often qualified. For example, the concepts of social forestry and new forestry aim at bringing social and ecosystem dimensions into the

concept of forestry. On the other hand, forestry is the object of specific disciplines in economics. In this case, the terms of forestry are translated into terms of economic thinking which are in the main part terms of neo-classical economics. Today, as in the past, ideas on forestry circulate through different means and across different geographical scales and forestry development can be considered a worldwide phenomenon. Within this context, the historical trajectories of knowledge on forest and land use, and the politicization of their use through activities beyond national borders, can be summarized by the term 'world forestry'. As we will see below, this term helps us to understand that forestry in Sweden and Chile cannot be separated from the wider historical formation of patterns of forestry and forest use.

World forestry has been widely used within the FAO system and its conceptual history owes very much to Jack Westoby, who put forward ideas of development and forestry in a series of articles published within FAO's *Unasylva*. Westoby's approach to forestry originated what became known as the Westobian paradigm. Westoby was one of the most important persons within the FAO system for forestry during the 1960s and 1970s and 'World Forestry' was the title of one of his books. One can of course assess his approach from an ecological point of view and find all the mistakes one finds in the projects of capitalist forestry worldwide. Yet one can examine the social inspiration of Westoby apart from that. In his texts, Westoby shows a refined historical knowledge about peasant resistances and how wood and forests were the loci of their struggles, and he actually wrote about classes in relations and forestry and referred to Marx's analysis of the theft of wood as well as having as one of his only 34 references in a book of 200 hundred or so pages the classic book "The Class Struggle in the Ancient Greek" by G. E. M. de Ste. Croix. Yet he was a person of his time and saw in forestry a way to contribute to people's lives through the process of forestry development. His overarching influence within FAO, which one can see in the number of references following his intervention of forestry and development in *Unasylva*, gave rise to what two contemporary authors termed the Westobian paradigm in forestry (Palo and Lehto, 2012). For these authors,

"Westoby (1962) specified the multiplier effects of forward and backward linkages of forest industries higher than an average among all the industries. Therefore, expansion in forest industries could propel economic development. No deforestation risk was mentioned by him although expansion of industrial logging was a part of his construct. Also fuelwood was excluded from his thesis. Westoby's paradigm was well received and FAO followed it for a couple of decades in its forest policies" (2012, p. 353).

Westoby's ideas were in fact implemented in different countries. Yet, when Unasylva celebrated its 60th anniversary in 2007, none of Westoby's texts were selected for the commemoration. One can easily read this not only as the defeat of the Westobian paradigm in forestry but also as a way to understand forestry in a developmental manner. However, and recalling one of the different meanings of paradigms given by Kuhn to the term, it would be wrong to think that the whole paradigm of world forestry have simply been erased. In fact, substantial aspects of the forestry developmental project remained within forestry and though in recent times the terms of development have been fundamentally re-signified, what clearly remains is the persistent idea of world forestry. Within this context, it is useful to highlight what Vandergeest and Peluso (2006) noted concerning some other moments in the development of forestry projects, and how the

“Food and Agriculture Organization [FAO] organised what was in effect a new global network of professional foresters who practised/implemented state forestry, thus constituting a new ‘empire of forestry’. This new empire, more than the previous ones, was organised around a single model for legitimising professional forestry as a development enterprise based on state accumulation” (2006, p. 32).

The rise and fall of the Westobian paradigm shows important things about forestry development and the wider concern of this thesis: (a) during the 20th century, forestry development has been an area of important ideological struggle, (b) models of forestry development have followed wider patterns of development and discourses on development, (c) one can observe that today a new struggle over the meaning of forestry development is radically determined by the emergence of climate change and its signification through communication and the different meanings attributed to the more specific relation between forestry and climate change, and (d) there is a fundamental relation between forestry development and the wider context where forestry operates, such as for example, labour relations.

Within this context, Chile and Sweden are characterized by the important role of forestry activities within the patterns of economic growth in both countries. Both countries are often touted as examples of forestry development. One of the main forest products circulating in the international markets today is wood pulp. As the graphics below show, more than 60% of the total exported wood pulp is produced in only 5 countries, and Chile and Sweden are among those 5 countries.

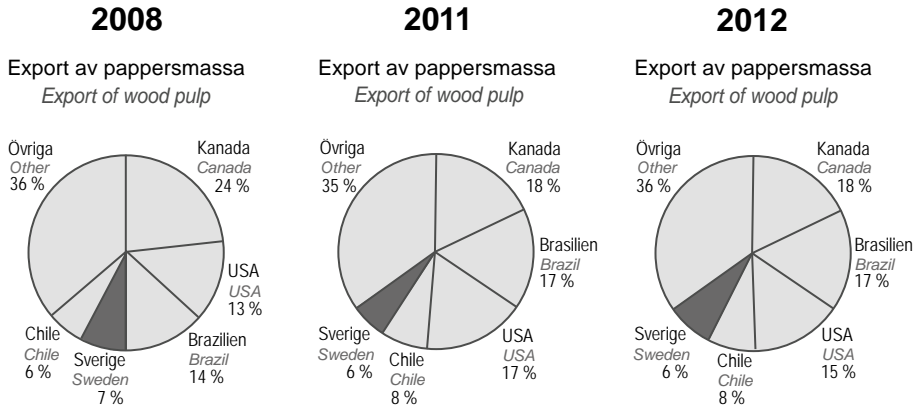


Figure 2. Global exports of wood pulp (Swedish forestry statistics, Skogsstyrelsen, 2010, 2013, 2014)

The change of position between Chile and Sweden between 2008 and 2011 along with the increased role of Brazil in the global export of wood pulp signalled again one of the crucial shifts in the wood pulp trade regime: the increasing role of countries in the South as points of production and thus of export of wood pulp. However, we need to observe that an important part of the wood pulp produced in Brazil is produced at pulp mills owned by Chilean and Swedish companies. Within this context, two Chilean companies and five Swedish companies were in 2010 among the top 100 companies listed by Pulp & Paper International, a leading magazine for the global forest sector. Wood pulp is a key manufacturing sub-sector in the global forest sector and it is a major consumer of wood and energy. In addition, it is one of the technologically most developed activities concerning forest resources and one of the most capital intensive activities in the world. For Chile and Sweden to be leading exporters of wood pulp, massive inputs of wood are needed. Thus the dynamics of forestry associated with pulp production are a key process in making the positions of both Sweden and Chile in the world market possible.

Linked to such global dimensions of Chilean and Swedish forestry trade and companies, Chilean and Swedish forestry companies have operations in several other countries and in some cases those operations are developed through partnerships between Chilean and Swedish companies. For example, a Chilean and a Swedish company have joint projects in Uruguay and Brazil. In important ways, forestry in Chile and Sweden represent models of emergent and old forestry sectors respectively. However, overall disparities in living conditions and levels of technological development mark important differences between the two countries. There are also differences concerning the fact that in Sweden, forestry depends on the growth and re-planting of mainly tree

species considered as native species. Though those re-plantations are the basis of forest stocks in Sweden, forestry development in Sweden has led to the plantation of exotic species, for example *Pinus contorta*, the lodgepole pine. In addition, important quantities of forest resources are imported to Sweden to be re-processed in the country (Alarcón, 2012). Thus, as reported in 2004, more than half of the exports of industrial roundwood from the Baltic States went to Sweden (Hashiramoto, *et al.*, 2004)

In the case of Chile, the bulk of forestry processes for pulp, timber and paper production for export is today mainly based on plantations of exotic species of pines and eucalypts. Management and use of forests composed of native tree species is an important activity in Chile too, and important quantities of the wood extracted from native forests is used as firewood and charcoal.

Today, forestry in both countries has been discursively linked to questions about climate change and forestry. In Chile, recent projects to incorporate forestry into projects related to climate change mitigation and adaptation have fed expectations of new possibilities for forestry development in the country. Similarly, in Sweden climate change has been seen as a possibility for new development patterns of the forest sector in the country. Yet, mega forest fires which recently devastated extended areas in Chile and Sweden have added new dimensions to the question about forest resources and climate change. The mega forest fires of 2012 in Chile devastated around 28,000 hectares of plantations, native forests and arable land located in the Southern VIII region of the country. This disaster motivated new criticisms of the Chilean forestry model. In addition, a recent large forest fire originating in eucalypt plantations in Valparaíso has reaffirmed those concerns. Similar processes can be observed in Sweden where the recent large forest fire of 2014 in Västmanland, which became known as the biggest forest fire in the modern history of Sweden, has raised questions about forestry, land use and climate change in the country. Important legislative and policy processes concerning forestry have also been at the centre of forestry development in both countries during the last few years. Such legislative processes have brought to light how different interests aim at defining the terms of new legislation concerning land use and forests. At the international level, Chile is often portrayed as having developed a successful forestry model and its position in world forestry has been highlighted as an example. Chile based its integration and position on international markets, the subscription of free trade agreements and the promotion of exports and the country is today a full member of the Organization for Economic Cooperation and Development (OECD). Concerning forest issues, Chile and Sweden have an important presence in

international forums where forestry is discussed as a global problem. Their important role in world forestry is also represented in comparative academic literature on forestry and pulp and paper production, where both countries have been included among relevant case studies (Lamberg *et al.*, 2012, McDermott *et al.*, 2010; Wilson *et al.*, 1998).

The history of pulp and paper production and forestry development in Chile and Sweden has been based on the establishment of mills in local areas where forestry companies can ensure the procurement of wood. As a consequence of this, important changes in land use, forest management and power relations have accompanied or preceded pulp production. The province of Ñuble in Chile and the area of Jämtland-Västernorrland in Sweden are areas where important investments in pulp production are in place. What makes the province of Ñuble in Chile an especially important area is that this is an area which still has large zones with native forests and also important agricultural and small fisheries activities. The area was strongly characterized by the long cycle of wheat production in Chile and wheat production was the main economic activity in the past. That cycle has now ended as a new cycle of land use is under way in the area. This time, eucalypts and pines are the new monocultures in the area. Pulp production and intensive forestry are also part of Jämtland-Västernorrland. However, the current relations for forestry and pulp production are today in the middle of an important search for new forest products. What is interesting to note is that the Sundsvall district in Västernorrland was in the past considered the area with the most intensive forestry in Europe and perhaps in the world, and it was exactly 100 years ago when for the first time wood used for pulp mills exceeded wood used by sawmills in the area. As we will see below, there are good reasons to look closer at current dynamics within the cycle of 100 years in the Sundsvall district, a time during which pulp production has been a dominating activity in the area. In both Chile and Sweden, the development of forestry and wood pulp production have historically been associated with conflicts concerning pollution, land use change, biodiversity loss and labour and livelihood conflicts.

From the previous review, three important issues emerge. First, it would be impossible to separate the development of world forestry from the political, labour and ecological questions and how forestry is constituted in local areas through specific political relations. Second, it would be impossible to separate the ways in which world forestry operates from the processes of communication associated therewith. Third, one can state that the very unfolding of world forestry shows that crucial terms of the contemporary structure of world political ecology are present in forestry development.

A final point to be made in this context concerns the question of how social theory can be thought and constructed in the context of researching, analysing and explaining forestry development and its associated processes. Such questions have much to do with conceptualizing the social-ecological and its very possibility.

The fields of study of political ecology and environmental communication represent relatively new interdisciplinary attempts to conceptualize fundamental processes in the formation and transformation of social-ecological relations. In what follows, reviews of literature concerning important aspects of political ecology and environmental communication are offered. This will be done with the objective of building a critical analytical and explanatory framework within which to look at forestry in Chile and Sweden. Thus in this framework, forestry will be conceptualised in relation to political ecology relations and environmental communication practices.

2.2.2 Political ecology

Political ecology (henceforth PE) is a widely used and discussed framework in contemporary research. As its name indicates, PE implies a concern with politics in the approach to relations between ecosystems and social processes. In certain contexts, political ecology also denotes the practical work of NGOs and activists in social-environmental struggles. A nexus between these two meanings of political ecology is also given by the fact that an important number of political ecologists incorporate normative dimensions and claims in their work. In a review article from 2001, Susan Stonich distinguished four basic meanings of political ecology: (a) as *'a framework for analyzing human-environmental relations'*, (b) as a *'research orientation that seeks to link macrolevel political economic processes with microlevel aspects of human ecology'*, (c) as a *'historical outgrowth of the central questions asked by the social sciences about the relations between human society, viewed in its bio-cultural-political complexity, and significantly humanized nature'* and, (d) as a *'program or movement'* that was a reaction *"to certain features of human ecology or ecological anthropology [as well as cultural ecology] as it was practiced in the 1960s and early 1970s"* (Stonich, 2001).

In its origins, and in contrast with other approaches to environmental or social-ecological issues, PE aimed at giving primary attention to political relations in the process of social-ecological change (Wolf, 1972; Stonich, 2001; Robbins, 2008) and in so doing it marked a difference from apolitical approaches. In the terms of Robbins (2008), examples of apolitical ecologies were represented by narratives of ecoscarcity and limits to growth and answers to ecological problems and crises in terms of adaptation and implementation of

modern economic techniques and the overall framing of solutions in terms of diffusion, valuation and modernization (pp. 8-10). In a similar vein, PE research asks question about the very definitions of environmental problems and problematizes those to whom these problems apply (Haila and Levins, 1992, p. 226). In addition, from its terminological inception through the work of Eric Wolf, PE aimed to link dynamics of local communities to larger dynamics of, for example, exchange through market relations.

Recently, two important focuses in PE are the focus on the production of knowledge, power and ecological change as interlinked processes (Peet and Watts, 2004; Turner and Robbins, 2008) and a focus on the recognition of the interactions of humans as part of ecosystems and at different levels of interaction, ranging from the local to the national and from the local to the global. PE thus gives a key role to historical trajectories when analyzing past and contemporary social-ecological relations and in some cases a PE framework is used to trace social-ecological transformations across centuries (Moore, 2010). Another important dimension highlighted in PE research is the need to analyse contemporary production and consumption systems in terms of historical socio-political conflicts and contradictions and, more specifically, in relation to processes of capital accumulation (Alarcón, 2012). Thus PE focuses on how collective action and power relations are incorporated into, and developed through interaction with, ecosystems. Placing emphasis on socio-political relations to ecosystems leads to questions about how social interaction largely defines characteristics of ecosystems and their structures, functions and energy flows today. Furthermore, PE is concerned with the study of contingent conflicts based on unequal distribution of natural and economic resources, as well as unequal distribution of economic and political power, locally and globally (Hornborg, 2001). Conceiving unequal distribution of resources as a result of historical and contemporary processes driven by human agency and interests leads PE research to focus on specific actions of human agents in the context of conflicts and social struggles of and within systems of production and consumption. Alternative processes of production and consumption are also associated with ways to represent and reproduce the world through social processes of production and reproduction of discursive relations. Accordingly, important contributions to PE research focus on the role of discourse within social-ecological processes (Peet and Watts, 2004; Escobar, 1998). Within this context, important political ecology research aims to understand processes of resistance and agency defining access to resources. In this regard, and in the context of movements for biodiversity, Escobar understands them as alternative PE frameworks where there is

“[...] articulation of a link between culture, nature, and development [which] constitutes an alternative PE framework for biodiversity discussions. The movement can be seen as an attempt to show that social life, work, nature, and culture can be organized differently than dominant models of culture and the economy mandate” (Escobar, 1998, p.76).

Theoretically, those alternative processes can be understood as implying different social-ecological relationships. Other examples of such alternatives are artisanal fisheries and peasant cooperatives, where the producers themselves own the means of production as well as production for self-consumption and alternative management of resources. The search for an explanation for environmental conflicts and engagement with the practices of movements in Latin America, Spain and beyond is represented in discussions in the journal *Ecología Política*, which was edited for the first time in 1991 by Joan Martínez Alier. Within the journal, a fundamental focus has been on activism and on the question of movements and mobilization concerning social-environmental questions. In this context, the emergence of political ecology in Latin America has been seen as process where a particular epistemology based on awareness of struggles has been brought to the centre of political ecological thinking (Leff, 2006).

Taking into account such emergent issues, recent relevant literature in political ecology has emphasized that in relation to older models of political ecology, today much emphasis is put on: (a) more detailed reconstructions of micro-level processes where meanings of nature and ecology as well as access to resources are produced and negotiated, (b) the meaning of the politics and power and their interlinks with the co-construction of knowledge and environmental science, and (c) the encounter and mix between the bio-physical reality and a socially constructed reality which are never separated (Paulson and Gezon, 2004). The emphasis on asking how environmental science is produced is a characteristic of important political ecology research today (Forsyth, 2013 and the edited volume by Goldman, Nadasdy and Turner, 2011). Yet, there is a noticeable existence of different ways to understand PE and in some cases to understand its use. This leads to questions being asked about distinctions between political ecology approaches. In France, for example, political ecology has been described as sharing two basic premises: first a “*common interpretation (broadly speaking) of the reciprocal implication of humanity and nature*” and, second, recognition of “*the political implications of ecologism*” (Whiteside, 2002, p. 12). However, important differences can be observed in the French context. Lipietz, for example, conceives political ecology in its more normative role and for him it provides a framework for action and human political activity (1995). On the other side, Latour (2004) questions the philosophical premises of

political ecology and in many ways his approach aims at pushing forward an intellectual agenda where any analytical distinction between humans and non-humans is refused and instead the term 'actants' is proposed for analytical terms (See Pinch and Swedberg, 2008, p. 5).

In contrast, calls for a Marxist political ecology accentuates the continued division of contemporary capitalist societies in terms of class and conflicts originating in hegemonic processes underlying capital accumulation. Thus, historical materialist frameworks addressing questions of ideology and hegemony are understood as providing the appropriate basis for analysis and also action in political ecology terms (Mann, 2009).

The question of where to locate political ecology relations and how to research it can be observed in the response to the work of Bryant and Bailey (1997), who argued that the conceptualization and themes of political ecology are inherent to less developed countries. This motivated a response through thinking in terms of political ecology in first world countries as well, which brought a number of case studies to show that conflicts and dynamics approached by political ecology are also conflicts and dynamics observable in more developed countries (McCarthy, 2005). Today, an important area of political ecology research goes beyond that discussion and interrogates issues of global political ecology (for example, see the edited volumes by Keil, *et al.*, 1998; Peet, Robbins and Watts, 2010 and Hornborg, Clark and Hermele, 2013). Such efforts to work with global-local links are also efforts to historicize political ecology research and to search for new conceptual tools to understand the links between political ecology processes among countries. For example, in bringing a global perspective and the notion of societies' metabolism, assessments of unequal distribution of resources and conflicts have been incorporated as more specific dimensions of political ecology relations (Martínez Alier, 2009; Hornborg, 2008, 2009). The plurality of concepts mobilized by political ecology can be understood by looking at the collective work on political ecology articulated by Nancy Peluso, Michael Watts and Richard Peet (2001, 2004). In making sense of political ecology, those authors elaborated an illustration of what they referred to as the contemporary structure of political ecology. Here, dynamics of labour have a central role and discursive forms are understood in relation to, among other processes, social power and social relations of production (Peet and Watts, 2004, p. 30). An analysis of the main concepts elaborated in terms of a contemporary structure of political ecology indicates that processes implying human communication, for example discourse forms and the place of labour, are key and structuring moments of this political ecology approach. Also the terms are to an important extent linked to historical materialist theorizing, for

example class and social labour. In addition, here one can recognize the relevant influence of post-structuralism theory, for example in the terms discourse and governmentality. Within this context, Arturo Escobar (2008) has developed a particular political ecology approach that has heavily drawn from post-structuralism and lately from proposals of flat ontology. In Escobar's approach to political ecology, one finds a sort of merge of linguistic and material turns along with ontological and epistemological claims concerning political ecology.

To continue this review on PE literature in more specific terms and in relation to the empirical focus of this thesis, we can approach some examples where political ecology research has been used to look at forest and forestry. An important contribution in this regard is Peluso's book *Rich Forest, Poor People* (1992). Here, Peluso links state politics concerning the forest, the resistance of peasant villagers and forest professionals in a dynamic of struggle and conflict in the forest and for the forest. Hecht (2004) shows the inner dynamics of forest resurgence in El Salvador by explaining the practices of a set of different agents and approaching multiple levels of analysis which for her were needed to address the changes behind such forest resurgence (p. 94). Schroeder and Suryanata (2006) show how agroforestry projects, in this case based on apple trees, become a conflictive process where control of labour in the context of tenure arrangements and intercrop dynamics created polarization at village level (p. 311). The work of Peluso, Hecht, and Schroeder and Suryanata shows that in different contexts and continents a common process where forestry and tree planting are always mediated by a number of social practices can be observed. In addition, these works also show the discursive processes following the different inception of knowledge about forests. According to Hecht, the rise of the rhetoric of sustainable development in El Salvador implied a shift from agrarian equity to ecological issues in the discourses of rural development. Also inspired by PE, Eeva Berglund studied what she calls the cultures of Finland's forest-nature to interrogate the separations between nature and culture and human and non-human which she argues are at the heart of environmentalist agendas. In analysing this case, she also raises a concern with the different discourses operating in the debate on forests in Finland and concludes that "*scientific knowledge of nature continues to be invoked for political ends because nature still matters and ecopolitics continues*" (Loc 2285, Kindle version). Also with a focus on wood biomass, du Monceau (2008) and Gerber (2010) used a political ecology framework to study conflicts of tree plantations in Chile and in Ecuador and Cameroon respectively. In the two cases, there is important focus on the analysis of groups resisting tree plantations and the drivers of other agents to attempt the

establishment of tree plantations. Both studies show that the different conflicts under analysis imply the action of different groups, as in two cases the main resisting groups are indigenous groups and in one case it is an NGO which acts as the main resistance group. This shows that empirical research using PE is very much about contexts where social-ecological relations are defined by different subjects.

The previous review of the political ecology literature allows the identification of five salient topics to be considered in the comparative study of forest use and land use in two different countries, which originates this thesis. We can state those topics as follows: (a) meanings of politics have a central place in the formation of local and global ecological processes; (b) most of the work on political ecology implies a critique of apolitical views on global and local social-ecological problems; (c) a focus on conflicts and inequalities in the structuring of social-ecological relations is a distinctive mark of important versions of political ecology; (d) hegemonic patterns of access to resources, the ways in which power operates in the definitions of social-ecological relations and how those are confronted are crucial concerns in certain versions of political ecology; and (e) along with the centrality of labour in the understanding of political ecology processes, communicative interaction, for example discursive forms, is also one of the distinctive characteristics of current work on political ecology. As will be seen below, the concern with communicative interaction in political ecology links this field of study to environmental communication.

2.2.3 Environmental communication

Environmental Communication (henceforth EC) is an emerging field of study that focuses on the relevance and crucial role that inter-subjective communication plays in connection to ecosystems and natural resources. Research within this emergent field of study aims at understanding, explaining and interpreting conflicts and environmental crises associated with political processes linked to the use of natural resources and human interactions with ecosystems. Thus, EC research explores questions concerning how humans produce symbolic processes to define and modify their environments, as well as the environments of other living organisms. Also, EC is interested in how the actions that result from human communication interact with material systems, conditions and forces that may exist independently (Depoe, 2007). An important claim in EC research is that it explores the constitutive dimension of communication, and aims at advancing nuanced explanations of relationship between the symbolic and the material that “*maintain the integrity of both*” (Schwarze, 2007). Within this context, a shared premise of EC is that social

processes of producing communication about ecosystems imply different assumptions, values and beliefs about ecosystem dynamics and possible uses of ecosystem resources.

In her entry for environmental communication theories for the encyclopaedia of communication theory, Tema Milstein (2009) conceives environmental communication scholarship as the study of *“the ways people communicate about the natural world”* and she ascribes to environmental communication scholars the belief *“that such communication has far-reaching effects at a time of largely human-caused environmental crises”* (2009, p. 344). Thus, in approaching research on environmental communication, she identifies a number of different theoretical and disciplinary orientations being currently used, including among others ecofeminist theory, political ecology, social constructivism, systems theory, and performance theory. In assessing those different theories, Milstein highlights that environmental communication brings a number of concepts developed within wider theoretical frameworks in order to articulate understandings of environmental communication. In the work of Corbett (2006), for example, notions of context and ideology are the basis of what she sees as environmental beliefs articulating environmental messages. In the case of Donal Carbaugh (1996), and sharing Corbett’s focus on the specificity of context, important articulating concepts to understand environmental communication are place and discourse. Carbaugh gives communication a fundamental role in the construction of social relations and sustains that:

“Communication is the basic social process in which natural and cultural senses are cultivated. Communication transforms raw space into a natural and cultural scene, into a place that is publicly meaningful in social terms” (p. 40).

Robert Cox’s influential book on EC brings the concept of the public sphere as a fundamental concept in EC. He uses the concept in the plural, namely public spheres, and conceives them as spaces for the articulation of different views and meanings concerning the environment. Such meanings are for him articulated through environmental communication (2010). Within this context he defines environmental communication as:

“The pragmatic and constitutive vehicle for our understanding of the environment as well as our relationships to the natural world; the symbolic medium that we use in constructing environmental problems and in negotiating society’s different responses to them” (2010, p. 37).

In following this definition, Cox sustains that:

“Like perturbations in biological systems, distortions, ineptitudes, and system pathologies occur in our communication about the environment” (2007, p. 10).

Also positioning the public sphere as a central concept for environmental communication, Mater (2006) analysed the north-south divide and focused on one Earth Summit to mobilize a Habermasian approach that according to her provides the basis for an analysis of discourse. For her, such analysis of discourse looks at how the different forms of interaction analysed by Habermas can be seen as producing environmental discourse. Thus, she details this approach to environmental communication by arguing for a strong connection between communication, discourse and the public sphere. This triadic model conceives communication as producing discourses which are then brought to the public sphere where, according to this author, the discourses are dealt with by actors. Within this context she offers a definition of discourse in which discourse “*is the means through which the public comes to understand a particular issue as it is constructed by various actors*” (p. 165). She adds to her Habermasian approach Eder’s cognitive approach and Eder’s methodological proposal of frames in the analysis of discourses.

It is important to approach Eder’s theoretical and methodological work here, since as in the case of Mater, it is influential on other authors working in environmental communication research (see for example Moore, 2004, and referred to below). Though Eder’s book *The Social Construction of Nature* (1996) does not directly refer to the concept of environmental communication, his approach to social movements is a communicative approach. Eder argues that the history of modern environmentalism is based on a process where the environmental movements became actors putting forward ecological communication. In his analysis of these movements he used frames and he claimed that contemporary environmentalism was a

...turning point in the cultural evolution of modernity as it provides a new cultural orientation by substituting ecology for industrialism as the basic cultural model for modernization. Moreover, it changes the nature of politics by inventing the politics of nature. Modern environmentalism leads to a new phase in the institutionalization of political agency which is part of the making of modern society. This new phase I shall call the age of ‘post-environmentalism’” (p. 163).

One of Eder’s main methodological and theoretical arguments was that:

[p]ublic discourse is, therefore, a key to the understanding of the transformation of environmentalism into an ecological discourse that is open to the whole of society. Furthermore, this extension of discourse in modern society changes the methodological foundations for the analysis: it forces us to go from the critique of ideology as a methodology to the methodology of discourse analysis” (p. 166).

Here we see an internal conceptual connection between communication and discourse, and in this case the articulation of these two concepts implies a critical stance toward the concept of ideology. Yet, the questions of the conceptual role of ideology in environmental communication remain open as in several other frameworks, for the analysis of environmental communication ideology is seen as a fundamental aspect in the understanding of environmental communication processes (see for example Corbett, referred to above).

Another example of a Habermasian approach to EC is Weaver (2005), who focused on Habermas’s view on procedures as rational grounds in modern democracies where the validity of legitimacy is constructed. However, he states that historical shifts in legitimacy criteria are fundamental in the understanding of the interrelations between the environment, communication and legitimacy. Thus he takes the idea of legitimacy in this Habermasian way to also bring an empirically based critique of the fact that “*government agencies appeared to be unaware of the significant cultural shift that their opposition recognized and used so effectively. Perhaps years of unquestioned compliance blinded the government to the necessity of reestablishing a legitimate case based on what Habermas and Weber considered to be “good reasons”*” (p. 161). Here the question of legitimacy and how different actors build legitimacy and establish legitimacy is for him an important issue within the analysis of environmental communication. Also focusing on discourses, Marafiotte and Plec (2004) bring Bakhtin’s theorizing on discourses and develop a notion of hybridity to uncover the complexity of forms of discourse.

Cantrill (2004) in turn sees environmental communication as a process that is deeply linked to place.

As a robust concept, the notion of place is also integral to a great many aspects of our communicative lives and provides a foundation upon which a good deal of discourse is constructed” (p. 155)

Within this context, Cantrill refers to the work of Mugerauer to argue that

...not only does communication take place at some point in time (and, conversely, history can only be found or located in reference to some description

thereof), conceptions of place are intimately connected to and influence the language of environmental discourse as well. (pp. 155, 156)

Thus, for Cantrill the historical interpretation of the environment is crucial and his concern with place leads him to argue that

[j]ust as environmental communication takes place in a geographic context, so too do people think about the environment in reference to whom they are, given where they exist” (p. 157)

Subjectively, it is in this context where for Cantrill the environmental self is produced. Empirically he explores this theoretical point in the discussion of concepts as adaptive management where he identifies some venues for the work with environmental communication. In doing so, his approach oscillates between a normative view and a more analytical view of how environmental communication relates to subjectivity. For him, this subjectivity is deeply related to the place and contexts in which people exist.

By bringing the concept of articulation and by theoretically relating her theorizing of EC to the work of Williams and Grossberg, Pezzullo (2006) analysed the cultural meaning of what she called ‘sexy’ in relation to environmental questions. For this purpose she empirically used two films. In this case we can observe that the idea of articulation is associated with the process of producing meaning while at the same time meaning is related to the material practice of gendering and sexualizing politics. In her analysis she shows that activism is articulated with sexiness and so articulation is for her the process through which these two meanings are put together.

Feller (2004) uses the concept of utopian narratives to look at corporate environmental reports. Here the meaning of environmental communication is linked to the actual activities of companies when issuing corporate environmental reports that are, according to the author, presumably like other environmental communication practices. This is because corporate environmental reports are practices providing an opportunity to set agendas and to frame environmental issues internally and externally. Thus, Feller conceives corporate environmental reporting within a framework in which corporate reports function as narratives producing a free market utopia and in this way such reports attempt to re-envision environmental issues. A similar critical orientation is found in Peeples’ (2005) study of the wise use movement in the United States. Within this context, she explores what she calls *a structural appropriation of environmentalism* in the strategy of a movement that actually rejected the existence of environmental problems. She reconstructs a process she conceives in terms of advocacy mimicry, which for

her became a tool with which the wise use movement could confront the environmental movement. In doing so, the wise use movement also acted as a social movement and engaged in persuasion and identity construction aimed at defeating environmentalists. In doing so, Peeples argues that the wise use movement considered environmentalism as an effort to “make a new world of discourse” (p. 10). To confront this, Peeples argues, the wise use movement aimed at discourse appropriation and identity construction by rhetorical means.

Another example of the discursive dimension of environmental communication is the chapter on nuclear discourse by Kinsella (2005). Here he attempts to relate the rhetorical analysis of Burke to the concept of discourse formation, and power knowledge relations developed by Foucault. Within this context, Kinsella wanted to look at how nuclear materiality and discourse are deeply interrelated. Here the emphasis is on theoretically working through the distinction between materiality and the discursive dimensions emphasised in Kinsella’s reading of Foucault. For Kinsella this allows the revelation of both the organising principle of nuclear power discourse and the way it is contested. Thus, this insight leads Kinsella to conceive nuclear discourse as always being exposed to contestation *as* discourse. Within this context he challenges views of some post-structuralist theorists who, such as for example Baudrillard, assessed the nuclear issues in such a way that environmental communication becomes impoverished:

Ironically appropriating a term from nuclear weapons design, Baudrillard (1994) described an “implosion” of culture and politics around a narrow range of possibilities. The threat of material annihilation is transformed into a potent discursive annihilation encompassing public speech, cultural expression, and political process, as society’s efforts are focused on sustaining the precarious nuclear order. Environmental communication is among the many domains impoverished by this arrangement. Most directly, the legitimacy of social commitments to nuclear activities with dangerous environmental consequences appears unquestionable, and public discussion of these activities is discouraged” (p. 58).

Opposing such a view, Kinsella argues that environmental communication provides a range of opportunities for interrogating those attitudes. She relates it to the material reality where nuclear institutions became opportunities to challenge the nuclear discourse order. Thus, the question of how environmental communication can become then a moment in the contestation of a certain discourse becomes essential in the understanding of the potential of environmental communication to operate in a way that can be useful for the purposes of opposing a certain discourse.

Also working with nuclear issues, Hamilton (2005) takes Greimas' semiotics analysis to research the narratives in social controversies, arguing that an "*isomorphism...exists between the general structure of a narrative and the organization of coalitions*" (p. 73). She examines nuclear controversies and narratives and sustains that analysing competing narratives allows the study of nuclear issues by looking at the mobilization process implied in such issues. For this she brings Callon and Latour's concepts of association and dissociation to the study of narratives approach and she aims to explain the way through which actors construct narratives. For her, this allows understanding the events in a controversy and associates it with actors' agendas and she therefore claims that this kind of analysis is explanatory and so goes beyond the mere description of narrative and semiotic processes.

An alternative approach to environmental communication is based on exploring the non-verbal methods of communication with nature. An example of this is Scollo Sawyer (2004), who links her work to Donal Carbaugh and argues that the ritual view of communication opens an alternative to the transmission model of communication. She argues that what matters here is to see communication as participation and particularly participation in the intentions of the other.

In the case of Peterson *et al.* (2004) we find a theoretical attempt to bring the work of Niklas Luhmann to the theoretical understanding of environmental communication. In this regard they discussed Luhmann's theorizing of society, where society is defined by communication and communication is seen in relation to the external reality of the social system. They critically evaluate Luhmann and point out that he never explained why or how communication should be seen as the *sine qua non* of society. In this case they argue that communication remains for Luhmann the ubiquitous black box that defines the social system. Therefore, they considered it important to take insights from the work of Burke to look at the practice of communication. In addition they bring into the discussion the theoretical contribution of Mouffe who argues "*that whatever means people use to achieve a sense of community carries with it the seeds of conflict*" (p. 20). By doing so, they tried to supplement what they considered Luhmann's rather sterile definition of communication and by drawing from Burke and Mouffe they aimed to look at how the material and symbolic realms are interrelated in human experience.

In general terms, conceptions of environmental communication in terms of a means for understanding relations to nature serves as an implicit basis for focusing EC on the study of issues, such as for example rhetoric and the environment (Ihlen, 2009), media content implying the environment (Dotson *et al.*, 2012) and environmental discourses (Foust *et al.*, 2009). This kind of work

is mostly concerned with the contemporary aspects of the relations between communication and the environment and, in analytical terms, it is to an important degree based on the analysis of written texts. In considering historical materials other than texts, Endres (2011) has methodologically linked oral history to environmental communication. In her view:

“Oral history interviews can potentially document sources of local knowledge about plant and animal ecology or other environmental changes in particular places. In sum, oral history interviews provide potential for gathering different types of information than what can be gathered through rhetorical texts and other forms of interviewing” (2011, p. 492).

The previous examples show that important development of environmental communication research conceives the processes of meaning production around environmental issues as processes depending on different communicative processes, for example discourses and ideology. In taking such concepts, efforts to analyse and explain environmental communication processes have been undertaken.

Yet in the EC literature there is also an important body of work that gives normative meanings to environmental communication. Within this context, environmental communication is conceived as a problem-solving activity (Brulle, 2010; OECD, 1999; Oepen, 2000). In the case of the OECD approach to environmental communication, we can observe that this is an instrumental and strategic approach where the terms of environmental communication are terms for supporting technical development to deal with environmental issues and developing an implementation of local and regional management plans. Within this context, a checklist is offered and this is also articulated by what is understood by the OECD as the *preconditions for effective environmental communication*. Such conditions are basically understood in terms of technical devices, training requisites, and adequate information flows in the treatment of different environmental problems (p. 39). Thus in terms of actors, the OECD emphasises that environmental communication strategies are very much a question of specialized experts and consultants who also needs to engage with participatory processes and methods. Here environmental communication is also placed in the context of conflict management and EC is seen as a tool along with interdisciplinary and systematic approaches. Thus environmental communication is presented in a normative and problem-solving way, which implies that environmental communication is expected to produce certain positive environmental outcomes. In the case of Oepen, he starts by analysing some literature that questions and problematizes the role of communication in dealing with environmental issues. However, he presents some ideas that allow

him to place environmental communication as a way of having a positive impact on environmental matters. For example, EC is conceived of as playing a role in agenda setting in civil society and also in local practices in relation to sustainable development (p. 35). Here, and similar to the OECD report, environmental communication is conceived in terms of efficiency, which is linked to certain skills, helping bring about positive environmental outcomes. Following Oepen's view on EC, Sharl (2006) approaches internet technology as a way to catalyse EC processes where EC is a possibility for communities to deal with the different problems or risks that they face. In this way, Sharl argues that interactive communication implied in online communities enables communities to deal with complexity and uncertainty. Another normative approach to environmental communication is that of Walker and Daniel (2004). They attempt to link environmental communication processes to environmental decision-making and policy development. Within this context, they discuss the role of science as not being able to deal with complex situations. Thus they argue that there is a need to incorporate different knowledge, for example indigenous knowledge, and link environmental communication to processes such as, for example, processes of dialogue, deliberation, collaborative argument, inquiry and advocacy. Such concepts are put together in order to create a normative meaning of environmental communication. Thus, for them, environmental communication could be associated with communication competences for the management of conflicts. Thus, their approach goes beyond other normative approaches to environmental communication that have been reviewed above, but they still maintain a view in which environmental communication can by means of processes such as, for example dialogue and communicative competence, become a means to solve environmental conflicts. Within this context, the question of the relation between environmental communication and social conflicts and how such conflicts interrelate with environmental communication practices remains unclear. In contrast, Toker (2005) offers a study on co-optations of ideas of deliberation in the United States. He looks at questions of ideal citizen participation by exploring the relation between theory, for example Habermas, and the development of deliberative democratic theory by Bohmann and others, and a factual process of deliberation. His discussion includes how notions such as, for example, judicious argument and critical listening fill a *public vocabulary*. Thus, he argues that critical to any theory of democratic debate is the language used and how this is constituted in the theory and its practice. He notes that for agencies, participation is often a way to control the debate concerning projects. In order to show this he develops a critical view on how public authorities used the question of deliberation and

identified what he calls a deliberative myth in their rhetoric. Therefore, the conclusion he offers is that in this case the public authority co-opted the deliberative vocabulary to maintain control over the process. Thus there was control of deliberation as an effort to legitimize their actions which included confusing the issues at stake. We have here a critique of the concept of deliberation based on how the very terminology can be used within authorities that are actually not considering deliberation in the way that it is considered in theory.

A case of forestry research through the lens of environmental communication can be found in Mark Moore's (2004) study on the timber sale conflicts in the United States. Here he brings together work on strategic practice and frame analysis to look at the substance of the discourse as developed by Eder and his approach to ecological communication to which we have referred above. At one point he sustains that:

“Under these conditions public environmental discourse has been transformed, according to Eder, into political ideology that must compete with other ideologies (Marxism, capitalism), and environmentalism as a movement has survived in the marketplace by transforming itself into well-organized public interest groups” (p. 37).

We can comment here that the conceptualization that is put forward here is ecological communication, which is also present in other work on environmental communication referred to above. When he assesses his empirical case, he shows that a lumber company was successful in co-opting activists and that it was able to neutralize the environmental communication of activists. Empirically we can observe here that environmental communication goes in different directions. Environmental communication is what a company does in one case and it is in another case what environmentalists do.

As seen above, an important premise in EC research is that humans always produce certain meanings about their surrounding environments and use different means to make communication possible in the context of environmental processes. Thus, humans are considered to be creating knowledge about nature. Within this context, knowledge and consciousness of socio-environmental conflicts are interlinked and mediated by communication. What is communicated about the environment and what really happens in and within environments and ecosystems can be seen as relations where certain representations and assumptions about the environment are embedded in different social beliefs and interests. Yet, comprehending the acts of communication in their productive spheres cannot happen without thinking of social institutions to which communication relates. When socially constructing

nature, humans deploy a wide range of communicative practices rooted in wider social practices. Here, nature in itself has received and carries on human meaning and definitions. As Raymond Williams points out:

‘the idea of nature contains, though often most social groups seem to be faced with as they encounter, and unnoticed, an extraordinary amount of human history’ (1980, p. 68).

To say that we socially construct nature, however, does not mean to say that nature only exists in our minds (Escobar 2004). Taking this into account opens research possibilities for combining realist approaches with approaches that give attention to how meanings and structures are socially constructed in terms of social-ecological relations. As environmental communication aims to deal with structures and systems of communication in the interface between the social and the ecological, an adequate conceptualization of environmental communication can be suited to exploring the possibilities of such a combination. Thus, forms of environmental communication can be researched in relation to how structures are produced and produce identifiable outcomes in social-ecological terms. This potential is expressed by Peterson in the following terms:

“Because it focuses on the social practices that constitute knowledge, relationship, and identity in the world, environmental communication seems particularly well suited for developing more integrative approaches to environmental issues” (2004, pp. 15-16).

Yet, we have noted in the literature reviewed above that the question of theory remains an open question in environmental communication research, as different authors have drawn from a variety of theoretical possibilities, including authors from Habermas to Foucault and from Luhmann to Latour and Callon, to name but a few. Also, as we have seen above, one important aim within political ecology literature is to contribute to *more integrative approaches to environmental issues* as well. Thus, to productively combine both fields of study requires the establishment of some relations regarding how we understand political ecology and environmental communication conceptually. In doing so, important issues concerning these two fields and social theory emerge. Two possible starting points here can be: a) to take the wider research concerns and conceptualizations developed in political ecology to supplement a wider perspective to environmental communication research, and, b) to continue a critical theorizing of the terms of environmental

communication and so look for possibilities of both approaches operating in complementary ways.

In doing so, we enter into a process of theorizing the relations and from having considered political ecology and environmental communication as fields of study, we now ask questions about how we conceptualize them

2.3 Towards a framework for theorizing

The previous review on environmental communication literature shows that as a field of study, EC shares some important research interests with political ecology. As we saw earlier, today an important aspect of political ecology research is given by its focus on the conflictive production of environmental knowledge and also in the interrelation between communicative processes, such as for example discourses, and political processes to which political ecology attributes a crucial role in the constitution of environmental relations. When doing this, both EC and PE deal with communicative processes, such as for example discourses and ideology. However, this also motivates some critical questions such as: what would be the conceptual role of environmental communication in political ecology research and vice versa? Can a focus on political ecology relations help explain environmental communication processes? Or, is it the other way around, namely, that environmental communication processes helps to explain political ecology relations? Or, still, one can conceive that the potential combining of a focus on political ecology and environmental communication processes can only be realized by looking at such processes as interacting and interdependent processes.

However, I would argue that answers to such questions transcend the limits of political ecology and environmental communication since they are questions concerning the wider terms of social theory. Within this context, the very conceptualization of labour and communication, both crucial within political ecology and environmental communication as fields of study, connect to crucial development in social theory during the 20th century. Habermas and Foucault's theorizing are two examples of this. Habermas, for example, attempted to reconstruct historical materialism by means of a conceptualization of communication in relation to social interaction. Foucault's first analyses of discourses were in turn associated with the conceptual role of the terms of work and labour in relation to the reconstructions of epistemes. In the case of Habermas' version of critical theory, one can observe an early engagement with the social role of labour through the philosophical assessment of Marx and Hegel's theorizing of modern society (1973). In this regard, it has been observed that Habermas' early theoretical work was aimed at conceiving

Marx's terms of productive forces and relations of production in terms of instrumental and communicative action (see for example Wellmer, 1997 and Honneth, 1994). Thus, for Habermas, social interaction is conceived as being based on the two main, but distinguishable, social processes of labour, as instrumental action, and communicative action. Within this context, as Wellmer pointed out, Habermas correlated the struggles based on labour to the struggles based on eliminating distorted communication. Today, that original focus on labour in relation to communication is not often articulated in versions of critical theory. In many ways the communicative dimension of interaction has taken over the analysis and also normativity ends in some versions of critical theory. Something similar can be observed concerning Foucault's work. In the crucial work developed by Foucault in his book *The Order of Things: An Archaeology of the Human Sciences* (2002), labour had a prominent and fundamental conceptual place along with language and life. A reconnection with the problematization of work was developed by Foucault later and in the context of his analysis of bio-politics and neoliberalism. However, the over-emphasis on discourses and other moments of social life in Foucault's work meant that labour does not have a clear theoretical status in the current reception of his work.

Important to be highlighted in this contest is that implied in Foucault and Habermas' attempts to theorize labour, we find Marx's theorizing of labour and social labour. For Marx, one important meaning of labour is that labour mediates between humans and their external nature. Yet, as we will see below, labour, in its historical form as wage labour, is also the object of critique in Marx.

The partial shift from a theorizing focused on the materiality of interaction where labour had a central place to theorizing where production of meaning had a central place distinguished what has become known as the linguistic turn. The linguistic turn was the term used in the past century to denote the central role of language, communication and discourse in social theory and philosophy. In the words of Karatani:

“[.]if there is such a thing at all as the linguistic turn, it exists not in the denial of subjectivity from the vantage point of language, but rather in a discovery of subject within the “doubt” fostered in the field of social difference”(2003, p. 80).

Sometimes associated with French theory and post-structuralism, the term the 'linguistic turn' is nonetheless a term valid for divergent philosophies and theories. Analytical philosophy, for example, is essentially a philosophy centred on questions of language. Here philosophical problems are seen as

problems of language. Thus, it is argued, a clarification of terms through language is the basic process of philosophical inquiry. Within this context, the question of the theoretical and methodological status of the text is central. According to Jameson, one can conceive textuality as:

“Textuality may rapidly be described as a methodological hypothesis whereby the objects of study of the human sciences (but not only of the human ones: witness the genetic "code" of DNA!) are considered to constitute so many texts that we decipher and interpret, as distinguished from the older views of those objects as realities or existams or substances that we in one way or another attempt to know. [...] The notion of textuality, whatever fundamental objections may be made to it, has at least the advantage as a strategy, of cutting across both epistemology and the subject/object antithesis in such a way as to neutralize both, and of focusing the attention of the analyst on her own position as a reader and on her own mental operations as interpretation. At once, then, she finds herself obliged to give an account of the nature of her object of study qua text: she is thus no longer tempted to view it as some kind of empirically existing reality in its own right (think, for instance, of the false problems to which the optical illusion of society, or even of the various social “institutions,” has given rise), but must rather reconstitute it in such a way as to resolve her "facts" back into so many semantic or syntactic components of the text she is about to decipher” (2008, p. 21).

Within the linguistic turn one can discern two important streams: (a) one associated with French theory which focused on meaning production, discourse and the status of the sign and, (b) a linguistic turn in social-theoretical theory represented in the work of Habermas. The traces of those two streams within the linguistic turn are evident in social-ecological research as is demonstrated in the explosive work on discourse analysis and communication with a focus on environmental problems and the attribution of normative functions to communication in dealing with social and environmental problems.

In terms of ecological communication, an appropriation of Luhmann’s terms to produce an analysis and a normativity on social-ecological problems is expressed by Marina Fischer-Kowalski and Jan Rotmans (2009). These scholars’ view on the role of communications systems becomes interlinked with the overall question of responses to environmental problems:

“Yet—according to sociological systems theory—the ways in which society responds to changes in the natural environment are determined within the communication system. This communication system may be unable to generate adequate responses, responses sufficient to secure society’s metabolism: then, processes in the environment, the dynamics of natural systems that society

depends upon, will continue to challenge society (such as soil deterioration, climate change, epidemics) until it has changed sufficiently to be able to provide an adequate response, or until it collapses” (p. 5).

Implied in the previous understanding of communication vis-à-vis ecological issues, there is implied another version of the communication turn in social theory. In this case, Fischer-Kowalski and Rotmans draw on Luhmann’s theory of social systems as communication systems. Yet, as we saw previously, the very notion of communication and its theoretical implications in Luhmann’s theorizing of ecological communication is contested (see Peterson *et al.*, 2004, and referred to above).

Conceptual questions such as those addressed above mobilize social theory and they necessarily lead into the process of conceptual and theoretical construction and reconstruction. Within this context, it is even apparent that the history of social theory and what seemed to be resolved discussions are re-opened by the combined forces of climate change, the wider crisis of global environmental change and the need to think about this. For example, that is the case with the concept of adaptation in Giddens’ work. For Giddens’ *A Contemporary Critique of Historical Materialism. Vol. 1 Power, Property and the State* of 1981, the critique of adaptation and consequently of Marx were the task of the day. As he proclaimed then:

“I want to erase the notion of 'adaptation' (or any synonyms) from the vocabulary of the social sciences just as thoroughly as that of 'function', on a combination of theoretical and empirical grounds. So far as the former of these is concerned, if offered as an explanatory principle of social change, the idea of adaptation falls in the same category as the functional 'needs' to which I have already objected. Societies have no need to 'adapt' to (master, conquer) their material environments” (p. 21)

Yet, in his widely referenced book from 2009, *The politics of Climate Change*, adaptation is his central category of analysis. There is in fact a whole chapter where climate change is mediated in terms of the politics and adaptation and there one can read:

“Providing some concepts to help guide our efforts at adaptation is important, because such concepts can help give shape and direction to policy. Let me first underline the relevance of the distinction already made, between adaptation after the event and adaptation oriented to possible futures. I shall speak of pro-active adaptation (PA) to refer to the second of these categories. Within the limits of our knowledge – and in any real-life context, of funding –PA should be the

prime focus of our attention whenever we think our adaptation, although reactive adaptation will certainly be necessary “(p. 163).

Giddens’ re-use of the concept of adaptation articulating now his political view on what to do concerning climate change in those terms was an act full of policy implications. In a policy paper from 2008, Giddens’ *the Politics of Climate Change* was linked to the full development of Stern’s review. Thus a main policy goal was to conceive the terms of best practices to face climate change. In the book, Sweden occupies a prominent comparative place in providing examples of those best practices. The recent conceptualization of adaptation and policy concerning climate change represented in the case of Giddens shows how at the core of theoretical and policy discussion today there are important issues concerning how concepts are formulated and contested.

As we can see now, the literature on forestry, political ecology and environmental communication reviewed earlier imply the use of concepts and terms that need to be clarified in the context of theorizing and carrying out empirical work. This implies having in mind what Gallie (1955) understood in terms of essentially contested concepts and Gray (1977) in terms of the *contestability of social and political concepts*. Yet, what is really at stake here is the meaning of conceptuality. To deal with this, I draw from Adorno’s views on conceptuality.

As has been noted by Werner Bonefeld, in Adorno,

“Conceptuality has to do with the recognition of reality – not with the analysis of concepts. Concepts are required to recognize reality. Conceptualisation goes beyond the immediate perception of reality in order to comprehend what is hidden in its immediacy or immediate appearance. What is appearance an appearance of, and what appears in appearance? Concepts belong to reality and exist through reality. They do not live a life of their own, detached from reality. A concept that has no content is a concept of no-thing. Conceptuality is thus the way in which reality is rendered concrete – it is our way of comprehending reality by means of thought and experience. It focuses the experience of reality and thinks from within reality. Concepts are thus moments of a reality that requires their formation, and it is the business of conceptual thinking to subvert the critical subject by denouncing its deceitful publicity according to which its thing-hood is either self-constituted or a natural phenomenon” (2009, pp. 126-127).

Drawing from Adorno’s view on conceptuality, the point here is that to critically conceive theoretical research implies bringing reflexivity to the very process of using words, terms and concepts. Thus, conceptuality here implies

awareness of how theoretical concepts are contested and how they are immersed in political and ecological projects today.

As seen above in Chapter 2, research on forest and land use for forestry purposes raises important questions concerning conflicts in forestry. Today, such conflicts become immersed in the vast discursive and material changes associated with the relations between climate change and forestry. Assessments of those two fundamental processes in forestry lead to the asking of theoretical questions about appropriate research frameworks to theoretically and empirically research such problems. In what follows I will aim to develop a framework for theorizing that (a) places political ecology and environmental communication into wider theoretical relations, and (b) takes a comparative approach to guide a research on forestry where local and national processes of forestry are related to a global system of forestry relations.

For me, historical materialism, Frankfurt critical theory, and world systems theory are the main sources for the framework for theorizing used in this thesis. This combination, I argue, can give important insights into my attempt to think and explain forestry in times of climate change. Thus, and in order to give grounds for a framework for theorizing and combining political ecology and environmental communication research interests, I will first elaborate on the basic questions concerning historical materialism, Frankfurt critical theory, world systems theory. These will be seen below as four combined sources for critical theorizing. A focus in the presentation below will be on making productive connections between them for the purposes of the research aims of this thesis. This will serve to help deal with a number of concepts that I see as deeply connected to theorizing in political ecology terms. This will also serve to elaborate on a meaning for environmental communication in this thesis. In doing so, I will depart from some conventional understandings of environmental communication which either tend to take the environment as an already-formed entity towards which meaning through environmental communication is produced, or views that conceive EC as a positive normative process in itself. In addition, I will add to the understanding of environmental communication qualified views on discourses, ideology and hegemony.

Sources for critical theorizing in this thesis

Historical materialism, critical theory, and world systems theory, as ways of theorizing relations, are essentially rooted in complex histories of conceptualization and conceptual reconstruction. What is critical in this way of theorizing is a radical question concerning the structure of the contemporary world as a historical phenomenon and the links between theory and normativity. Conceptuality, as presented above, is important here since I will

try to clarify the concepts on which the framework for theorizing in this thesis is built. In several moments below, the presentation of concepts refers to the theoretical work of Marx. This is for two reasons. First the contemporary actuality of Marx's theorizing about the fundamental processes of capital and capitalism and, second because Marx is the connecting author among historical materialism, Frankfurt critical theory, world systems theory.

Marx used to refer to his work as being guided by a materialist conception of history. In doing so he was both opposing idealism, crude versions of materialism and combining a reconceptualized idealism with a reconceptualized materialism. The procedure to do it was dialectics. As Wellmer (1977) remarked in the context of analysing Habermas' reconstruction of historical materialism, historical materialism is a project and as such it creates the conditions for theorizing and practical engagement with transforming reality. Reconstructing some of the key claims within a historical materialist approach allows us to explore the critical logic of historical materialism. Among the most important claims of historical materialism, we have:

I Historical materialism starts with basic processes of human life and places them in their historical context with the aim of explaining such processes. A concise statement of this was offered by Engels:

“According to the materialist conception of history, the ultimately determining element in history is the production and reproduction of real life. Other than this neither Marx nor I have ever asserted. Hence if somebody twists this into saying that the economic element is the only determining one, he transforms that proposition into a meaningless, abstract, senseless phrase” (1972 [1895]).

II Historical materialism put conflicts and contradictions at the centre of the explanation of social changes and changes in nature.²

III Historical materialism addresses stratification of different sorts, for example class, gender and status, at the centre of theoretical concern. Yet conflicts are seen in their historical specificity and in relation to other social processes. Thus, historical materialism is about power and social power.

IV Historical materialism attempts to offer a general theoretical framework of transitions and changes in human history. The historical dimensions of historical materialism emerge from the need for seeing phenomena as

² The term nature is complicated and contested within political ecology and I will often use the term ecosystems. Yet, in historical materialism these themes have been addressed mainly by using the word nature so I will use it here.

contingent processes that first depend on past events and also define possible paths into the future by human praxis.

V Historical materialism theorizes the constitutive process of making social life possible in terms of basic relations between production, exchange and consumption. In doing so, its material dimensions are not those of a crude and mechanic materialism but those of a materiality produced by human agency and nature.

VI Historical materialism conceives both structuration and agency as integral parts of the constitution of a totality. In terms of Marx, totality appears in different forms. In the *German Ideology*, totality is presented as follows:

“This conception of history thus relies on expounding the real process of production - starting from the material production of life itself-and comprehending the form of intercourse connected with and created by this mode of production, i.e., civil society in its various stages, as the basis of all history; describing it in its action as the state, and also explaining how all the different theoretical products and forms of consciousness, religion, philosophy, morality, etc., etc., arise from it, and tracing the process of their formation from that basis; thus the whole thing can, of course, be depicted in its totality (and therefore, too, the reciprocal action of these various sides on one another)”.

As one can see here, historical materialism is rooted in a relational understanding of social processes. Capital for example, is in Marx a social relation, and the same with poverty, which cannot be understood as being separated from wealth. On the other hand, praxis is implied in any moment of theorizing. For Marx, human being qua species beings, are a priori social subjects. A specific argument within historical materialism is the existence of a general contradiction between use value and exchange value produced by capital. To attest a human bodily materiality means that an ontological claim is at the core of historical materialism: humans cannot be separate from the materiality of nature.

As seen before, historical materialism is obviously connected to Marx and therefore the question of stating why this framework draws on historical materialism and not claiming to be a Marxist framework is due here. In arguing for historical materialism, my aim is to draw some explanatory concepts for the cases analysed in this thesis and also to allow both theoretical innovation and openness in the theoretical processes. In this regard, drawing concepts from historical materialism but also discussing them is one of the characteristics of critical theory and world systems theory (Henceforth, WST for world systems theory and CT for critical theory).

Within this context, some premises of historical materialism have been central within both CT and WST analysis. Nonetheless, it could be said that both frameworks have run in parallel roads with some moments of connection. Heinz Sonntag (2003), for example, has even called WST as CT for the 21st century. For this author, the connection to anti-systemic movements carried out for this theory implies a reunification of theory and practice as the best critical theory. He adds that dialectical thought understood in Horkheimer's sense as knowledge from which actions can come, is what makes WST our epoch's equivalent of CT. For this author, WST can fulfil the core tasks auto-imposed by CT. Another author has seen the connection of both approaches in the fact that both are "*presuming the existence of economic life that drives history*" and seek "*to bear it out in focused studies*" (Moses, 2008). Another author, though also looking for collaborative interrelations between both theories, sees this relation as something rather more complicated (Burch, 1995). Burch addresses the very crucial point of developing certain tensions in the process of building bridges between both frameworks and he observes closures in the way in which some WST theorists conceived of CT.

CT can have different meanings and there are a number of research and philosophical schools that could be understood as doing some kind of critical theory. Nonetheless, the notion of CT has largely been associated with the work developed in connection to what has become known as the Frankfurt School. Such work has been undertaken by a number of authors such as Adorno, Horkheimer, Marcuse, Benjamin and Habermas. One way of differentiating this kind of critical theory is by looking at its emphasis in a critical approach to capitalism. In fact, what distinguishes CT from other theories also referring to themselves as critical is the way in which capitalism and its dynamics are the main matters to be researched, analysed, interpreted and, finally, criticized. This intellectual work is carried out because there is an ideal of human emancipation involved in the core of CT. In the case of WST, I refer here to a body of thought and research associated with the seminal work of Immanuel Wallerstein and developed from several sources such as for example dependency theory and the Annales School. What characterizes this approach to the world is the understanding of the world-system as the main unit of analysis and the interpretation of different positions of other analytical units within that system. The notions of core, periphery and semi-periphery states are introduced as elements of the world-system to be analysed but this analysis is always to be done in relation to the world-system. Today, a number of authors define themselves as world-systems theorists though they have differences in their interpretations and conclusions about world-system(s) (See for example: Thompson, 2000). In what follows and in the next section I will

take insights from different authors than can be classified within CT and WST – not for a closed or an all-encompassing reconstruction and treatment of CT and WST – but to highlight relevant topics for building the framework for theorizing in this thesis.

As with CT, WST also focuses on capitalism and the shaping and emergence of world dynamics and system-wide structures that are formed through processes of capital accumulation and social conflicts. This common interest is reflected in the focus on the role of the market in the process of capital accumulation. In *The Dialectics of Enlightenment*, Adorno and Horkheimer (1997) pointed out the cultural and qualitative dimensions of the expansion of the capitalist economy through the market. Immanuel Wallerstein (1974) and others have reconstructed and explained concrete historical processes of violent expansion and political management of capitalist markets, which gives a historical perspective to Adorno and Horkheimer's insights. The notion of world-system position of states within the capitalist system provides an analytical framework with which to understand the relation between nation-states. This has to be understood in a dynamic way and one of the aspects to take into account here is the role of national capitalists in the process of intensification of capitalism and its expansion. Christopher Chase-Dunn (1989) puts the reproduction of core/periphery relations in such a dynamic way and here uneven development, wage differentials, dependence, class-formation, trade composition and other processes are considered as interacting through conflicts related to the production of inequalities. He points out:

“The role of periphery and semi-periphery in this process of expansion [of capitalism], intensification, crisis and struggle is twofold. The exploitation of the periphery by the core provides an extra surplus value which can be used by core capitalists as sources of new capital-formation, or rewards for core workers, or as resources for sustaining powerful core states. It can also help resolve potential conflicts among different groups of core capitalists. The availability of cheap raw materials, and especially, cheap foodstuffs in the core is a benefit to core workers as well as core capitalists” (Chase-Dunn, 1989, p. 244).

Chase-Dunn adds:

“Uneven development occurs within the core as well as between the core and the periphery, and the class structures within core countries are not homogeneous” (Chase-Dunn, 1989, p. 244).

Thus, the role of the capitalist market is central for understanding the world and the interaction between individuals and states that capitalism produces and reproduces as dynamics of social life.

Since both approaches aim at emancipating human beings from social structures developed within capitalism, social dynamics are understood as containing possibilities for constructing alternative social-systems and human organizations (Frank and Gills, 2000; Linklater, 2007). As an approach that deals with both macro-socio structures, world-reaching phenomena and long-term processes, WST approaches local episodes and situations as interrelated parts of global and regional dynamics. In this regard, WST has put forward the idea of the existence of the Global South and the Global North, this being a division that implies not only the damaging forces of global capitalism in the Global South, but also dynamics that could represent sources of hope for the future (Arrighi, 2007). In doing so, processes that are seen as contradictions of capitalism are connected to agency and possibilities for social transformation. CT also engages in the goal of human emancipation from capitalist structures and so it aims at a qualitative analysis of social orders. In doing so, CT is premised on not taking any social construction for granted. Thus, within CT, dialectics serves to unravel the meaning of ideologies and politics in a way that relates them to historical development of philosophical concepts. To assume such relationships between history and social concepts implies both to challenge mainstream discourses that naturalize social ideologies and to undertake new areas of study critically, areas in which such relations remain far from the discussion. In this regard, both CT and WST can be conceived as open frameworks, inviting us to work with them and to generate analyses and interpretations that revisit contents and definitions operating within both frameworks.

As both CT and WST are ways of theorizing reality, these have been aimed at engaging with materialist historic perspectives of human organizations and the world. Some common topics developed in the interpretations of CT and WST are, for example:

- I The notions of progress and development are conceived in terms of the materialization of divergent interests through conflictive social processes.
- II They aim at making sense of the relations between theory and practice. This is a consequence of ways of thinking and focusing radically on how capitalism works. So, CT and WSA are oriented toward critiquing and changing society and the capitalist world system, in contrast to other theories oriented only to understanding or explaining them.

III Both CT and WST maintain a kind of double relation to Marxism and Marx's understanding of capitalism. Thus on the one hand there is recognition of Marxism and Marx's works as theoretical and practical sources and analytical frameworks, but on the other hand there is also a critique of either some of Marxism's or Marx's specific analyses. In connection to the latter point, both approaches deal with the relation between capitalism and totality, totality being conceived as the historical convergence of relationships in which individuals develop their lives and are connected with others through processes that include extraction of natural resources, production of commodities, exchange/trade, distribution, communication and consumption.

IV Finally, we can point out that within both frameworks, history is conceived as an open process through which historical outcomes and paths are produced by human agency. From the radical question of how the world order came about, both CT and WST look into the potential for human self-realisation and engagement in social constructions in which individuals' well-being does not rest on other human being's suffering or exploitation. In addition, important concerns within CT and WST are related to how and why transformation of ecosystems and ecological processes are produced. This latter point has become a central interest in both WST and CT, and so is explored below.

What interests us here is the more specific discussion on historical materialism, CT and WST in the context of theory development for understanding and explaining social-ecological relations. Here, attention to the conceptualization of nature has been crucial. In a description of one discussion concerning Marxism and ecology and which can be extended to historical materialism, CT and WST, Bruce Braun has highlighted that:

“[.]when it comes to the matter of ecology we can locate within Marxism two competing strands: those who seek to extend the insights of historical materialism to questions of the environment, and thus understand ‘nature’ as itself an effect of historical forces (i.e. Harvey, Smith), and those who accept nature’s externality and seek to ‘renovate’ Marxist theories of economic crises so as to take external nature (i.e. natural limits) into account” (2006, p. 197).

This divide has roots in the readings of Marx. Though Marx constantly deals with nature and refers to it in his work, several criticisms about his conceptualization of nature were raised and the overall question of whether nature was a theoretical problem in Marx's work and historical materialism took a prominent place in the 60s. Adorno and Horkheimer's *Dialectics of*

Enlightenment is one important attempt to situate the problem of nature at the centre of a theory of capitalism. In the vein of this discussion, the book *The Concept of Nature in Marx* by Alfred Schmidt, written under the supervision of Adorno and Horkheimer, is a key reference with which to track this debate. In the book, Schmidt reconstructs the concept of metabolism in Marx's work and at the same time he argues that contrary to the view that Marx aimed to secure a "quantitative increase in the existing forms of mastery over nature" through technology and science. In this regard, he proposed the thesis that what was really implied in Marx's work was "something qualitatively new: mastery by the whole of society of society's mastery over nature" (1971, p. 13), and Schmidt's argument is thus linked to some of Adorno and Horkheimer's views in this respect.

In adding to the overall interrogation of capitalism and ecology, Marxist scholar James O'Connor (1998) developed the thesis of a second contradiction of capitalism. He observed that along with the contradiction between relations of production and productive forces there was a contradiction between capital and the conditions of production, for example ecological processes. In parallel to this, John Bellamy Foster and David Harvey developed particular ways to deal with the environmental question. While Harvey's position recognizes the severity of environmental problems, he cautions about apocalyptic and back-to-nature solutions and delivers a critique of the very sources from which such a critique is being developed. The concept of the production of space and second nature is key here, as Harvey conceives that capital is an ecological relation (Harvey, 2014) and so, as outlined by Braun, the idea of external limits reproduces an artificial and dualist separation between humans and ecosystems. In the case of Foster (1999), the elaboration on a theoretical understanding of ecological problems has been based on a deepening of the notion of a metabolic rift. The notion, which one finds in Marx's theory, has been further developed to offer explanations and descriptions of the processes created by capital in its relation to and its place within nature. Another attempt to use some of Marx's categories in the explanation of social-ecological problems is the elaboration on the concept of subsumption of the labour process into the realm of nature. In this case, the logic of subsumption is used to look at how capital transforms both the labour processes and nature (Boyd *et al.*, 2001). Partly because of the increasing effect of the capitalist neoliberal ideology on the policy process concerning local and global questions about resources and climate change, there has been wide use of the notion of commodification of nature and ecosystems, and primitive accumulation and accumulation by dispossession have also been used to frame the terms of ecological conflicts. In this case, what is the object of analytical exploration is

actually a result of the whole process of capitalist production with an important emphasis on neoliberalism.

Another important effort to offer theoretical insights into the question on nature and society relations has been developed within the wide spectrum of WST. In early contributions to the understanding of nature-society relations, several world systems scholars addressed in quantitative, qualitative and historical terms the global reach of social-ecological transformations of capitalism. Recently, Jason W. Moore has theorized such social-ecological transformations in terms of a capitalist world-ecology (2011).

As we have seen, underlying the previous theoretical efforts to bring the analysis and explanation of capital into the question of social-ecological relations, there are a number of basic premises originating in Marx's theorizing of capital and labour and his critique of political economy. Within this context, it is crucial to conceive the relations between labour, values and power. These, I argue, are fundamental concepts for the theoretical view on political ecology I am trying to articulate here. In addition, I link such a view on political ecology with the equally important focus on the communicative dimensions of the social-ecological processes under capitalism, and how these processes are contested. These different moments in the articulation of social-ecological relations are then fundamental in the framework for theorizing forestry I will develop below. For this purpose, I continue below by looking at political ecology in relation to labour, values, power and forestry and then at environmental communication in relation to discourses, ideology and hegemony. Here, the focus on relations is then crucial and therefore, as I will present below, one methodological implication of making such relations is the question of dialectics.

2.3.1 Political ecology in relation to labour, values, power and forestry

As we observed earlier, work in terms of the contemporary structure of political ecology means the use of a number of qualified terms. Then, we have observed that important terms used in political ecology and environmental communication are also presented in critical theorizing. Within this context I will now focus on a number of terms that will be important in forming the understanding of political ecology that will be implied in the framework for theorizing used in this research. Such terms are labour, power and values. In addition, I will elaborate a number of insights concerning commodity production, wood use and relations of forestry.

Labour

To give an analytical meaning to labour in this thesis I start by looking at Marx's insights on labour. However, at the conceptual level one of the complexities in dealing with the concept of labour is the existence of the two terms 'labour' and 'work'. For some, the concept of work is in Marx a trans-historical category whereas labour is the specific historical category for work under capitalism (for discussions on this see Cleaver, 2002 and Postone, 1996). Within this context, one meaning of labour in Marx's work is the following:

"The labour process, as we have just presented it in its simple and abstract elements, is purposeful activity aimed at the production of use-values. It is an appropriate of what exists in nature for the requirements of man. It is the universal condition for the metabolic interaction between man and nature, the everlasting nature-imposed condition of human existence, and is therefore independent of every form that existence takes, or rather it is common to all forms of society in which human beings live" (Marx, 1992, p . 290)

Yet, in addition to this trans-historical view on labour, Marx's theorizing aims at conceptually leaving labour as such, and so labour became wage labour. Thus, labour in Marx is a historical category and also a trans-historical category. Sean Sayers (2007) offers a concise approach to how labour is thought of in Marx and how this is related to Hegel's philosophy:

"Marx conceives of labor as "formative" activity, as activity through which human beings give form to materials and thus objectify themselves in the world." (Sayers, 2007, p. 432).

Sayers adds that this conceptualization of labour enables also comprehension of transformations of labour processes, including the so-called postindustrial work:

"Properly understood and suitably developed, Marx's Hegelian theory of work as "formative" activity provides a more satisfactory and illuminating conceptual framework for understanding the new postindustrial kinds of work. According to this theory, different types of labor involve different degrees of mediation in our relation to nature" (2007, p. 449).

Another view on labour in Marx sustains that:

"Marx's value theory departs from the ontological principle that human societies reproduce themselves, and change, through labour. Labour and its products are

socially divided and, under capitalism, these processes and their outcomes are determined by the monopoly of the means of production by the class of capitalists, the commodification of labour power and the commodity form of the products of labour” (Saad-Filho, 2002, pp. 42-43).

As we have seen, the conceptual status of labour in Marx is contested. For me, three fundamental conceptual movements concerning labour in Marx are important here: (a) a fundamental critique of labour, (c) A normativity based on labour which is proposed with a sort of trans-historical view on labour beyond wage labour and capital, and (c), the theoretical relation between labour and nature in historical terms. Importantly here, as stressed by Saad-Filho and Sayers, is that in Marx labour is always qualified.

As mentioned above, crucial to Marx is the relation between labour and nature in historical terms. Darrow Schecter (2011) develops this in a concise way:

“Marx shares the view that the relation between humanity and nature is based on dialectic rather than relations of dualism or identity, and indeed, he acknowledges that his predecessors Kant and Hegel established this before his entry in these debates. But Kant and Hegel regard the mediation of humanity and nature to be accomplished in reason and, by extension, in law. For Marx, however, moving from idealism to historical materialism, a radical analysis of the question shows that the relation between humanity and nature is mediated in the labor process” (pp. 404-405).

In this regard, Farshad Araghi (2009) develops the important dimension of thinking labour and ecological questions when drawing from Marx’s conceptualization of labour:

“The epistemological break with the "domination" and "coexistence" discourses came with Marx, who reformulated the relationship between humanity and nature as what we may call the "labor in nature" and "nature in labor" perspective” (p. 116).

From the previous presentation, we can draw and elaborate on Marx’s concept of labour to sustain that historical forms of labour are fundamental processes of mediation between humans and ecosystems. Thus theoretically, labour should be seen as one of the fundamental processes in the production of social-ecological relations. Such historical specification helps to avoid unawareness of using trans-historical concepts in theory and it helps in developing explanatory and analytical tools in researching political ecology relations.

To the previous aspects concerning the concept of labour, we can add the existence of what has widely been referred to as an international division of labour. This is a central issue in WST and it also forms the basis of the process termed unequal exchange. Within this context, a world political ecology cannot be separated from how labour is differentially used in different localities of the world system. In the original terms of unequal exchange, it was labour differentials that lay at the core of the inequalities in international trade. A similar thing can be said when looking today at the inequalities within a world political ecology. Labour, in other words, is what makes possible the materiality of political ecology relations and is a basic aspect in the different forms of political ecology relations.

The dimensions of labour presented above serve to analytically inform a political ecology analysis. This is because looking at labour is to look at how we transform social-ecological relations and produce environments. With the aim of having a political ecology perspective on this, it is crucial to address questions of value and power. In what follows, I elaborate on value and power by continuing to take as starting points Marx's theorizing in this regard.

Value

Inseparably linked to the previous presentation on labour is the question of value. Value is one of those central categories in historical materialism, critical theory and world systems theory. It is also an implicit articulating category in important research in political ecology and environmental communication. However, for conceptual purposes I will specify what is meant by value in this context.

In what follows I draw from Marx's approach to value relations. We start by stating that in Marx the goal of constant and endless capital accumulation through the interaction of productive forces and social relations of production and the production of value and commodification can be considered a *differentia specifica* of capitalism.

The transition toward a dominating capitalist system of production rested on what Marx identified as a primitive process of accumulation. From that historical moment of primitive accumulation, Marx developed an interpretation of capital accumulation as a social process internal to capitalist production and consumption. In analysing such a question, Marx started by taking the commodities as they appeared in a capitalist society. Then he aimed to explain the production process behind commodities. It is in this theoretical process that Marx made crucial distinctions regarding the concept of value.

Marx distinguished between use value, exchange value, surplus value, value and the valorization process and linked them to the understating of capitalist

production and the contradictions this creates. These concepts constitute a pillar of his theoretical explanation concerning the capitalist system of production and consumption. For Marx, the process of exchange of commodities within capitalist markets conceals the social relations underpinning the process of creating exchange value from use values. In relation to use value, Marx clarifies that it is not only labour that is the source of use value and wealth but nature too produces use values:

“Labor is not the source of all wealth. Nature is just as much the source of use values (and it is surely of such that material wealth consists!) as labor, which itself is only the manifestation of a force of nature, human labor power” (1922, p. 19).

Use values are then “*objects of the satisfaction of human needs*” and they are key elements in the organization of any social system. In fact, elsewhere, in the Grundrisse, Marx gives to the concept of use value a crucial dimension in the understanding of nature-society relations. In this regard, use values are the

“...material side, which the most disparate epochs of production may have in common, and whose examination therefore lies beyond political economy. Use value falls within the realm of political economy as soon as it becomes modified by the modern relations of production, or as it, in turn, intervenes to modify them. [...] In fact, however, the use value of the commodity is a given presupposition -- the material basis in which a specific economic relation presents itself. [...]. Now how does use value become transformed into commodity? Vehicle of exchange value. Although directly united in the commodity, use value and exchange value just as directly split apart. Not only does the exchange value not appear as determined by the use value, but rather, furthermore, the commodity only becomes a commodity, only realizes itself as exchange value, in so far as its owner does not relate to it as use value” (Marx, 1973, p. 881).

One important thing should be highlighted here: a commodity has a use value; namely someone buys it in order to satisfy a need, and this can only be understood within the context of a given economic relation. In this regard David Harvey (2006) has highlighted that use value and exchange value can also be seen in relation to qualitative (use values) and quantitative aspects (exchange values). We have seen how Marx looks at the social relation between use value and exchange value under capitalism and makes the crucial points that use values are present in different historical epochs. However, it is the way that exchange value, based on use values, appears in capitalism that makes one component of the historical *differentia specifica* of capitalist

production. To link the different moments in the production of commodities in relation to the question of value, Marx proposed the notion of the valorization process. For Marx, capitalist production is a process of creating value (1992, p. 293). Capitalists or capitalist firms produce use values that are desired not for their own sake, but because they can be exchanged.

“In this regard use values are the substratum of exchange value. In doing so the aim of capitalist production is to produce not only a use-value, but a commodity; not only use-value, but value; and not just value, but also surplus value”.

This is also an explanation of how the process of giving value to things and commodities takes place in social terms. In fact, for Marx,

“Capital is no more a thing than money is. In capital, as in money, definite social relations of production between persons are expressed as the relations of things to persons, or definite social connections appear as social characteristics belonging naturally to things” (1990, p. 1005).

Elsewhere Marx conceptualized the capitalist production process as a “unity of the labour process and the valorisation process. In order to convert money into capital, it is converted into commodities, which form the factors of the labour process” (1990, p. 995). Here there is an important theoretical issue to be considered. It is one thing to recognize that nature is a source of use value, as it is labour, and another to explain how the interrelations between use value, surplus value (from labour) and exchange value result in value under capitalism. In fact, any valuation and valorization is a social process that is linked to and immersed in a biophysical reality. Through such social processes, the recognition and attribution of value is produced. This means that nature, or ecosystems if we prefer such a term, are socialized as they have use value. This means not that such use values only exist because we recognize them but that without the social process of valorization they cannot have value. They exist in reality, produce things, live and die and are crucial and necessary for the existence of other lives, but they have value only because humans have produced such value, and that is exactly one of the crucial problems with the capitalist system in relation to ecosystems: capitalism is based on the need to create values through production of commodities on an expanded scale. In this regard, Marx’s conceptualization of value cannot be reduced to an economic concept of value since it is a social concept of value. Marx’s conceptualization of value breaks the separation between economic and philosophical concepts of value since his analysis integrates them into a critical social theory of capitalism.

Crucial to the elaboration on values in Marx is that people, persons, individuals, subjects, and classes are located in relation to the processes of valorization of capital. Within this context, one can affirm that Marx's theorizing is based on agency which is understood under the concept of praxis, and within this context, a fundamental theoretical insight from Marx's work is that the relation between use value and exchange value means contradictions within capitalism. The contradiction concerning use value, exchange value and value has recently been presented as one of the seven foundational contradictions of capital today (Harvey, 2014). As Clark and York (2005) state: "*The law of value remains central to understanding capitalism and the ecological crisis*"(p. 407).

In addition, to look at this contradiction is crucial to a dialectical approach to social-ecological relations. As Moore (2011) has put it:

"[...] the crystallization of value as abstract social labor in the capitalist era represents (1) a fundamental contradiction between value and use-value, whose inner contradiction finds (temporary) resolution in the secular trend towards the commodification of everything; (2) not merely an objective process of accumulation, but equally a subjective project of world power; and (3) a world historical process and project of reordering the totality of the nature–society dialectic, such that one biophysical moment is internalized qua human labor power (reclassified as 'social') and another is externalized through the progressive subsumption of the rest of nature as a free gift to capital" (p. 18)

As forest use and land use are processes concerning use value and exchange value, the previous insights will be part of our framework for theorising forestry in Chile and Sweden.

Power

Concerning the field of social power in terms of political ecology, it is important to recognize several modes of power along with social power. Within this context, labour power has a fundamental role. First, labour power is a determining process in the understanding of political ecology. Second, it is through labour power that fundamental social mediations between human beings and power and energy in ecosystems are materialized. Third, those are basic processes for the possibility of social-ecological relations and their politicization. In choosing ecosystems instead of nature, one can today aim to give a more precise ecological meaning to the processes framed in political ecology terms.

The conceptualizations on social power I will highlight below depart from several available elaborations on power used in environmental and social-

ecological research. For me, conceptualizations on power must take into consideration the specificities of historical social-ecological relations and processes. For this, I argue, specific theoretical starting points are needed. In particular I am concerned here with why and how such processes are materialized where capital is a dominant social relation and also when the logic of capital accumulation implies attempts to subsume other and alternative social-ecological relations which in turn produce contestation. Within this context one can say that while there exists a wide range of theories and frameworks for the analysis, interpretation and explanation of power relations, in order to analyse, interpret and explain cases of social ecological relations and political ecology, not all theories on power are appropriate. This happens because there are theories of power that are thought for other types of case, for example family power relations and political power as decoupled from the basic social-ecological structures that make the reproduction of political power possible. Thus, it would appear important to evaluate theories or approaches that allow us to look at different levels and scales of power relations in relation to social-ecological relations. With this in mind, there is a need to make important distinctions and qualifications, for example the distinction between power and social power. In what follows I offer some conceptualizations of social power and will link this with the question of how to research power.

I start by observing an important moment in Marx and Engels' elaboration in *The German Ideology*. There it is theorized that:

“The social power, i.e., the multiplied productive force, which arises through the co-operation of different individuals as it is caused by the division of labour, appears to these individuals, since their co-operation is not voluntary but has come about naturally, not as their own united power, but as an alien force existing outside them, of the origin and goal of which they are ignorant, which they thus are no longer able to control, which on the contrary passes through a peculiar series of phases and stages independent of the will and the action of man, nay even being the prime governor of these” (1976, pp. 53-54.)

Sheldon Wolin has rightly observed that there is a communicative dimension of the conceptualization of social power put forward by Marx here:

“Marx's emphasis upon “social power,” the power that human beings generate by cooperative practices, might seem to imply that social power relies upon pressure and persuasion rather than force or violence” (2004, p. 424).

Yet, Marx's relational approach also recognizes that social power is a dimension of capital rule. In another text, Marx relates social power to a fundamental division in a capitalist society:

“How, then, does any amount of commodities, of exchange value, become capital? By maintaining and multiplying itself as an independent social power, that is, as the power of a portion of society, by means of its exchange for direct, living labour power. The existence of a class which possesses nothing but its capacity to labour is a necessary prerequisite of capital” (1902).

That capacity to labour referred to by Marx here is what in other moments is formulated in terms of labour-power. This is a fundamental conceptualization in the work of Marx. With this in mind, we can notice how a new qualification concerning power operates at the conceptual centre of historical materialism. In fact, the dynamics of labour in Marx are conceived as being inseparable from the processes of producing a metabolic relation with nature. Yet, this is not only a natural process. The labour process is for Marx a process through which human beings create relations to nature and do so with certain purposes and because of certain needs. That is a historical process and therefore Marx treats capital as a historically specific social relation. The different qualifications of power in Marx imply crucial questions for the dialectic of power, since different forms of power are linked within capitalism in contradictory ways.

Underlying Marx's development of such insights, there is a concern with exploitation and domination. These are central processes around which power and social power are formed in capitalist societies. If Marx recognized two dimensions of social power, other authors thinking in terms of social power show that other specifications are needed. One example of this is Silvia Federici, who identifies a historical relation between women and commons where social power is differentiated:

“The social function of the commons was especially important for women, who, having less title to land and less social power, were more dependent on them for their subsistence, autonomy, and sociality” (2005, p. 71).

A similar emphasis on social power, as a subject-dependent process, has been highlighted by Zibechi (2010). In analysing different social movements in Latin America, Zibechi observes first the rise of non-state powers and second how communities, neighbourhoods, towns and cities are territories where social power can be produced:

“The manifold deployment of the capacity to act from below disarticulates the institutional. How is it that this social machinery is capable of such dismissal and dispersion? What intrinsic characteristics confer such potentialities? One, which we track throughout this work, consists of the formation of non-state powers, meaning power distributed somewhat evenly throughout the social fabric and political powers not separated from the society from which they are born. During the insurrection, we see how the social body (the rural and urban communities) are power structures without specialized bodies, power in movement-without power over the collective. During the great movements, social power is intensified in communities, neighbourhoods, towns, and cities; we see hundreds of thousands, millions, becoming capable through their everyday lives of doing things that seemed quite impossible beforehand” (2010, p. 12).

One can observe that a main source of qualification in the insights above is that social power is conceived as being inseparable from subjects, subjectivities and structures. Thus, social power here is relational. Within this context, the terms of structure and agency become contingent and historical processes. Such relations of power serve to complement the relation between power and capital made by Marx and Engels. The point is also fundamental to fully understanding Foucault’s analysis of power. In fact, as can be seen below, underlying Foucault’s analytics of power, capitalism, exploitation and domination are processes interplaying with subjection and power. In the *Subject and Power*, Foucault states:

“It is certain that the mechanisms of subjection cannot be studied outside their relation to the mechanisms of exploitation and domination. But they do not merely constitute the "terminal" of more fundamental mechanisms. They entertain complex and circular relations with other forms” (1982, p. 782).

In making sense of this one should recall that for Foucault labour was one of the examples of what he conceived as the first *modes of objectification which transforms human beings into subjects*. In addition, for Foucault, capitalism and class relations were crucial to understanding disciplinary power:

“This new type of power, which can no longer be formulated in terms of sovereignty, is, I believe, one of the great inventions of bourgeois society. It has been a fundamental instrument in the constitution of industrial capitalism and of the type of society that is its accompaniment. This non-sovereign power, which lies outside the form of sovereignty, is disciplinary power. Impossible to describe in the terminology of the theory of sovereignty from which it differs so radically, this disciplinary power ought by rights to have led to the disappearance of the grand juridical edifice created by that theory.

But in reality, the theory of sovereignty has continued not only to exist as an ideology of right, but also to provide the organising principle of the legal codes which Europe acquired in the nineteenth century, beginning with the Napoleonic Code” (1980, p. 105).

Though it is clear that capitalism and exploitation are intrinsic to Foucault’s conceptualizations presented above, one of the complicated theoretical aspects in assessing the concept of power in Foucault is his ambivalent treatment of capital and labour as analytical categories in his later works. The two examples above show that in Foucault’s conceptualization of power, Marx’s theorizing of power and labour is implied.

Within this context, it is important to note that influential understandings of power during the 20th century were associated with the interplay between different forms of communication, discourse and the formation of power. The question is prominent in Arendt, Habermas and Foucault’s work, for example. Recently, a major effort to deal with this question has been realized by Manuel Castells and his theory of communication power. One of Castells’ theses is that:

“Power is primarily exercised by the construction of meaning in the human mind through processes of communication enacted in global/local multimedia networks of mass communication, including mass self-communication. Although theories of power and historical observation point to the decisive importance of the state’s monopoly of violence as a source of social power, I argue that the ability to successfully engage in violence or intimidation requires the framing of individual and collective minds” (2013, p. 416).

These insights are important for consideration here. Yet, Castells is still operating under a theorizing of social power that takes for granted the formation of social-ecological relations. Though one of his main case studies is climate change, Castells still tends to treat this from a communicative perspective that misses some of the deeper dynamics of climate change and of communication and labour as a constitutive process of social-ecological relations. Thus, my emphasis is on considering social power in relation to communication but also on the very process of the formation and transformation of social-ecological relations.

What the insights from Federici and Zibechi above show is that there is one way of looking at social power that actually breaks certain limits in the study of power. Their social power is subject-dependent, and it is a process emerging from the very sites of life and production of intersubjectivity. If the focus above is on those groups, communities and working classes, it does not mean, I argue, that they are the only ones producing social power. In fact, capitalist and

dominant classes also produce social power. In thinking in terms of producing social power one needs to deal with one confusing notion originating from Foucault's assertion of the productive role of power. The notion is based on Foucault's assertion that:

“[...]relations of power are not in superstructural positions, with merely a role of prohibition or accompaniment; they have a directly productive role, wherever they come into play.

-Power comes from below; that is, there is no binary and all-encompassing opposition between rulers and ruled at the root of power relations, and serving as a general matrix” (1978, p. 94).

One could argue that this view may be compatible with what we have presented above. Yet, at two crucial theoretical moments we land in different theoretical positions. The first moment is when one asks about the subjects and the intentionality of social power and the second moment is when one thinks in terms of social power and not just in terms of power in general.

Within this context an important methodological question emerges: how can one empirically research social power in relation to political ecology and environmental communication? Relevant and useful insights with both methodological and theoretical dimensions can be found in the work of Erik Wolf and Michael Mann. In the first instance, relying to an important degree on Irene Portis-Winner's (2006) treatment of this, I take Erik Wolf's four different modes of power (2001). Wolf's proposal on modes of power distinguishes between:

1. Power as an attribute of a person, his or her individual potency or capability. For Wolf, this refers to the endowment of persons in the play of power, but tells us little about the form and direction of that play.
2. Power as the ability of an ego to impose its will on an alter, in social action, in interpersonal relations. This draws attention to the sequences of interactions and transactions among people, but it does not address the nature of the arena in which the interactions transpire.
3. Tactical or organizational power means controls of the settings in which people may put forth their potentialities and interact with others. This takes Adams' definition of power not in interpersonal terms, but as the control that one actor or “operating unit” (his term) exercises over energy flows that constitute part of the environment of another actor.
4. Structural power is “...power that not only operates within settings or domains but that also organizes and orchestrates the settings themselves, and that specifies the distribution and direction of energy flows”. Wolf links this mode of power to what Marx identified as “*the power of capital*”

to harness and allocate labor power” and “it forms the background of Michel Foucault’s notion of power as the ability “to structure the possible field of action of others”. This term rephrases the older notion of “the social relations of production” and is intended to emphasize power to deploy and allocate social labour. These governing relations do not come into view when one thinks of power primarily in interactional terms. “Structural power shapes the social field of action so as to render some kinds of behavior possible, while making others less possible or impossible” (Wolf, 2001).

As expressed above, Wolf’s *modes of power* allows the distinguishing of different forms of power and offers a productive way to look at power in a political ecology context. In addition to Wolf’s contribution to the understanding of power, Michael Mann’s (1986) elaboration on sources of social power is also useful in this context. For Mann, and when dealing with collective and distributive dimensions of organizational power, power

“[i]n its most general sense, [] is the ability to pursue and attain goals through mastery of one’s environment” (1986, p. 6).

What I find interesting in Mann’s approach is the emphasis on sources of social power. For him there are four sources and they are associated with specific organizations: (a) ideological power is associated with ideological organization, (b) economic power is associated with economic organization, (c) military power is associated with military organization, and (c) political power is associated with political organization (1995). Mann’s elaboration on sources of social power is an interesting methodological and theoretical procedure to be considered. This is because to enquire into the sources of social power is very much in line with the effort to grasp how social power interplays in the formation of social-ecological relations and how and why the processes one defines as social power emerge in the first place. Similarly, to look at sources of social power is analogous to the process of looking at criteria for legitimacy and material sources of the law before analysing legitimacy and legal systems.

At this point it is important to note that there is another meaning of power deserving of consideration in this discussion. This meaning of power emerges from the fact of power being explicitly used within the self-understanding of subjects within institutions. For example, legal theories emphasize the question of the separation of power and the balance between powers within the State systems and its different components; namely the legislative, the executive and the judiciary (Fellman 1975; Cooper 1994; Ackerman 2000), and this

correlates to what in legal texts and in practice is taken as what happens in reality or what *should* happen in reality.

The procedures and clarifications concerning power enunciated above can be summarized in the following terms: (a) to research the sources of social power can be a way to find explanations to social power, (b) to distinguish between modes of power can clarify the specificity of social power, and, (c) to look at the *de facto* separations of power within the language and organizational forms of institutions and structures allows an understanding of how legal institutions work in a legal sense of power.

Forestry

As pointed out earlier, labour, value and power are important relations in any study of political ecology. In this thesis, political ecology is used to study forest and land use. In doing so, forestry becomes a crucial activity that needs to be understood. Thus, below I will present some conceptual relations concerning forestry. More specifically I will elaborate on forestry and the production of forest products under capitalism and in relation to alternative practices of forestry.

As we noted above, forestry is conventionally understood as

“...the scientific management of forests for the continuous production of goods and services...” (Perry, 1998)

However, scientific management of forests is a definition that depends on attributing the status of science to a number of practices concerning forests and land. As abundant research shows, forest use and the very definition of forests often becomes a socially contested issue. In addition, today there are important new questions concerning forests, and we can add tree plantations here, in relation to the very possibility of continuous production of goods and services. As we saw in relation to climate change issues, forestry is today re-signified and new values concerning forests are produced. These are, according to the terminology introduced above, questions concerning the use value of forests and land and their relation to exchange value.

Under these circumstances, labour relations, the relations between labour and ecosystems and finally the relation among the circulation of forest products can be seen as important issues to be addressed when researching forestry.

To link questions about forestry, forest and land use for plantations, I start by considering a theoretical relation that Marx proposed concerning working periods, production time and circulation time. Within this context, some issues concerning forestry are dealt with that have been highlighted elsewhere (see for

example Prudham, 2005). The relations between working periods, production time and circulation time are proposed in Volume II of Capital. Thus, some notes about the place of this volume in the whole edifice of Capital are due here. Volume II is the text where Marx, for theoretical purposes, takes for granted a closed capitalist system. Here Marx's theory of capital and labour under capitalism addresses the process of circulation of capital. Theoretically, Marx here conceives this in the context of fully capitalist relations. The analysis considers a number of insights into forestry in which, I will argue, the issue of forestry is presented in a way that opens the possibility to think forestry outside the capitalist process as well. The precise connection between Marx's approach to forestry and the place where it occurs in the text is important. Marx deals with forestry in the chapter dedicated to production time. For Marx, production time is something that essentially takes place in nature. As Marx's work is an analysis of systems of production and consumption where those moments of the political economy are dialectically connected, his analysis moves him into distinguishing processes within a totality of relations. The chapter preceding the chapter on production time is the chapter on the working period and the chapter that comes later is the chapter on circulation time. All these three chapters are chapters of part II of Volume II which is titled "The Turnover of Capital". At this point we need to note that for Marx, capital has a very specific meaning. This meaning of capital differs radically from notions of capital in current mainstream economics. For Marx, capital is essentially a social and historical relation. Within this context, we can observe that Marx is theorizing the relations between working period in terms of labour, production time in terms of processes of nature and circulation time in terms of the formation of markets. Therefore, in his approach, production in capitalism is organized in a way in which fundamental processes are organized in relation to time. It is here where Marx theorizes:

"The long production time (which comprises a relatively small period of working time) and the great length of the periods of turnover entailed make forestry an industry of little attraction to private and therefore capitalist enterprise, the latter being essentially private even if the associated capitalist takes the place of the individual capitalist. The development of culture and of industry in general has evinced itself in such energetic destruction of forest that everything done by it conversely for their preservation and restoration appears infinitesimal" (1992, pp. 321-322).

This does not mean that Marx is leaving production processes based on forest products outside the possibilities of being integrated and produced in a

capitalist way. What is implied here is that forestry in relation to trees with long rotation periods potentially implies a barrier to capital. This is so because for Marx a fundamental process of capital is to transform relations and processes among humans and in nature in terms of capital. One of the terms of capital is to work through time and space and transform limits. Thus, in bringing this into the theorizing, one can conclude here that the barrier to capital is given by the natural/ecosystem conditions of forests and trees which capital had been unable to penetrate as such during Marx's historical time. Therefore, Marx emphasizes that the long production time of certain trees is not suitable for capitalist culture because capitalist culture operates toward faster and larger production, faster and larger exchange, and larger and faster circulation of capital, commodities and use values.

As we have seen, Marx dealt with the question of forestry and agriculture in Volume II of capital by developing for his analysis the concepts of working time, production time and circulation time. These combined concepts can serve to: (a) theorize through the common concept of time what labour and nature do in separate forms in the process of creating a commodity, (b) place forestry into the wider process of capitalist production by approaching how labour and ecosystems are organized in terms of time, and (c) to observe the historical transformations of forestry patterns by analysing the specific and local processes through which working time, production time and circulation time are organized for the purposes of commodity production and accumulation based on the extraction and production of wood.

From a historical perspective, we have seen a major shift in relation to what Marx saw concerning capital and forestry. Today the system of tree plantations and the expansion of commodification transformed the impossibility that Marx saw in relation to capitalist forestry into possibilities for capitalist forestry. Capitalist forestry became a process based on expanded commodity production and wage labour relations imposed through proletarianization. Thus, capitalist forestry means commodification through mixing labour and ecosystems into a unified production and consumption system and capitalist forestry has a tendency to create contradictions between use value and exchange value. Here systems of private property mediate such contradictions and thus the politics of private property becomes a main feature in how forest conflicts and contradictions take place in more specific terms.

The relation between labour and symbolic processes, that is to say communication processes, is crucial in forestry as it is crucial in capital. These two latter points brings into our discussion a more specific question of labour, communication and forestry. To put it as simply as possible: without labour and communication we would not have something called social-ecological

relations of forestry, and labour and communication are worldwide processes. Yet one crucial point needs to be clarified here. Labour and communication are historical processes and they have historical specificity. Therefore, and following Marx, we need to qualify them.

In addition, we have to consider that a general theoretical premise in this context is that there is a contradiction between use value and exchange value in capitalism. Within this context, law making and issues of legitimacy and distribution of resources become fundamental.

Marx's text from 1842 and entitled "Debates on the Law on the Theft of Wood in Germany" was an early attempt to show and analyse how a new set of prohibitions on forested areas were in fact prohibitions impeding peasants access to and use of forest resources that they had used in customary ways. What Marx explained was the very political constitution of the penal law and how something accepted as legitimate was converted into an illegal action through an act of force and the power of landowners which manifested in the law. Marx's analysis has been considered one of the best examples to show the very political content of the penal law. In historical terms, Marx's analysis proved to advance an explanation of the effect of the new legislation in terms of impoverishment of the peasant population in Germany. We can continue exploring such insights into forestry, forest conflicts and the materiality of wood by looking at the chapter on commodity fetishism in Volume I of Capital. The chapter on commodity fetishism in Capital starts by stating:

"A commodity appears, at first sight, a very trivial thing, and easily understood. Its analysis shows that it is, in reality, a very queer thing, abounding in metaphysical subtleties and theological niceties. So far as it is a value in use, there is nothing mysterious about it, whether we consider it from the point of view that by its properties it is capable of satisfying human wants, or from the point that those properties are the product of human labour. It is as clear as noon-day, that man, by his industry, changes the forms of the materials furnished by Nature, in such a way as to make them useful to him. The form of wood, for instance, is altered, by making a table out of it. Yet, for all that, the table continues to be that common, every-day thing, wood. But, so soon as it steps forth as a commodity, it is changed into something transcendent. It not only stands with its feet on the ground, but, in relation to all other commodities, it stands on its head, and evolves out of its wooden brain grotesque ideas, far more wonderful than "table-turning" ever was.

The mystical character of commodities does not originate, therefore, in their use value. Just as little does it proceed from the nature of the determining factors of value. For, in the first place, however varied the useful kinds of labour, or productive activities, may be, it is a physiological fact, that they are functions of the human organism, and that each such function, whatever may be its nature or

form, is essentially the expenditure of human brain, nerves, muscles, &c. Secondly, with regard to that which forms the ground-work for the quantitative determination of value, namely, the duration of that expenditure, or the quantity of labour, it is quite clear that there is a palpable difference between its quantity and quality. In all states of society, the labour time that it costs to produce the means of subsistence, must necessarily be an object of interest to mankind, though not of equal interest in different stages of development. And lastly, from the moment that men in any way work for one another, their labour assumes a social form” (1990, pp. 163-164).

What we have here is a theorizing of the historical materiality of commodities and a theorizing of a semiotic process making commodity fetishism possible. Of relevance for the theoretical argument I am trying to articulate here is to note that the very material that Marx chooses to ground his analysis is wood. Marx uses a table as the demonstration of the processes he is developing in theory and in doing so the semiotic dimension of the text has been rightly highlighted recently as a text offering insights into the philosophy of communication (Briankle and Butchart, 2012). When thinking the communicative dimension of the commodities, we can also find an interesting point of connection between Karl Polanyi’s (1992) conceptualisation of fictitious commodities and Marx’s conceptualisation of commodity fetishism as both conceptualizations are essentially linked to communicative processes. Here Hornborg’s contemporary insights concerning the connection between fetishized objects, technology and ecological questions are important insights to be considered in this context. For Hornborg,

[...] few if any technologies would be able to operate without the mediation, in their very constitution, of what we might call semiotic moments. By "semiotic moments" I mean symbolic (communicative) events that may be crucial components of a technological system, although not likely to be recognized as such, owing to our tendency to think of technology as constituted exclusively in terms of principles of physical engineering” (2001, p. 151).

The analysis of commodities Marx uses to present one of the starting points of a critique of political economy gives place to a question on the dialectical method. What interests me here is to show that the concrete reality of wood from which Marx starts the exposition is a materiality already formed by determinations of different kinds. Labour and communication are two of those determinations. In fact, to introduce the question of commodity fetishism, Marx has previously elaborated on use value and exchange value. Concerning

how exchange value is formed in reality, Marx elaborates in Grundrisse insights that contain a symbolic approach to the process. In Marx's terms:

“A particular expenditure of labour time becomes objectified in a definite particular commodity with particular properties and a particular relationship to needs; but, in the form of exchange value, labour time is required to become objectified in a commodity which expresses no more than its quota or quantity, which is indifferent to its own natural properties, and which can therefore be metamorphosed into -- i.e. exchanged for -- every other commodity which objectifies the same labour time. The object should have this character of generality, which contradicts its natural particularity. This contradiction can be overcome only by objectifying it: i.e. by positing the commodity in a double form, first in its natural, immediate form, then in its mediated form, as money. The latter is possible only because a particular commodity becomes, as it were, the general substance of exchange values, or because the exchange values of commodities become identified with a particular commodity different from all others. That is, because the commodity first has to be exchanged for this general commodity, this symbolic general product or general objectification of labour time, before it can function as exchange value and be exchanged for, metamorphosed into, any other commodities at will and regardless of their material properties. Money is labour time in the form of a general object, or the objectification of general labour time, labour time as a general commodity” (p. 168).

This approach to the symbolism of commodities is placed in the chapter on money where Marx emphasizes the wide range of social relations and subjectivities implied in making money possible. Taking into account this focus on the symbolism of money and the process of commodity production, the previous insights from Marx are important since they imply a theorizing that: (a) takes commodities in what they imply in terms of both use value and exchange value, (b) considers communicative dimensions implied in the process of commodity production, (c) allows the identification and analysis of contradictions and in particular the contradiction between use value and exchange value under capitalism, and (d) aims at considering possibilities outside the system of conceptual references that Marx uses here, namely, to see processes where products are produced in ways other than expanded commodity production in a capitalist mode of production. All the previous points are important when theorizing capitalist forestry and the different potential conflicts and problems associated with this today.

Summary and key issues

Above we have elaborated on labour, value and power as concepts for a political ecology analysis. Within this context, the key issues are: forms of labour are basic social processes today and they are processes through which humans are related to and situated within ecosystems. Values are at the centre of the structuring of political ecology today as value producing dynamics in capitalism imply an expanded and intensified attribution of use value to processes and products in ecosystems. Yet, the attribution of different use values to ecosystems or what can be produced, or is produced, in ecosystems create conditions for struggles over value. Thus, it is important in a political ecology analysis to look at social power since this is a relation through which values and forms of labour interplay. For the case of forestry, we have put it in relation to use value and exchange value contradictions and we have linked this to how working period, production time and circulation time are interlinked in the process of wood-based commodities.

2.3.2 Environmental communication in relation to discourses, ideology and hegemony

Communication and environmental communication

It helps to start a view on the conceptual history of communication with a conceptual discussion on communicative processes concerning social-ecological relations. Critical communication studies scholar Hanno Hardt (2008) states that:

“Communication” refers to a basic human condition, recognized much earlier in Western philosophical works and articulated in the context of social and political thought throughout Western history, with a contemporary meaning that harks back to the fifteenth century. Referring to the process of “making common”, the term has been applied (as a noun) to a wide variety of practices that establish commonality, from road- or waterways, and telegraph and telephone connections to institutional forms of communication and human dialog. Since its meaning includes significantly different practices, including the notions of “transmission” (one-way) and “sharing” (two-way) – as well as the middle ground of “making common” – the use of “communication” requires a more specific reference to its intended application” (pp. 7-8).

To this conceptual clarification we can add Raymond Williams’ observation:

“In controversy about communications systems and communication theory it is often useful to recall the unresolved range of the original noun of action,

represented at its extremes by transmit, a one-way process, and share (cf. communion and especially communicant), a common or mutual process. The intermediate senses - make common to many, and impart - can be read in either direction, and the choice of direction is often crucial. Hence the attempt to generalize the distinction in such contrasted phrases as manipulative communication(s) and participatory communication(s)". (1985, pp. 72, 73)

Within this context, we can highlight that Marx offers an early attempt to give a radical dimension to the act of communication. In his analysis titled *On Freedom of the Press*, Marx addressed communication processes as being mediated by conflicts and power relations. Here, as in the analysis of the *Law on the Theft of Wood*, Marx analysed the question of legitimacy and of the power of a legislative body. At one point in his analysis, Marx argues:

"The press is the most general way by which individuals can communicate their intellectual being. It knows no respect for persons, but only respect for intelligence. Do you want ability for intellectual communication to be determined officially by special external signs? What I cannot be for others, I am not and cannot be for myself. If I am not allowed to be a spiritual force for others, then I have no right to be a spiritual force for myself; and do you want to give certain individuals the privilege of being spiritual forces? just as everyone learns to read and write, so everyone must have the right to read and write" (pp. 18-42).

It is interesting to note here that Marx is using the means of speech, rhetoric and discourse to confront censorship. Marx's text is now a historical text which, I argue, provides an approach to look at how legislation on restrictions on the right to communication was discussed and resisted. Thus, it is fair to say that labour and communication processes were always part of Marx's historical materialist theorizing. Within this context, we can note that in the past the study of communication had deep connections with the concept of labour. In his study on the history of communication studies, Dan Schiller (1996) explains this as follows:

"The continuing inability to integrate, or even to encompass, "labor" and "communication" within a single conceptual totality marked a coherent — and fateful — turn in organized thought. Over fully a century-long span, successive theorizations of communication came to revolve around variously reified views of "intellectual" labor, that is, around a partial, but seemingly substantial and autonomous, category of human effort"(XI).

In this regard, my argument is that the task of encompassing "labor" and "communication" within a "single conceptual totality" is very much at the heart of a critical understanding of social-ecological relations today. Here, critically approaching social-ecological relations is related to the possibility of empirically analysing forms of labour and environmental communication practices. To gain analytical tools in relation to communication and to also bring those tools into the understanding of environmental communication, clarifications on the meanings of ideology, discourse, communication and hegemony are needed.

In our case we are concerned with environmental communication and placing this within a framework for theorizing forestry in a comparative way. In this regard, we start by observing that environmental communication is one historical specification of communication. In making the term environmental communication an abstraction of a concrete and historical phenomenon, we can have some grounds for theoretical and empirical investigation. To start with, I offer a basic illustration of a semiotic process that coincidentally uses a tree for illustration purposes. The figure is adapted from David Chandler's *Semiotics: The Basics* (2002).

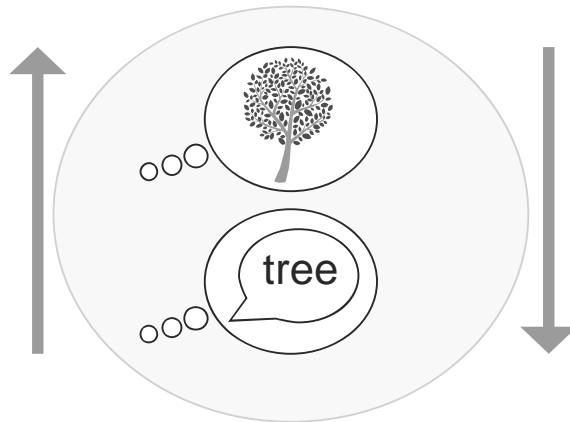


Figure 3. Illustration of a concept and sound pattern. (Adapted from Chandler, 2002)

In the figure, Chandler has given content to Saussure's model of the sign. In many ways the questions of environmental communication start here. First, one can state that the process of linking signified and signifier is a communicative process. Second, one can state that a number of people will in certain contexts make a link between organic materials with the term 'tree'. Yet a number of trees can form a forest and so one would expect that the term 'forest' would be used for a number of trees. In other cases some people can have different

interests and consider a number of trees together as a valuable forest whereas others can attribute other use values to those trees. In both cases, therefore, the semiotic process is inherently unstable in terms of content and processes.

My elaboration on the terms of environmental communication takes as a starting point its relation to the conflictive and contradictory nature of social life and relation to ecological relations today. This implies that there is interplay between the processes of forming the content and form of communication in relation to the environment. This is linked to the relations between communication, discourse, ideology and hegemony. In addition I will add that a conceptualization of memory and experience is crucial to give a theoretical status to environmental communication.

The theoretical point here is that conflicts and contradictions are never an exteriority to the process of environmental communication. Environmental communication is the manifestation of conflicts and contradictions. Here the notion of environmental communication practices allows subjectivity to be brought into this reasoning. In being a social practice, environmental communication interplays in the very constitution of the social-ecological and the structuring of conflicts therein. Some important theoretical consequences emerge from this. First, because environmental communication is not simply communication, one cannot attribute to it, and its differential practices, a mere conceptuality transcending the conflicts, contradictions and antagonisms in which it is produced. Second, an ontological dimension of this is that environmental communication, as the praxis of humans, is in many cases what produces the symbolic and semiotic conceptual separation between humans and ecosystems. Third, any liberating or transcending possibility for environmental communication is certainly a process full of contingency and is defined through the materiality, subjectivity and interests in the practices of environmental communication.

Within this context, to qualify communication in terms of environmental communication can theoretically operate as Marx's qualification of labour. As I emphasized earlier, labour is theoretically qualified in Marx's work. For me, this theoretical procedure can allow us to go deeper into the conceptualization of environmental communication and to see environmental communication as another fundamental process in the contradictory and conflictive constitution of social-ecological relations. Within this context, we can conceive of the historical rise of environmental communication practices as one of the manifestations of a rupture in the "making common" implied in the concept of communication I took as a starting point above. This happens because environmental communication becomes a basic social process in the production of the environment and of different claims about what the

environment is and what the environment should be. Thus theoretically speaking one can recognize environmental communication as a process in the material production and transformation of social-ecological relations and as a process of producing meaning for those social-ecological relations. In addition, one can also theoretically state that as a process of communication in contexts where there are contradictions in the formation of the social-ecological, meanings produced through environmental communication practices become entangled in those contradictions.

The term ‘systematically distorted communication’ developed by Habermas can serve here to go deeper into the understanding of the relation between conflicts and contradictions and environmental communication. I argue that taking into account as a starting point the definition of communication offered by Hardt and referred to above, and in light of the contemporary question of social-ecological relations in crisis, what Habermas once analysed in terms of systematically distorted communication continues to be relevant today.

The root of an intellectual interest in processes of distorted communication can be traced back to the work of thinkers related to the Frankfurt School such as Adorno and Benjamin and their reception of Marx’s notion of commodity fetishism vis-à-vis cultural dynamics. For Adorno, understandings of communication must consider a broader scope than only communicative acts. This aspect is explained in his approach to the complexities surrounding any analysis of television. In this regard, Adorno (1954) claims:

“In order to do justice to all such complexities, much closer scrutiny of the background and development of modern mass media is required than communications research, generally limited to present conditions, is aware of” (1954, p. 214).

The emphasis on the background and development of modern mass media refers to the position of the mass media within the dynamics of capitalist development and the emergence of the cultural industry. These processes have been articulated by the forces of capital accumulation and the general ideological principle and material reality of global exchange of commodities. This latter aspect is for Adorno rooted in the ideology of exchange of equivalents through the global markets, which is a process historically formed and aimed at realizing commodity exchange through decoupling both producers from products and products from nature. Along these lines, Adorno addresses to new societal developments the rationale that Marx analytically investigated as being a foundational basis of capital both as a mode of production and as a mode of consumption. As seen above, for Marx,

commodity fetishism helps to explain what could be seen as a mystery: the mystery of the social relations making the exchange of commodities possible.

Using as a background Marx's basic conceptualizations as presented above, we can see how the idea of systematically distorted communication was one of Habermas' crucial previous theoretical tools in his approach to communication. In fact, it is by considering such an analytical framework that one can fully conceive Habermas' normative approach to communication through focusing on the possibilities of understanding of subjects and the role of language therein (Habermas, 1979). Habermas refers to systematically distorted communication (henceforth SDC) in several parts of his work and he works around different and differing contexts and meanings of systematically distorted communication.

Here we take Habermas' approach to SDC in *Legitimation Crisis* (1973), where he approaches systematically distorted communication as a process deeply linked to the process of capitalistic organization of labour and human socialization of nature. Without entering into a critical evaluation of Habermas' understanding of capitalism here, we simply focus on how the notion of SDC is developed (the way in which Habermas understands capitalism is the object of various critics. See for example Sitton, 1998). In *Legitimation Crisis*, Habermas refers to systematically distorted communication in the following terms:

“We can speak of the “fundamental contradiction” of a social formation when, and only when, its organizational principles necessitates that individuals and groups repeatedly confront one another with claims and intentions that are, in the long run, incompatible. In class societies this is the case. As long as the incompatibility of claims and intentions is not recognized by the participants, the conflicts remain latent. Such forcefully integrated actions systems are, of course, in need of an ideological justification to conceal the asymmetrical distribution of chances for the legitimate satisfaction of needs (that is, repression of needs). Communication between participants is then systematically distorted or blocked. Under conditions of forceful integration, the contradiction cannot be identified as a contradiction between the declared intentions of hostile parties and be settled in strategic action. Instead, it assumes the ideological form of a contradiction between the intentions that subjects believe themselves to be carrying out and their, as we say, unconscious motives or fundamental interests. As soon as incompatibility becomes conscious, conflicts become manifest, and irreconcilable interests are recognized as antagonistic interests” (1973, p. 27).

The conceptualization of systematically distorted communication in Habermas is today rarely brought into focus in the literature following the more

normative view of Habermas on communication. On the other hand, this notion has not passed unchallenged. Laclau, (1996) for example, and in arguing for a post-foundational theorizing, elaborates a critique of Habermas in the following terms:

“It is important, however, to realize that this type of articulation would be theoretically unthinkable if we did not introduce into the picture some of the central tenets of the contemporary critique of foundationalism (it would be unthinkable, for instance, in a Habermasian perspective). If meaning is fixed beforehand either, in a strong sense, by a radical ground (a position that fewer and fewer people would sustain today) or, in a weaker version, through the regulative principle of an undistorted communication, the very possibility of the ground as an empty place which is politically and contingently filled by a variety of social forces disappears. Differences would not be constitutive because something previous their play already fixes the limit of their possible variation and establishes an external tribunal to judge them. Only the critique of a universality which is determined in all its essential dimensions by the metaphysics of presence opens the way for a theoretical apprehension of the notion of 'articulation' that we are trying to elaborate - as different from a purely impressionistic apprehension, in terms of a discourse structured through concepts which are perfectly incompatible with it. (We always have to remember Pascal's critique of those who think that they are already converted because they have just started thinking of getting converted.)” (1996, pp. 58-59).

It is quite obvious that Laclau transforms the theoretical question on systematically distorted communication into a positive principle and puts it in terms of “*the regulative principle of an undistorted communication*”. The critique has a truth-content but not on the grounds of Laclau’s theorizing. I would say that such a critique is valid only when one thinks in terms of Habermas’ normative conception of communication. Thus, and bearing in mind the original formulation of systematically distorted communication and the basic concept of communication we have offered above, we can elaborate a theoretical argument: the concept of communication as “making common” can allow us to explore three related questions: (a) how communication articulates processes in the constitution of social-ecological relations, (b) whether systematically distorted communication emerges or not and how and why that happens, and (c) how can we think the historical phenomenon of environmental communication and give this a theoretical conceptualization.

Exploring such questions can help us to explore in a deeper and dialectical way the semiotic dimensions in the conflictive formation of social-ecological relations and the role of forms of communication, for example environmental communication in making possible the very constitution of the social-

ecological. Such questions are historical questions concerning the contemporary relations between communication, discourse, ideology and hegemony when social-ecological questions are an overarching process.

From the presentation above, four processes can be identified as important for establishing a conceptual formation identified as environment communication: (a) the relations between conflict and the formation of communication, (b) the links between social group and class formation and communication, (c) the place of environmental communication in contemporary social power, and (d) environmental communication in relation to the formation of political ecology relations. The processes described above will now be turned into the more specific question of conceptualizing environmental communication practices.

In many ways the movement from simply communication to environmental communication is similar to the movement from discourse to environmental discourse and from ideology to environmental ideology. However, the following point is important here: although it seems to be theoretically valid to accept the qualification of discourse and communication in terms of environmental discourse and environmental communication, I only partly accept the qualification concerning ideology where a capitalist system is the dominant mode of production. To put it simply: ideology is always general and covers wider aspects than more specific human definitions about the environment and environmental problems. Ideology, per the definition here, implies a conception of the environment but it does not end there. In contrast, environmental discourses and environmental communication practices are specific forms of the materialization of an ideology. I am thus trying to propose a logical articulation of concepts. Yet, this logic does not mean stability in such a way that the concepts should always operate in the same way. Let me explain. Theoretically, because capitalist ideology precedes environmental communication practices and discourses we observe today, one can affirm that such an ideology is articulated in those practices and discourses. However, this happens in different ways. In some cases ideology is contested through discourse and in other cases it is reaffirmed through discourse, and different discourses can go hand in hand with one ideology. The articulation in time of a certain environmental communication practice can eventually produce a discourse.

The conceptualization of environmental communication practices, in the plural, concerns the different subjects making those practices possible and the role that the engagement of human beings in environmental communication practices can play in the process of subjectivisation. The last conceptual articulations in this context refer to the need to make sense of experience and

memory in relation to environmental communication. For me, the whole point here is about radically bringing history into experience and in relation to the problem of totality. This conceptualization of experience is in line with Adorno's insights concerning experience in relation to the manifestation of the global process in the subject-object relation. Here, experience is linked to the individual and collective capacity to remember and we need certain definitions concerning memory to elaborate a meaning of memory for environmental communication. Among these different approaches to memory, the work of Jan Assmann and Aleida Assmann provides a perspective that can be used for these purposes. Their basic distinction between individual memory, communicative memory and cultural memory links those types of memory to different levels, times and identities. Thus, the relations are established as follows:

- Individual memory operates at the level of the inner (neuro-mental), in terms of subjective time and it is linked to the inner self in terms of identity,
- Communicative memory operates at the level of the social, in terms of social time and it is linked to the social self and persons and carriers of social roles in terms of identity,
- Cultural memory operates at the level of the cultural, in terms of historical, mythical or cultural time, and it is linked to cultural identity (Assmann, 2008).

Within this context, it is theorized that cultural memory can be distinguished from communicative memory by the fact that cultural memory is institutionalized and by this means it is maintained, produced and reproduced. On the other hand, communicative memory is essentially informal and depends on orality. In addition, it is theorized that cultural memory can last for millennia whereas communicative memory lasts for about 80 to 110 years. In adding questions of memory and experience to the understanding of environmental communication, we can see environmental communication as a process interplaying in the production of memories and in the historical processes where different productions of meaning regarding social-ecological relations takes place. Furthermore, we can see environmental communication in longer historical periods. In relating environmental communication to a concept of experience, practices that are mediated by environmental communication become practices in a totality of relations. However, isolating environmental communication from other concepts would undermine critical theoretical work. As Oskar Negt put this:

“We can speak meaningfully of critical communications research only if its line of questioning is gleaned from the context of a theory of society. Such a theory alone is in a position to diagnose the entire, historical state of society and to deal with the present as a historical problem. The truth content of such a theory is determined above all by the manner in which it succeeds in lending a conceptual voice to social experience. The more specific the historical contents comprised by such a theory are, the more capable of generalization is that theory” (1978, pp. 70-71).

Thus, important conceptual tools that can help in situating environmental communication in the context of a wider critical theory are the concepts of ideology, discourse and hegemony. In addition, I argue that this allows a further problematization of environmental communication.

Ideology

Important terms for the discussion on ideology are related to Marx’s use of the concept. As is well known, definitions concerning ideology or theories of ideology have led to important discussions in theory (See for example, Rehmann, 2013). What in everyday language are simply referred to as world views and ideas about society or the world are nonetheless a contested issue in theory. In the introduction to the book *The Authoritarian Personality* from 1950, a book that is basically a study on ideology analysis, Adorno *et al.* conceptualized ideology as follows:

“The term ideology is used in this book, in the way that is common in current literature, to stand for an organization of opinions, attitudes, and values—a way of thinking about man and society. We may speak of an individual's total ideology or of his ideology with respect to different areas of social life: politics, economics, religion, minority groups, and so forth. Ideologies have an existence independent of any single individual; and those which exist at a particular time are results both of historical processes and of contemporary social events. These ideologies have for different individuals different degrees of appeal, a matter that depends upon the individuals needs and the degree to which these needs are being satisfied or frustrated. There are, to be sure, individuals who take unto themselves ideas from more than one existing ideological system and weave them into patterns that are more or less uniquely their own. It can be assumed, however, that when the opinions, attitudes, and values of numerous individuals are examined, common patterns will be discovered. These patterns may not in all cases correspond to the familiar, current ideologies, but they will fulfill the definition of ideology given above and in each case be found to have a function within the over-all adjustment of the individual” (1950, p. 3).

Yet, this is only one of the different ways to conceptualize ideology. When summarizing the classic contribution of Larrain (1979) to the debate on ideology, Bottomore stated that Larrain provided:

“[...] in the first place, a clear and well-documented account of the historical development of the concept through diverse formulations, in terms of four basic questions namely, whether ideology is conceived negatively (as 'false consciousness') or positively (as a 'world-view' expressing the values of a particular social group); whether it is regarded as a subjective, psychological phenomenon or an objective, social one; whether it is seen as a specific element in the 'superstructure' of society or as identical with the whole sphere of culture; and, finally, how ideology is related to, and differentiated from, science” (1979, p. 11).

Today, ideology and discourse can be defined and understood in similar ways. Jean Comaroff's observation is useful in this regard:

“Where he dealt explicitly with the concept of ideology in his own writing, Marx related it to the exercise of specific group interests, thereby laying the basis for its association with "discourse," or the conscious management of ideation (Marx and Engels 1970:64ff.). Yet, especially in his later work-on the notion of commodity fetishism, for instance-he envisaged consciousness as taking shape in the representations implicit in "lived experience" (Marx 1967:71ff.; cf. Giddens 1979:183). These two dimensions of ideology-"theory" and practical consciousness-are seldom brought into satisfactory relationship in the work of subsequent writers in the critical tradition. Thus Williams (1977:55ff.) treats ideology and its role in human practice as a matter of "belief," of the "conscious imagination" which rationally mediates all action upon the world. Consciousness, from this perspective, resides in contemplative rather than practical understanding” (1985, p. 4).

Another relation between discourse and ideology was established by Enrique Leff in his *Ecology and Capital*:

“The ideological formations covering the environmental field produce discursive practices and their function is to make neutral in the conscious of subjects the conflicts originated in divergent interests” (1994, p. 78 -my own translation)

Keeping in mind the previous basic outline on meanings of ideology, in this thesis the problematique regarding ideology is one concerning how a concept of ideology can be compatible and articulable with environmental communication and environmental discourses and finally with the concept of

hegemony. For this, the starting point here is to follow Marx's insight and to see ideology as the expression of the material interests of particular social classes or groups, which aims to make those particular interests general. Obviously, this allows us to have different ideologies in the same time and space and also to see them in historically specific terms. Yet, this does not mean that one cannot see stable ideologies in history. Here, I draw on DeMarrais' elaboration on the materialization of ideology which refers to the "*active process that underlies the creation, dissemination and manipulation of ideologies*" (2004, p. 11). Within this context I sustain that there is a capitalist ideology which is not always only expressed by capitalists but also by other subjects. In this way, I give ideology one of the meanings that Gramsci gave to it when re-signifying the term hegemony. For Gramsci, it is through ideology that we can make sense of hegemony and thus understand how a dominant ideology becomes hegemony (yet, this whole relation can be contested, as we will see below). It is important here to take into account the process and subjects that make and unmake an ideology.

Discourse

As we saw in the quotes from Comaroff and Leff above, during the 20th century, many versions of social theory incorporated the term discourse in novel ways. However, this was contested by several authors. In the terms of Ellen Meiksins Wood,

"What is important from our point of view is how this approach has been harnessed to a political strategy which assumes that social and political forces are constituted by discourse itself, with little foundation in social relations" (1998, p. 5).

I concur with Meiksins Wood and consider this a fundamental theoretical point in research on political ecology and environmental communication. Therefore I elaborate on discourse in a way that takes this into consideration. In terms of defining a discourse, the problematic of conceptualization is quite complex today. Due to the rise and explosion of discourse approaches, and uses and abuses of the term discourse, we are in a situation in which any approach to discourse needs to start by recognizing the proliferation of definitions and concepts of discourse. In fact, basic texts on the topic start by highlighting this problematic inherent to the concept of discourse. Fairclough and Fairclough offer the following definition of discourse:

“...ways of representing aspects of the world which can generally be identified with different positions or perspectives of different groups of social actors (e.g. different political parties)” (2012, p. 82).³

On the other hand, and within the context of environmental studies, environmental discourses have been defined as

“a specific ensemble of ideas, concepts, and categorisations that are produced, reproduced and transformed in a particular set of practices and through which meaning is given to physical and social realities” (Hajer, 1995, p. 44).

As we can see above, these definitions of discourse and environmental discourse imply that there are communicative processes making these discourses possible. My point here is that one should be analytically able to distinguish between environmental communication practices and discursive processes. For our purposes, the relation between discourses and environmental communication practices will be one where environmental communication practices ground and make possible discourses and also one where already established discourses interplay with environmental communication practices. To work with this relation, two clarifications concerning discourse are needed. First, there is an important distinction between discourse analysis and discourse theory. Second, an important clarification is due concerning the normative conceptualization of discourse in terms of a discursive ethic. Below I will elaborate on these two issues.

Discourse theory and discourse analysis are two different things in relation to the theoretical understanding and explanation of discourses (for an account of recent discourse theory, see Torfing 1999). Howarth contrasts discourse theory with discourse analysis by emphasizing that discourse theory would not just be “*a toolkit to analyse ‘language in use’*, where attention is focused on ‘*talk and text in context*’ (Howarth 2006, p. 24). This point can be exemplarily observed by reading the articles compiled in *Discourse Theory and Political Analysis*. This whole book is based on and inspired by the theoretical propositions developed by Ernesto Laclau and Chantal Mouffe. The roots of this kind of theory were made explicit by Ernesto Laclau when he described social life within discourse theory in terms of “*...a generalised rhetoric: as no*

³ Alternative ways to state what constitutes a discourse are:

“Bounded ways of representing the world” (Harvey, 1996); “Different ways of representing aspects of the world” (Fairclough, 2003); “All systems of meaningful practice” (Howarth and Stavrakakis, 2000); “A system of statements which construct an object”- “Discourses, put simply, are structured collections of meaningful texts” (Parker, as quoted in Phillips *et al.*, 2004)

identity is closed in itself but is submitted to constant displacements in terms of chains of combinations and substitutions, they are constituted through essentially topological processes which do not refer to any ultimate transcendental foundation” (Laclau n.d., p. 6). Therefore this version of discourse theory sees social relations as exhibiting four properties: *“contingency, historicity, power, and the primacy of politics”* (Howarth 2006, p. 23). As stated by Howarth and Stavrakakis, discourse theory in this sense has a social ontology based on the primacy of the political dimension of social life. A crucial philosophical root of this type of discourse theory can be found in the work of Foucault, yet there is an important separation between Foucault and Laclau and Mouffe. This separation is rooted in Laclau and Mouffe’s rejection of Foucault’s distinction between the discursive and non-discursive. In contrast, we can now look at how the difference between discourse theory and discourse analysis is presented from the side of discourse analysis. Though Chouliaraki and Fairclough (1999) recognize a main theoretical reference in Laclau and Mouffe’s ‘post-Marxist’ theory of discourse, they highlight that they differ from them *“in arguing that people stand in more or less open relationships to discourse, and relationships which are open in different ways, depending on their social positioning”* (1999, p. 2). In terms of theoretical roots of discourse theory à la Laclau, here relevant authors are for example Wittgenstein and Heidegger (Laclau, n.d.) whereas Fairclough and Graham see Marx as a discourse analyst ‘avant la lettre’ (Fairclough and Graham 2002). A difference between Foucauldian versions of discourse analysis used by social scientists and Critical Discourse Analysis (henceforth CDA) is according to Chouliaraki and Fairclough given by CDA’s *“‘textually oriented’ discourse analysis, i.e., it anchors its analytical claims about discourses in close analysis of texts”* (Chouliaraki and Fairclough, 1999, p. 152). CDA is then conceived as a methodological framework focusing *“on how discourse figures in relation to other social elements in processes of social change. This includes the integration of detailed analysis of texts into research on social change”*. Elsewhere, Fairclough states:

“This version of CDA views discourse as an element of social processes and social events, and also an element of relatively durable social practices, though neither are reducible to discourse: they are articulations of discourse with non-discoursal elements” (2005, p. 924) .

In addition, Fairclough sustains:

“The objective of discourse analysis, on this view, is not simply analysis of discourse per se, but analysis of the relations between discourse and non-

discoursal elements of the social, in order to reach a better understanding of these complex relations (including how changes in discourse can cause changes in other elements). But if we are to analyse relations between discourse and non-discoursal elements, we must obviously see them as different elements of social reality – as ontologically (and not just epistemologically, analytically) different. They are different, but we might say that they are not discrete, in the sense that other elements of the social (e.g. the social relations and material division and structuring of space in organizations), in being socially constructed through discourse, come to incorporate or ‘internalize’ particular discursive elements (including particular discourses) without being reducible to them” (Fairclough 2005, p. 924).

Thus, CDA implies a certain and particular way of analysing discourses, which can be characterized by its concern with broader social structures and their relations with different discourses. There are two important questions to be considered in this context. First, we have the problem of the identification of a discourse as something or a process conceptually identifiable as discourse. Second, we have the question of the problematic determination of a counter-discourse. How can one distinguish between a discourse and a counter-discourse? Theoretically, the issue is relevant since in identifying points of formation of counter-discourse one can also identify possible points in which the wider conflictivity of the social-ecological is signalling possible changes. Thus, one can theoretically sustain that discourses and counter-discourses do not have a priori subjects and there is the analytical need to identify the subjects producing a discourse and a counter-discourse. This is similar to what happens with resistance and class struggle. It can go from one direction to another and one cannot define a priori who are the subjects articulating either a discourse or a counter-discourse. Yet, with hegemony there seems to be a rather particular situation, as a counter-hegemonic practice is often an act of those that first make sense of the hegemony and then act to question the hegemony.

The second conceptual clarification here concerns the term ‘discourse ethics’. As distinguished from both discourse theory and discourse analysis, discourse ethics is a particular German approach to propose certain normativity for the social processes of collective interaction. Very much linked to Jürgen Habermas and Karl-Otto Apel, the term has a number of theoretical premises based on the possibility of human communicative interaction. Thus though one can certainly analyze processes of discourse ethics, there is an implicit normative assumption in this.

I think that having a clear separation between what is discourse in an analytical sense and in a normative sense is crucial here. These issues can also

be located at a more methodological level. In our case this means bringing the terminology distinguishing between discourses, ideology, communication and hegemony into the analysis. In addition, this point is important with regard to critical discourse analysis in this thesis.

Hegemony and counter-hegemony

The previous elaborations on discourse and ideology are deeply connected to the conceptual question on hegemony. As is well known, the discussion is rooted in Gramsci's conceptualization of the process of internalization of an ideology by subordinate groups. In Volume I of his prison notebooks, Gramsci wrote that:

“There can and there must be a ‘political hegemony’ even before assuming government power, and in order to exercise political leadership or hegemony one must not count solely on the power and material force that is given by government” (1992, p. 137).

In other parts he wrote:

“Rural France accepted the hegemony of Paris; in other words, it understood that in order definitively to destroy the old regime it had to make a bloc with the most advanced elements of the Third Estate, and not with the Girondin moderates” (1971, p. 79)

And in yet another moment Gramsci stated:

“In what forms, and by what means, did the Moderates succeed in establishing the apparatus (mechanism) of their intellectual, moral and political hegemony ? In forms, and by means, which may be called "liberal"-in other words through individual, "molecular", "private" enterprise (i.e. not through a party programme worked out and constituted according to a plan, in advance of the practical and organisational action) . However, that was "normal" given the structure and the function of the social groups of which the Moderates were the representatives, the leading stratum, the organic intellectuals” (1971, p. 60).

In bringing those different moments where Gramsci elaborates political analysis through the concept of hegemony, one can make sense of what Perry Anderson, in an early assessment of the concept of hegemony, identified as antinomies in Gramsci. His assessment aimed “*to analyse the precise forms and functions of Gramsci’s concept of hegemony in his Prison Notebooks, and to assess their internal coherence as a unified discourse ...* (1976, p. 7). In

doing so, Anderson noted that there were in fact several notions and meanings of hegemony interplaying in Gramsci's use of the term. The issue has been a recurrent one in efforts to deal with the concepts of hegemony. One can identify 1985 as a crucial year in the recent historical production of theories of hegemony. Both *Hegemony and Socialist Strategy: Towards a Radical Democratic Politics* by Ernesto Laclau and Chantal Mouffe, and *Weapons of the Weak: Everyday Forms of Peasant Resistance* by James Scott were published in 1985. Although both books share a central concern with theorizing hegemony and the work of Antonio Gramsci, there is however an interesting difference and even a separating line between the two books: for the former the focus is on classic western labour movements and their discursive articulations and, for the latter, as its title expressly highlights, the focus is on peasant resistance.

In Scott's theorizing on ideology, three important conceptual formations can be observed: ideological hegemony, symbolic hegemony and just hegemony. In his *Weapons of the Weak*, Scott (1985) explicitly locates his critical assessment of the concept of hegemony in order to make sense of class relations in his case study. He summarizes his critique in five points:

"First, the concept of hegemony ignores the extent to which most subordinate classes are able, on the basis of their daily material experience, to penetrate and demystify the prevailing ideology.

Second, theories of hegemony frequently confound what is inevitable with what is just, an error that subordinate classes rarely, if ever, make. This conclusion stems from a surface examination of public action in power-laden situations that overlooks both the "hidden transcript" and the necessity of routine and pragmatic submission to the "compulsion of economic relations" as well as the realities of coercion.

Third, a hegemonic ideology must, by definition, represent an idealization, which therefore inevitably creates the contradictions that permit it to be criticized in its own terms. The ideological source of mass radicalism is, in this sense, to be sought as much within a prevailing ideological order as outside it.

Fourth, a historical examination of the rank and file of nearly any manifestly revolutionary mass movement will show that the objectives sought are usually limited and even reformist in tone, although the means adopted to achieve them may be revolutionary. Thus, "trade union consciousness" is not, as Lenin claimed, the major obstacle to revolution, but rather the only plausible basis for it.

Fifth, historically, the breaking of the norms and values of a dominant ideology is typically the work of the bearers of a new mode of production for example, capitalists and not of subordinate classes such as peasants and workers. Thus, subordinate classes are often seen as backward looking, inasmuch as they are defending their own interpretation of an earlier dominant ideology against new and painful arrangements imposed by elites and/or the state” (1985, p. 317).

Scott links those critical points concerning the concept of hegemony to an empirical statement: “*If there were a dominant, hegemonic ideology in Sedaka, it would make its presence known in several ways*” (p. 318). In his posterior work, *Domination and the Arts of Resistance: Hidden Transcripts* (1990), the critique of the concept of hegemony is emphasized again and a new critical dimension is put in clear terms:

“On the historical evidence, then, little or no basis exists for crediting either a fat theory or a thin theory of hegemony. The obstacles to resistance, which are many, are simply not attributable to the inability of subordinate groups to imagine a counterfactual social order. They do imagine both the reversal and negation of their domination, and, most important, they have acted on these values in desperation and on those rare occasions when the circumstances allowed” (p. 81).

For Laclau and Mouffe, hegemony is their central category of political analysis. Here hegemony is seen in the light of what they termed a dialectics of logics of difference and logics of equivalence. For them more than being a concept, hegemony became a name and importantly at a crucial point they write about a situation of hegemony:

“A situation of hegemony would be one in which the management of the positivity of the social and the articulation of the diverse democratic demands had achieved a maximum of integration – the opposite situation, in which social negativity brings about the disintegration of every stable system of differences, would correspond to an organic crisis” (p. 189).

For Laclau, his whole theoretical edifice since the publication of *Hegemony and Socialist Strategy* depended on correlating discursive terms to processes in the terrain of political reality. In his view, the question of the metaphor, or the metaphorical, gets to the core of the idea of hegemony:

“Anticipating what I will discuss presently, we can say that this is inherent to the central political operation that I call 'hegemony': the movement from metonymy

to metaphor, from contingent articulation to essential belonging. The name - of a social movement, of an ideology, of a political institution - is always the metaphorical crystallization of contents whose analogical links result from concealing the contingent contiguity of their metonymical origins. Conversely, the dissolution of a hegemonic formation involves the reactivation of that contingency: the return from a 'sublime' metaphoric fixation to a humble metonymic association" (2014, p. 63).

This reconstruction of two attempts to deal with hegemony shows us that to re-think questions of hegemony implies at least two necessary conditions: (a) empirical work to inform a discussion on the concept and (b) a framework for theorizing where hegemony can make sense in relation to ideology and discourse. However, none of those conditions can be produced if we do not bring into the overall analysis the communicative relations that make possible ideology, discourse and hegemony. I argue that it is in the interplay between those four dialectical moments of reality where important processes of subjectivity and subjectivization, and inter-subjectivity and inter-subjectivization, are produced. The same can be said concerning the conditions of possibility of subject positions. In this regard, my point aims to highlight the relations between subjectivity and inter-subjectivity in the process of environmental communication and to link this to the possibility of ideology, discourse and hegemony, and why and how these are contested.

The previous exposition on ideology, discourse, hegemony and communication is then fundamentally linked to questions of how subjectivity and subjectivization, and inter-subjectivity and inter-subjectivization are produced. This leads us to look at the terms of those relations and of the spaces from which discourses, ideology and hegemony are contested, questioned or mediated. For Gramsci, for example, counter-hegemony means a process where ideas are produced to challenge other beliefs, ideologies and domination. This implies bringing agency into the process of semiotic production and to see this as a differentiated process. One of our premises here is that all this is possible because there is human communication. In more concrete terms, as we established above, when such processes bring the environment into history and politicization, we are thinking in terms of environmental communication practices.

Thus, within this context it is important to find terms for those processes where ideology, discourse, hegemony and communication converge and are given contents and are also contested. In the literature, that question has been addressed in terms of the public (Habermas, 1991), counterpublics (Negt and Kluge, 1993, and Warner, 2005), communities of discourse (Wuthnow, 2009), public and hidden transcripts (Scott) and hegemonic communities of

communication (Dussel, 1996). In addition, a growing body of literature in the line of E.P. Thompson's history from below shows today how communicative practices have been at the centre of local organization questioning and challenging a certain pattern of production of meaning and in so doing offering alternative ways of thinking reality. Below I give some basic definition of how those middle terms have been proposed.

In the terms of Negt and Kluge, a proletarian counterpublic sphere was produced in parallel to the bourgeois public sphere studied by Habermas.

“A counterpublic sphere that is based on ideas and discourses with progressive content cannot develop effective weapons against the combined elements of illusion, the public sphere, and public power. In this situation, the compensations that the classical bourgeois public sphere possessed, as compared with the public power relations, become increasingly ineffective. The only antidotes to the production of the illusory public sphere are the counter-products of a proletarian public sphere, ideas against idea, product against product, production sector against production sector. It is impossible to grasp in any other way the permanently changing forms that social power takes on in its fluctuations between capitalist production, illusory public sphere, and public power monopoly” (1993, pp. 79-80).

Negt and Kluge's argument focused on the proletariat is similar to the argument focused on gender relations put forward by Joan Landes (1988). In both cases the point is empirically quite simple: as the bourgeois public sphere was structured in a society divided by class and gender, the communicative processes of both women and proletarians as such structured spheres of discussion and exchange of meaning as well. At the core of these two assessments we have the empirical reconstruction of how those spheres were made possible. A similar process is termed by Robert Wuthnow in terms of communities of discourse and he elaborates as follows:

“Discourse subsumes the written as well as the verbal, the formal as well as the informal, the gestural or ritual as well as the conceptual. It occurs, however, within communities in the broadest sense of the word: communities of competing producers, of interpreters and critics, of audiences and consumers, and of patrons and other significant actors who become the subjects of discourse itself. It is only in these concrete living and breathing communities that discourse becomes meaningful.

The term ideology is also used in a special sense. It refers in the present context to an identifiable constellation of discourse that in fact stands in some degree of articulation with its social context. All ideology, by this definition, bears some

relation with its social environment. The extent to which this relation is characterized by a high or low degree of articulation, and the processes by which that degree of articulation comes into being, are empirical questions. In this usage, then, ideology is also an analytic feature of a community of discourse. It is that aspect of discourse that pertains in some special way to its social surroundings” (2009, p. 16).

The implications of the previous view on communities of discourse are theoretically and empirically important since following such insights means that: (a) discourse analysis should then operate by defining first a community and second the discourse of this community, (b) the plurality of discourses is then a manifestation of the plurality of communities, and (c) as one reads above, ideology here is also radically related to social environments, where processes of articulation between ideology and specific social environments vary.

Also recognizing divisions in terms of how processes of communication become articulated in a wider context, Scott uses the terms ‘hidden’ and the ‘public transcripts’. In the chapter *A Saturnalia of Power: The First Public Declaration of the Hidden Transcript*, the final chapter of James Scott’s *Domination and the Arts of Resistance: The Hidden Transcripts*, Scott tries to make sense of what he sees happening when “*the frontier between the hidden and the public transcripts is decisively breached*”. Another effort to make sense of these middle terms between the terms of discourse, ideology, hegemony and communication and the notions of society is offered by Enrique Dussel and his elaboration on communities of communication. Dussel’s conceptualization takes place in a discussion with Apel which was based on Dussel’s radical challenge to European philosophy from the standpoint of global inequality. In the terms of Dussel:

“The Other, excluded from the communities of communication and producers, is the pauper (as Marx used to say). The interpellation is an originary speech act, with which the pauper erupts into the real community of communication and producers (in the name of the ideal), and makes them accountable, demands a universal right, as a human being-part of the community; and, in addition, expects to transform it by means of a liberation praxis (which is also frequently a struggle), into a future, possibly more just society. It is the excluded one who appears from a certain nothing to create a new moment in the history of the community”. (1996, p. 36)

Dussel adds another point here:

“The excluded and affected are the 50 percent of humanity (women); the 40 percent (children); the 20 percent of the poor in rich countries; the discriminated races; etc. That is to say, if we were to make a mathematical calculation, not even 5 percent of actual humanity would belong to the real hegemonic communication community (which is the real "participant"): men, white, adults, western culture, "central" capitalism, the power groups (economic, political, intellectual), etc. But is this not also the case with Taylor's modern Self (male, white, adult)?" (1996, p. 158).

Dussel is here framing a similar process to those framed in terms of counterpublics, communities of discourse and hidden and public transcripts. Through the formation of those communicative processes, counter-hegemony is possible. Thus, the analytical point here is that the conceptual tools offered above allow us to bring those processes of meaning production through communication to the overall question of contesting hegemony and bringing in these environmental communication practices. For the purposes of using one term to capture such instances, I will use the term ‘spaces of communicative struggle’, and within such spaces I locate environmental communication practices.

Summary and key issues

In this section we started by giving a basic understanding of communication and then we elaborated on a meaning of environmental communication. In doing so we brought into the discussion the concept of systematically distorted communication and showed how this can still be considered an analytical tool that allows communication to be placed in relation to social divisions, conflicts and antagonism. Then we offered views on ideology, discourse and hegemony to show that a concept of environmental communication needs to be used in relation to those concepts. Finally the term ‘spaces of communicative struggle’ will serve to consider dimensions of environmental communication practices in relation to ideology, discourse and hegemony.

2.3.3 A framework for theorizing and its methodological implications

A framework for theorizing

As presented above, this brings together issues in historical materialism, Frankfurt critical theory, and world systems theory. From these theoretical inspirations I drew a number of conceptualizations which were related to political ecology and environmental communication.

A framework for theorizing forestry and to look at how forestry and the related forest of land use and forest use take place in material and symbolic

ways needs to articulate important moments in which the symbolic and the material are brought together. As I have developed above, political ecology and environmental communication share a concern on how people form, understand and attribute meaning to social-ecological relations. In identifying some fundamental processes in that social process of creating meaning and materiality, I have highlighted the question of labour in relation to value and power as relations that allow the reconstruction of forestry processes as processes that are socially created through conflicts and as can be contested. When we take labour in relation to values and power we can also see how the fact that capitalism tries to develop forestry in one way can be contested by agents and people that see land use and forestry use from an alternative framework or what we can call in environmental communication terms, how people act from an alternative ideology and articulate different discourses to try to counter-act the hegemony of capitalist forestry and also create spaces where that contestation is produced. Therefore, what we have here is a combination of concepts that have been identified in the environmental communication and political ecology literature. I make a distinction here between a theoretical framework and a framework for theorizing. For me, to take concepts and to unpack and to give some meanings to concepts and identify points of discussion and conceptual contestation allows a process of theorizing. This means that empirical material is analysed through concepts but at the same time can lead to re-signifying and producing concepts. In this regard, the framework for theorizing and the concepts and conceptual discussions I have presented have been part of the research process and have operated both implicitly and explicitly within the thesis. In addition, they have articulated points to analytically explore and propose answers to my research questions.

Within this context, theorizing on use value and exchange value contradictions and communicative struggles in the context of forest and land use allows forest and land use conflicts to be explained in a deeper way. Thus conceptually the objective and subjective, and material and symbolic processes that environmental communication and political ecology try to capture are linked to the set of social-ecological relations implied in forestry development and its contestation in two different countries and contexts.

In turn, processes of environmental communication are approached by also identifying ideological, discursive and hegemonic processes. Analytically, I consider ideology, discourse, hegemony and environmental communication as crucial moments in the formation of political ecology relations. Here the relations between ideology, discourse, hegemony and environmental communication are not pre-defined as they are contingent and change over time and space. Thus ideology, discourse and hegemony can be contested in

relation to how resources are defined, used and reproduced. Within this context, we can place environmental communication practices as a crucial moment in the articulation of such contestation as well. In doing so, the term 'spaces of communicative struggles' will encompass instances such as counterpublics, communities of discourse, communities of communication and public and hidden transcripts, which is of help to understand how in practice such contestation takes shape. The meanings of those terms is implied in the presentation and contextual analysis of the cases reconstructed below. They are also implied in the further analysis and discussion concerning the research questions guiding the presentations of the thesis.

Analytically, at the centre of those processes is the materiality of forest use, and land use for tree plantations, and the potential conflicts this creates today. Consequentially, the meaning or forestry development, and also different ways of doing forestry, are crucial in this context. When looking at all those moments in the material-communicative relations of forestry in Sweden and Chile, alternatives and resistances can also be analysed. Thus in the reconstruction, analysis and explanations of the cases, political ecology relations are seen as relations between value struggles, labour processes and power relations. This kind of analysis allows linking the objectivity of forest and land use and the subjective processes therein. The emphasis on relations is critical here. For this, the meaning of dialectics that I will explore below is crucial for approaching relations forming a changing whole of forestry relations. In doing so, a wider theoretical discussion concerning terms for political ecology and environmental communication analysis can be developed.

Along with a framework combining political ecology and environmental communication, this thesis is based on a comparative study of forestry, and forests and land use, in Chile and Sweden. Thus important methodological implications follow this and these are presented below.

Methodological implications of the framework

The framework for theorizing proposed above has certain important methodological implications. First it needs to be articulated with an appropriate comparative approach. Second it needs to be empirically linked to the analysis of communicative processes in a way that allows making sense of environmental communication in relation to discourse, ideology and hegemony. Finally, it needs to articulate descriptions, analysis and explanation with normativity ends. In order to reach such goals, the methodological framework this research uses draws from Philip Michael's proposal of incorporate comparison and from critical discourse analysis along with being oriented by meanings of dialectics. Incorporated comparison and critical

discourse analysis are presented in the methodological chapter below. In turn, the meaning of dialectics and the clarification of additional terms are offered below.

An important methodological implication of this framework is that the thesis uses a dialectical approach where dialectics is primarily seen as a methodology and as a philosophical-theoretical procedure to research reality. In addition, dialectics is seen as a way to research in an interdisciplinary manner. As is elaborated in Ollman's (2008) influential understanding of dialectics,

“...the interconnections and changes that make up the whole are viewed as inseparable from what anything is, internal to its being, and therefore essential to a full understanding of it. In the history of ideas, this has been called the ‘philosophy of internal relations’. No new facts have been introduced. We have just recognized the complex relations and changes that everyone admits to being in the world in a way that highlights rather than dismisses or minimizes them in investigating any problem. The world of independent and essentially dead ‘things’ has been replaced in our thinking by a world of processes in relations of mutual dependence. This is the first step in thinking dialectically. But we still don’t know anything specific about these relations” (2008, p. 10).

This dimension of dialectics highlighted by Ollman is a way to work the distinction between *explanans* and *explanandum*. Thus, when it comes to terms such as capitalism, the capitalist world system and capitalist forestry, the difference between *explanans* and *explanandum* is crucial: capitalism, the capitalist world system and capitalist forestry development need to be explained. Thus the specific processes and mechanisms that make them possible are the terrain where empirical material is mediated by theoretical reasoning. In this regard, dialectics is about making connections between permanence and change. Freire elaborated on this issue by stating that:

“What makes a structure a social structure (and thus historical-cultural) is neither permanence nor change, taken absolutely, but the dialectical relations between the two. In the last analysis, what endures in the social structure is neither permanence nor change; it is the permanence-change dialectic itself” (2000, p. 179).

Also part of theoretical reasoning associated with dialectics is the possibility to think differences. For Adorno, negative dialectics is “*the consistent sense of nonidentity*” (Adorno, 2004, p. 5. An alternative translation puts this sentence in terms of “the consistent consciousness of non-identity”). In both Adorno

and Freire, the questions of “what is change?” and “what can be different?” are integrated into a core moment of thinking dialectically. The clear methodological dimension of this is that a dialectical exploration of the world is at the same time an exploration of possible changes in the world. This means a clear contra-distinction to positivism which in its most crude sense considers what exists in reality as what *should* exist in reality. In this regard, Adorno’s distinction between the conceptual and the non-conceptual in a concept opens an important theoretical possibility to research the process of signification through discourse, ideology and environmental communication. In wider terms, this conceptual question is at the core of the methodological questions I see as lying at the heart of theoretical discussions on how to research social-ecological relations. In fact, this means that the methodology one follows and develops is dependent on the object and not the other way around.

Thus, the methodological possibilities of a dialectical method are used here to explore the how and why of specific relations concerning political ecology and environmental communication relations concerning forestry and land use. Here I draw from Harvey’s insights concerning dialectics in his *Justice, Nature and the Geography of Difference* (1996). First, Harvey elaborated on what he conceived as the principles of dialectics by emphasising that dialectical thinking

“... emphasizes the understanding of processes, flows, fluxes, and relations over the analysis of elements, things, structures, and organized systems” (1996, p. 49).

Second, Harvey proposed the term of a dialectics of discourse to place discourses into wider moments of social reality. The notion of dialectics of discourses has been widely incorporated into the work of leading critical discourse analysts (see Fairclough, 2001). In saying that dialectics is used to research reality, there is the implicit claim of materialistic epistemology and also ontology. These are claims about conceiving dialectics in relation to mediations, the notion of totality and change.

Dialectics is usually linked to critique. For Adorno a methodological and philosophical procedure is defined in terms of immanent critique. This means to apprehend someone’s theoretical or philosophical work and criticize it according to its own premises. Then, one operates through an external critique, which means to confront the premises of a theoretical work with the premises of another theoretical work. However, the more specific question about critical theory and methodology in social theory has created a number of questions as it is sometimes claimed that the theoretical and normative dimensions of critical theory and its critique of positivism make unclear the status of methods

therein. In his *Critical Theory and Methodology*, Piet Strydom sustains that one important characteristic of methodology within critical theory is immanent transcendence. This is understood as a combined process of researching what processes are and at the same time seeing possibilities for change within the processes under research. I emphasize here that immanent transcendence must be understood in a radical relation to the subject-object relation and the primacy of the object. I draw from Strydom's (2011) approach to immanent transcendence in the following points:

1) "In general methodological terms, the concept of immanent transcendence thus directs Critical Theory to focus on the dialectical tension that serves as the dynamic impetus of the ongoing process of the constitution, reproduction, organization and transformation of society, including the self-transformation of the agents" (2011, Kindle Locations, pp. 3333-3335).

2) "Immanent transcendence has yet another important methodologically relevant theoretical sense. It relates to the centrality of the concept of the dialectical tension and contradiction at the interface between the facticity or concretely settled and inertial quality of the actual situation and the critical regulative force exerted on it by socio-practical ideas of reason or the semantic import of cultural models" (2011, Kindle Locations, pp. 3406-3409).

In working methodologically with the principle of immanent transcendence, the research process deals with the empirical material in order to: reconstruct, interpret, explain and critique. In this case the principle of immanent transcendence guides the research and it is not a result.

In outlining a view on dialectics here, it is important to note that a recent discussion of dialectical materialism has again taken the concept of nature as a relevant concept in the overall discussion on dialectics (see Žižek, 2014). Yet, this raises some important theoretical and methodological problems. We can locate the beginning of the discussion in Engels' dialectical materialism. In his *Dialectics of Nature*, Engels aimed at fully materializing theory by way of incorporating the irreducible fact of nature into the development of societies. Yet, as Wellmer notes, there are consequences of this:

"This ontological interpretation of dialectics, however, can under materialist presuppositions only lead to a naturalization of history instead of a historicization of nature. Dialectic materialism degenerates into a naturalist metaphysics" (1977, p. 235).

Within this context, Wellmer elaborates as follows:

“For Marx, the concept of dialectics would not be applicable to nature-in-itself but only to nature-in-relation-to-man, i.e., to the intercourse between man and nature which is history” (p. 236).

Within the context of this thesis, dialectics serves to investigate the main mechanisms and relations through which materiality is transformed in one way or another. Though dialectics is a main methodological aspect of this methodological framework, at some points notions of genealogy and deconstruction are used in the analysis of the empirical material. Thus, and for that purpose, the specific meanings of deconstruction and genealogy are given below.

In this thesis, and following Derrida, deconstruction is understood as deconstructing from the standpoint of normative criteria. As Derrida (1992) puts it:

“Deconstruction is justice. It is perhaps because law (*droit*) (which I will consistently try to distinguish from justice) is constructible, in a sense that goes beyond the opposition between convention and nature, it is perhaps insofar as it goes beyond this opposition that it is constructible and so deconstructible and, what's more, that it makes deconstruction possible, or at least the practice of a deconstruction that, fundamentally, always proceeds to questions of *droit* and to the subject of *droit*. (1) The deconstructibility of law (*droit*), of legality, legitimacy or legitimation (for example) makes deconstruction possible. (2) The undeconstructibility of justice also makes deconstruction possible, indeed is inseparable from it. (3) the result: deconstruction takes place in the interval that separates the undeconstructibility of justice from the deconstructibility of *droit* (authority, legitimacy, and so on)” (1992, p. 15).

For Derrida, a basic meaning (if we can use the term basic meaning here) of deconstruction was to take concepts articulating metaphysical projects and look at how they act as foundations of those projects. In doing so, one is removing the very conceptual foundations of those metaphysics and so the impossibility of pure foundations becomes evident. Derrida (1982, p. 135) distinguished between two strategies of deconstruction: one that repeats what is implicit in founding concepts and the original problematic but which does not mean changing the terrain of the problems. Another strategy of deconstruction implies that the person who is deconstructing places themselves outside what is deconstructed and affirms an absolute break and difference.

Invoking those meanings for deconstruction in Derrida means a qualification of deconstruction. Here deconstruction is rooted in normative

criteria which cannot be found in the immanent critique of the material one deconstructs. For that reason, I argue, one needs an extra theoretical support to build and to effect a deconstruction. For example, forestry and discourses on forestry are often deconstructed in the process of giving voice to opposing views on forest use. A final clarification concerning deconstruction is given by distinguishing here deconstruction à la Derrida and Heideggerian deconstruction. For me, the emphasis on justice by Derrida is what makes such a difference fundamental. On the other hand, to separate the two makes it possible to link deconstruction and critical theory by allowing both methodological instances to produce what Peter Zima elaborates in terms of a shared concern in deconstruction and critical theory, a concern “*to perceive the Other in its alterity and not to incorporate it*” (2002, viii).

As happens with deconstruction, genealogy is also widely used today in academic writing and this is mainly associated with the work of Michel Foucault. Within this context, we can bring the concise meaning that Foucault gave to genealogy:

“Let us give the term genealogy to the union of erudite knowledge and local memories which allows us to establish a historical knowledge of struggles and to make use of this knowledge tactically today. This then will be a provisional definition of the genealogies which I have attempted to compile with you over the last few years” (1980, p. 83).

As in the case of deconstruction, the meaning of genealogical work inspired in Foucault is also linked to normative ends, namely, to produce and use knowledge in a determined way. In explicitly operating through the dialectical method in the terms presented above and to bring the previous notions of deconstruction and genealogy are important methodological dimensions in this thesis. This allows an approach to the constitutive moments of a totality of relations of forestry where land, labour, organic and inorganic materials, subjectivities, conflicts and contradictions obtain their historical shape. This is, I argue, one possible form to methodologically combine critical theory, historical materialism and world systems theory in a productive way.

3 Methodology

The sources for critical theorizing implied in this thesis, namely, critical theory, historical materialism and world systems theory, are all methodological projects too and they challenge several methodological assumptions. Among the methodological assumptions challenged in these theories are assumptions about units of analysis. In this thesis, the unit of analysis is given by the problem being researched and its many processes and transformations. Thus, the unit of analysis changes along the process of empirical work as it would be impossible to keep a static unit of analysis while gaining more knowledge about the problems being researched. However, one can still frame a unit of analysis as long as the possibility to look at this in different scales and levels is allowed by such definitions. Forestry in its totality, including history, cross-national processes of forestry and territorialization of forestry through the production of space in different places, is a unit of analysis one can take as a starting point. Here one starts from the concrete and specific and moves into the abstract and general. Important for consideration here, and because I draw from world systems theory, is Immanuel Wallerstein's challenge concerning the unit of analysis problem when he proposed an entity such as the world system as the unit of analysis (1974, p. 7). In my case the notion of world forestry along with the methodological orientations of incorporated comparison allows us to have the world system of forest and land use as a unit of analysis while at the same time allowing research at micro-scales. Thus, having world forestry as a premise forces work to be done across scales in methodological terms. Here the specificities of the relations formed through world forestry can only be fully developed when working theoretically through the empirical material. Thus, the unit of analysis in this thesis is forestry in Chile and Sweden as moments of world forestry and the qualitative aspects of this are researched. A more exact phrase to express this is 'structural fieldwork', which will be explained below. As an inquiry resting on incorporated comparison and

dialectics, the unit of analysis here has been under permanent construction as both a conceptual entity and as a bio-physical moment in the research process. Thus, the processes of producing the empirical material and its analysis, and the processes under explanation, have been defined both a priori and a posteriori.

This study uses qualitative methods which are understood as ways to collect empirical material for the interpretation and analysis of processes without quantifying them. Thus, the quality of the material is given by the search for different meanings and views attributed by humans to what in this case are the specific relations between forest use, land use and forestry development and specifically concerning contemporary issues of climate change. Therefore, interviews and observations have been the main methods used in this research. In addition, the collection of texts produced in relation to those processes in the present and in the past has been one of the main methods in the thesis. The analysis and interpretation of texts has been conducted by using terminological tools developed within critical discourse analysis.

Being a qualitative research, the methodological framework proposed in this thesis is intrinsically dependent on theoretical definitions. For example, a clear analytical difference between communication, discourse, ideology and hegemony is considered for the purposes of the analysis and theorizing of those relations, and they are seen as processes. Yet the relations between these four processes imply different combinations, such as for example: (a) communication is a basis for ideology formation and ideology manifests in discourses, (b) already-formed ideologies are reproduced by communication and discourses, and (c) discourses can be sources and can become co-constitutive processes of an ideology. As texts are analysed, we will always be confronted with the question of the background, the context and the history of such texts. Therefore one needs to apprehend the wider totality in which texts are produced in order to answer questions concerning why and how these texts are produced. Thus a main methodological dimension of this framework is that it requires that the existence of a discourse, or several discourses, must be justified for the purposes of analysis. In this framework, discourse is an in-between process, leading to or produced by ideology and environmental communication. The time sequencing here is not too significant, since what matters for the analysis is that we keep these processes separate in conceptual terms and in the empirical analysis. In other words, it is necessary to argue and justify that this or that set of signs and symbols constitute a discourse and not just communicative statements or speech acts. To carry out such tasks, good starting points can be found in different versions of critical discourse analysis and the methodological procedures developed under that field.

The rest of this chapter presents methodological aspects of the thesis and it describes the specific methods for data collection and analysis. Section 3.2 presents incorporated comparison, section 3.3 presents critical discourse analysis and section 3.4 details the methods used for data collection and the process of analysis. A detailed view on the empirical material produced during the research process is offered in Appendix III.

3.1 Incorporated comparison

The proposal of incorporated comparison is an appropriate way to connect the research on two countries to the world-wide phenomenon of forestry development. Thus, in what follows I will detail the particular comparative approach used in the thesis. We start by observing that the question of the categories used in doing comparisons is crucial for comparative research (Yengoyan, 2006). Peter van der Veer (2010) states that comparison,

“[] is not a relatively simple juxtaposition and comparison of two or more different societies but rather, a complex reflection on the network of concepts that both underlie our study of society as well as the formation of those societies themselves. So, it is always a double act of reflection” (2010).

In more concrete terms, Glynos and Howarth (2007) propose that in order to undertake comparative research, two conditions are important: (a) “*circumventing the temptation to subordinate the comparative approach to method-driven research*”, and (b) “*comparative research cannot short-circuit the focus on the concrete specificity of each case within particular historical contexts*” (2006). Within this context, namely, doing comparison as a question concerning the use of concepts and awareness of particular historical contexts, important attention has been given to the relation between comparison and epistemology. As Radhakrishnan (2013) put this:

“The epistemology of comparison is willed into existence by a certain will to power/ knowledge. Such a will is never innocent of history and its burden. Comparisons are discursively implicated in such syntactic imperatives as “as good as,” “better than,” the best among”: the positive, comparative, and superlative degrees of calibrating value within a single but differentiated world” (2013, p.16, Kindle Edition).

The emphasis on how history and discourse interplay in comparison is thus a question of the subjectivity of the researchers and his or her relation to and relation within the process of comparing. Comparison is also at the centre of a

crucial recent discussion on social theory, namely, the discussion on methodological nationalism. The critique of methodological nationalism aims to “*question the nation-centered lens that defines nations as natural units of analysis*” (Amelina *et al.*, 2012, p.2). For me, equally important here is to consider methodological nationalism in relation to the critique of global-centrism. For Coronil (2001), global-centrism implies an excessive and deterministic focus on global forces at the expense of forces at the local levels.

Philip McMichael has developed incorporating comparison as a research strategy. This, I argue, represents an alternative comparative method which helps to avoid methodological nationalism and global-centrism. In addition, this constitutes an appropriate approach to researching forestry in Chile and Sweden and links this to world systems theory. Within this context, I aim to draw from this approach to research political ecology and environmental communication processes in a combined manner.

Initially, McMichael summarized his proposal in terms of:

“Rather than using “encompassing comparison” – a strategy that presumes a “whole” that governs its “parts”- it progressively constructs a whole as a methodological procedure by giving context to historical phenomena. In effect, the “whole” emerges via comparative analysis of “parts” as moments in a self-forming whole. I call this incorporated comparison. “Incorporated comparison” stems from the critique of “modernization theory,” and includes the theoretical proposition that international organization is continually evolving. The goal is not to develop invariant hypotheses via comparison of more or less uniform “cases,” but to give substance to a historical process (a whole) through comparison of its parts. The whole, therefore, does not exist independent of its parts. Whether considering nation-states or a singular world system, neither whole nor parts are permanent categories or units of analysis. Generalization is historically contingent because the units of comparison are historically specified. In short, comparison becomes the substance of the inquiry rather than its framework” (1990, p. 386).

A more detailed presentation of incorporated comparison is organized around the following three claims:

“Incorporated comparison makes three particular claims. First, comparison is not a formal, ‘external’ procedure in which cases are juxtaposed as separate vehicles of common or contrasting patterns of variation. Rather comparison is ‘internal’ to historical inquiry, where process-instances are comparable because they are historically connected and mutually conditioning. Second, incorporated comparison does not proceed with an a priori conception of the composition and context of the units compared, rather they form in relation to one another and in

relation to the whole formed through their inter-relationship. In other words, the whole is not a given, it is self-forming. This is what I understand we mean by historical 'specificity.' Third, comparison can be conducted across space and time, separately or together" (2000, p.671).

It is important here to highlight that in my view, incorporated comparison allows us to go beyond the mere establishment of similarities and differences between processes or things. In addition, this way of doing comparisons differs from comparison having separate research findings that can then be compared as cases. Instead, the process is one of having a comparative approach at the centre of the process from the beginning to the end and to have comparison as the substance of the inquiry. Thus, this implies taking methodological decisions which aim at the whole process being researched. By doing so, it can of course happen that one finds similar and different processes, but the important aim here is to establish connections and relations between processes. Thus, this is also a way to look at the conditions of the possibility of relations between different spaces, times and peoples in the world.

Incorporated comparison can have different forms. Initially McMichael distinguished among a multiple form of incorporated comparison and a singular form of incorporated comparison. In his words:

"The multiple form of incorporated comparison analyzes a cumulative process through time- and space-differentiated instances of an historically singular process" (1990, p.392).

A singular form of incorporated comparison is one that aims to analyse variation in or across space within a world historical conjuncture, and it is characterized as follows:

"This is a "cross-sectional" comparison of segments of a contradictory whole in which the segments (e.g., social units, cultures, or belief systems) "belong" to distinct social times. They are comparable precisely because they are competitively combined, and therefore redefined, in an historical conjuncture with unpredictable outcomes. Examples of such overlapping segments are historical combinations of peasant and market economies, slave and wage labor systems, metropolitan and colonial cultures, etc. The comparative juxtaposition of these segments reveals the contradictory dynamics (along part/ part and part/whole dimensions) that provide their historical texture and that of the whole" (1990, p.389)

One example of work using incorporated comparison is Giovanni Arrighi's *The Long Twentieth Century* (1994), where Arrighi framed it as follows:

“The comparative analysis through which systemic cycles of accumulation will be constructed follows the procedure that Philip McMichael (1990) has called "incorporating comparison." The cycles are not presumed but constructed, both factually and theoretically, with the explicit purpose of gaining some understanding of the logic and likely outcome of the present financial expansion. The comparison is incorporated into the very definition of the research problem: it constitutes the substance rather than the framework”. (p.23)

In taking into account the achievements of Arrighi's book, and reflecting on the specific dimensions that incorporating comparison reached with this, McMichael elaborated on a third form of incorporated comparison by stating:

“Arrighi employs an additional form of incorporated comparison in *The Long Twentieth Century*, where he compares cycles of accumulation that represent interconnected eras, or episodes, in “a single historical process of capitalist expansion which they themselves constitute and modify” (1994: 23). The comparison is employed not to contrast these episodes, as disconnected cases, but to inform analysis of the current era through the logic of comparative inquiry incorporated into the problematic itself. Here, episodic sequences are understood as distinctive precisely because history itself is cumulative.” (2000, p.671)

The claims and forms of incorporated comparison mean a problematization of competing approaches to comparative research. One of these concerns the terms and conceptuality implied in the process itself. From the previous presentation, I draw the following theoretical-methodological points for this study. First, comparison here is not concerned with collection of variables and data to be compared. And second, comparison here implies looking at processes such as global-local formations and incorporated comparison serves as the basis for a research that avoids methodological nationalism and its limitations when explaining cross-national processes.

3.2 Critical Discourse Analysis

Methodologically, insights from critical discourse analysis (Fairclough, 1995, 2001) are used for analysis of texts. I use critical discourse analysis (henceforth

CDA) to look at the production of discourses both as a result and as a driver of environmental communication practices. In addition, I locate both processes within the wider material context of struggles to produce meaning and co-create certain patterns of forest use and land use and change for tree plantations in Chile. Therefore a focus on discourse here implies the identification and analysis of discursive moments along with environmental communication practices and this in relation to ideological and hegemonic processes and other political ecology processes. Here the aim is to look at discursive relations and practices in their interaction with other discourses and with the non-discursive reality. In this sense, Harvey's approach to the dialectics of discourse helps to place language and discourse in relation to other moments of the social process. In terms of Harvey, those moments are: (a) power (discourses are manifestations of power), (b) thought, fantasy and desire (the imaginary), (c) institution building, (d) material practices, and (e) social relations. In addition, for Harvey discursive construction operates in relation to "non-discursive realities" to which certain terms supposedly allude (for example, environment, nature, time-space) (Harvey, 1996).

More specifically, some discourses I have identified in the cases I have explored are analysed in terms of inter-discursivity. Following Fairclough (2003), the analysis of the inter-discursivity of a text "*is analysis of the particular mix of genres, of discourses, and of styles upon which it draws, and of how different genres, discourses or styles are articulated (or 'worked') together in the text*" (p. 218). The aspect of inter-discursivity that interests me is the one that implies looking at how different discourses interplay in a discourse. Thus, my reconstructions of discourse aim at such a goal.

This leads to the analysis of discursive relations and practices in terms of ideology as well, as ideologies imply normative claims about how specific societies are and should be organized and maintained in time and space.

The critical discourse analysis carried out in this thesis is focused on texts and their interrelation in terms of intertextuality, and it starts by justifying the existence of discourses. The analysis of the discourses identified is articulate in relation to the material obtained through interviews. In doing so, relevant processes where discourses have been identified are reconstructed and observed. Here I have taken into account those other views on the discourse and the processes under analysis. In formal terms, and as highlighted above, the technical terms used for the analysis of discourse are intertextuality and inter-discursivity.

For the case of Chile, a comment concerning the word discourse is due since in Chile discourse is a word used in the everyday language in at least two senses: (a) it can be a verb, and (b) it can be what in other languages is a

speech in a party and it is what the presidents deliver when addressing the nation and announcing political and policy measures. Thus, we have a collection of presidential discourses in Chile. This makes the question of the analysis of discourse both easier and harder – easier if one takes such texts as containing a discourse and analyses them as such, harder if one wishes to theoretically justify that there is a discourse being articulated in those texts.

3.3 Methods of data collection and analysis

3.3.1 Study areas

Study areas were chosen in the two countries in order to focus and to operationalize the use of methods, such as for example interviews and observations. The criteria used to define the two study areas were the existence of forestry processes in terms of: (a) pulp production, (b) important role of forestry in the local economy, (c) rural-urban dynamics associated with forestry, (d) historical trajectories of people operating in the framework of forestry development, (e) forestry labour relations and their transformations, and (f) their place in both national, regional and international contexts.

The empirical concerns with those different scales of forestry development have been taken in parallel with the more specific empirical work at the study area level. The two study areas were defined through the following process: In Chile a first exploratory trip gave the basis for defining the area of Ñuble province as the study area for the fieldwork. This is an area which has historically been an area of important agriculture and farming activities. The establishment of a new pulp mill project, including process of an EIA, created considerable resistance against the pulp mill in the area. The important role of native forests in the area in terms of energy use and forestry practices made the area one of contrast in terms of tree plantations and management of native forests. The process of creating new forms of conservation in the area was represented by the establishment of a biological corridor which then became a UNESCO biosphere site. The definition of the study area in Chile was done in parallel to the definition of the study area in Sweden.

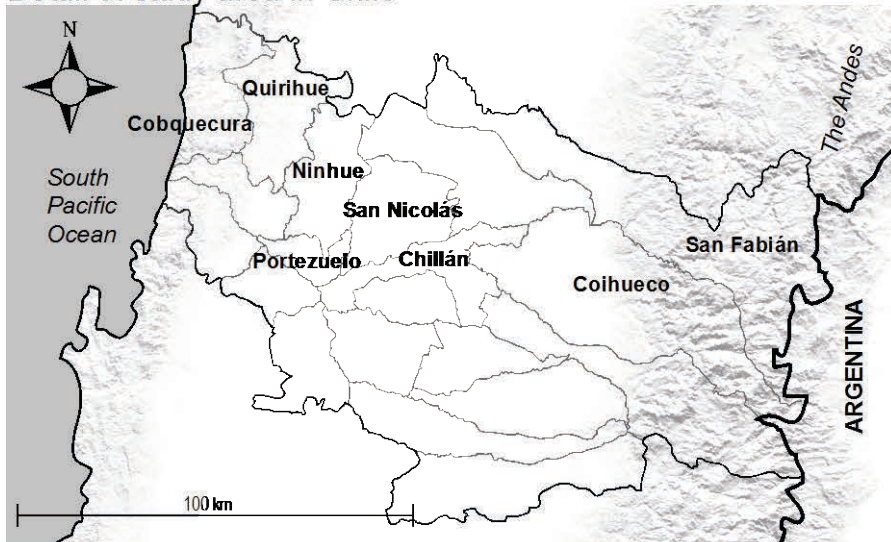
The first study area was defined in Sweden after consultation with a local expert. The definition of the study area took into consideration: (a) its relevance in terms of forestry, (b) its relevance in terms of pulp production, and (c) its relevance in terms of forest actors. During the research process an important event took place which methodologically justified rethinking the definition of the study area in Sweden. The change of study area was motivated by the fact that in 2011 a pulp mill located in Västernorrland, Sweden, obtained new environmental authorization to increase production capacity. Thus, a

change in the study area was decided upon. As the study area in Chile covers an area stretching from the Andes to the Pacific coast, the study area in Sweden included the area of Jämtland and so similarities regarding geographical differences within the two study areas were included. The material collected when approaching the first study area proved to be important and it has thus been used in the thesis. Below, maps of the two study areas are offered.

Study area in Chile

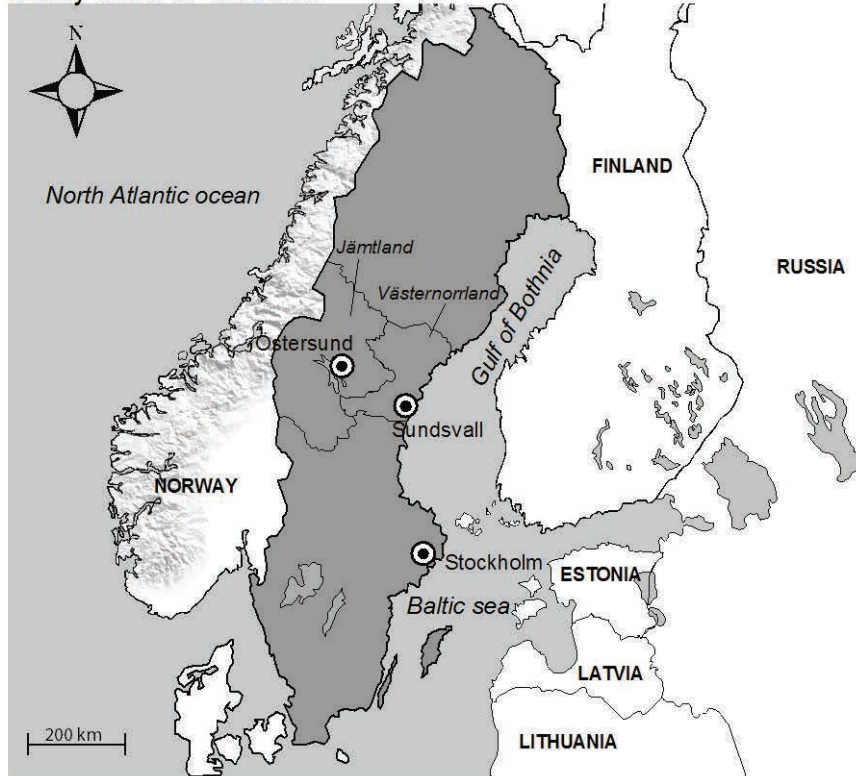


Detail of study area in Chile

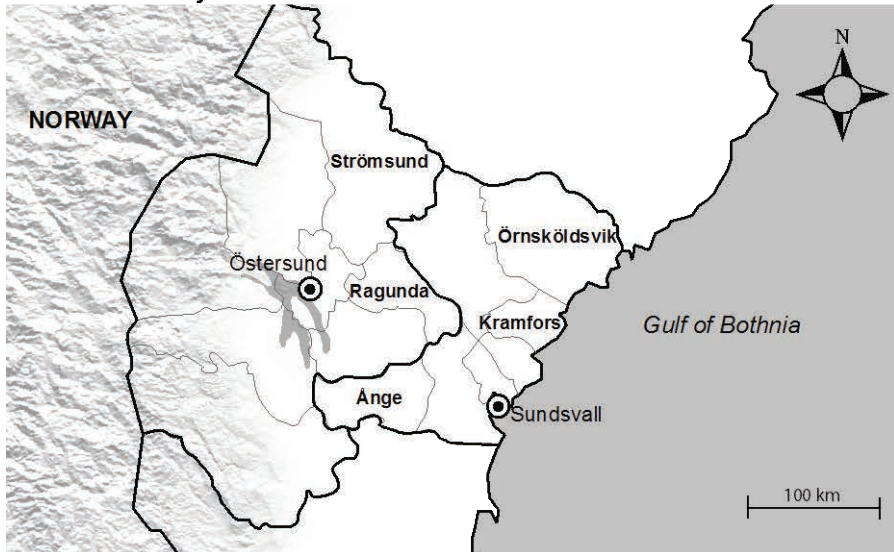


Map 1. Study area in Chile. Drawn by Anni Hoffrén.

Study area in Sweden



Detail of study area in Sweden



Map 2. Study area in Sweden. Drawn by Anni Hoffrén.

3.3.2 Fieldwork

Fieldwork in Chile was carried out during three visits to the country and during those visits I stayed and travelled within the area for about two months each time. In Sweden I visited the study area four times and stayed there for about one week each time.

The term ‘structural fieldwork’ can be appropriate to describe the kind of fieldwork implied in this thesis. To the best of my knowledge, the term structural fieldwork was first proposed by Gellert and Shefner (2009). Both authors discussed the attempts of world system research to provide explanations of dynamics within the capitalist world-system while at the same time not giving a proper place to fieldwork within world system research. Thus a gap between micro-level concerns and macro-level analysis was noticeable. In order to fill that gap they have proposed the term ‘structural fieldwork’ in order to: (a) illuminate power’s multiple dimensions, (b) examine agency and its boundaries or limitations within broad political and economic structures, and (c) give attention to nuances of change and durability, spatial and temporal specificities, and processes of change and durability (2009, pp.193,195). A similar proposal can also be found in Lapegna (2009), who proposes a view on ethnography with a focus on the global dimension of local dynamics. These propositions of structural fieldwork can be linked to the work of Stephen Bunker, who studied the extractive economies in the Amazon and engaged with the study of power relations and developmental practices at a very local level while at the same time looking at the world system processes implied in those local processes.

Here the term structural fieldwork appears to be relevant to overcome the lack of medium-range approaches to the local dynamic investigated in the context of researching global dynamics. Gellert’s work (2003, 2005) on forests and the timber trade in Indonesia is based on interviews, analysis of policy-documents and on-site knowledge about the participation of Indonesia’s timber in global commodity chains and how the market for that was politically formed. In doing so he assesses the political formation of markets for Indonesian timber by looking at how actors pushed such development forward. This approach to the micro level is combined with the study of the dynamics and effects of the timber trade at the meso and macro level, which gives an illuminating understanding of the conflicts and struggles for forest resources in Indonesia.

Research gains with this kind of approach are various: explanations of how specific agents of change have operated during a period of time, connection of what happens in an external market with national political situations in the place of production for export, valuation of the concrete social conditioning

and consequences of a commodity chain implying natural resources located at the local-rural level, explanations of the interdependence of changes in rural areas of exporting countries and effects of imports in local areas in importing countries. Such explanatory and interpretative gains can be replicated in other case studies. The point to emphasize here are that the methodological possibilities of producing and addressing both macro and micro levels in the research process allow us to approach the dynamics of current rural change by looking beyond the limits of the specific rural area studied.

3.3.3 Observations and interviews

Observations at 12 forestry workshops and meetings in Sweden and Chile were part of the research process and the overall knowledge produced by attending and observing those instances are implicit in the thesis. In some cases observations were organized as such, for example when I went to observe a meeting organized by a forest owner association in the study area in Sweden and attended a conference to deal with the future of forestry in the area. For this I asked permission to attend and observe as part of a research project. In other cases observations were realized while participating in the meetings, for example when I attended the World Forestry Congress in Argentina in 2009 and participated in the V meeting of students for agro-ecology in Chile in 2009.

The thesis uses 63 interviews conducted in Chile and Sweden. Interviews took the conventional form of semi-structured and open-ended interviews. A basic guide with interview questions was developed. The selection of interviewed persons was guided for: 1) identification of relevant actors in the forestry discussion in Chile and Sweden. 2) Relevant persons concerning forestry in the study areas. 3) Identification of new interview persons during meetings and observations in the two study areas.

3.3.4 Text collection and secondary sources

Texts collected during the research process consist of documents ranging from forest owner associations' magazines in Sweden to media coverage of forestry in Chile and Sweden; from policy documents on forestry and climate change in Chile and Sweden to national forestry policy documents and local municipality development plans. Historical material from archives such as for example congressional records documenting the origins and context of the prohibitory Law from 1906 and current parliamentary discussion on land use and forestry in Sweden and written records of the legislative instances of the military junta in 1974 where a decree law established the basis of what eventually became neoliberal forestry development in Chile and current legal implementations for native forest conservation in Chile.

Empirical material consisting of texts found in secondary sources includes the historical series of *Unasyuva*. *Unasyuva*, the journal published by the Food and Agriculture Organisation (FAO) of the UN (1947—2014), has been an important source for parts of the study reported in this thesis. All issues of the journal available in the journal's home page were collected for this study and selectively incorporated in relation to the issues of interest concerning Chile and Sweden. Some issues of the journal do not have page numbers though these have been included in this thesis.

3.3.5 Triangulation

Triangulation in this thesis is understood as the process of producing empirical material about the same issue through different methods. In more concrete terms, triangulation is obtained here by mixing interviews, observations and analysis of texts in terms of discourse analysis. Thus triangulation is here in line with the literature on the specificity of triangulation within qualitative research. It also means that terminologically, triangulation here could be seen as mixing methods and methodology. This depends on how one defines discourse analysis. In this case I take CDA as a methodology that includes text collection as a method to gather empirical material. Thus texts have been collected in relation to the research questions and the main research problem and also they have been collected according to the findings during interviews and observations. Other texts have been provided or referred to by interview persons. In some cases interviewed persons were contacted during observations, so in those cases the interview and the observations were combined.

3.3.6 Methodological comments, methods of analysis and summary of the empirical material

Below is presented a table offering a summary of the empirical material (Appendix III offers a detailed overview of the empirical material). Relevant methodological comments concerning the material are as follows. The considerable difference between the number of forest owners interviewed in Chile and Sweden is explained by the fact that in Chile, many forest owners are small scale owners who often do not belong to any formal association of forest owners. In Sweden most of the forest owners in the country are members of a forest owners association and are represented by them. Those associations have professionals and staff and two of these were interviewed. As can be seen in the material consisting of texts collected in Sweden, the views of forest owners are widely covered and expressed by a network of magazines and publications and those have been analysed in the research. Thus the smaller number of

forest owners interviewed in Sweden for the thesis is compensated by the analysis of their magazines and professional working in their associations.

As mentioned above, a main change in the research design was originated in the decision of changing the original study area defined for carrying out field research in Sweden. Instead of focusing on Gävleborg, the area of Jämtland and Västernorrland seemed more appropriate. This decision was justified by the fact that a pulp mill in that area obtained environmental authorization to increase its pulp production capacity in 2011. The authorization was obtained after an Environmental Impact Assessment. As the pulp mill in the study area in Chile also went through an EIA, it seemed useful to incorporate both cases in the study. In addition, at the time of the study and after a first visit and interview at a pulp mill in the original study area, it became clear that there was a possibility that the pulp mill would close down during the research period. The empirical material produced in relation to the original study area was nonetheless used in the thesis.

The study areas have been the essential focus for the analysis of issues at stake in this study. However, this study also includes related events and issues that took place outside the study area, at national level and at other locations.

A note on translations: Originals of some of the texts used in the study were found in Spanish or Swedish. These were translated by the author as required. Where parts of these texts have been quoted in the thesis, the translations went through a second check for accuracy by competent colleagues at The Department of Urban and Rural Development who were native Spanish or Swedish speakers.

While sections of interviews conducted in English have been directly quoted in the thesis as such, transcripts of interviews conducted in Spanish were translated by the author for the purpose of including as quotes in the thesis.

The empirical material produced during the research process was analysed by: (a) combining CDA based on analysis of texts with the analysis of the content of the interviews, and (b) relating observations during fieldwork to the content of interviews and analysis of texts. Within this context, interviews were transcribed, notes from interviews were taken and texts were organised according to the context in which they were produced and according to subjects related to the production of those texts. In addition, a list with all the empirical material to be used was produced. Within this context, codes for interviews and documents were produced in order to relate views on the different topics being researched and the subjects representing such views. Finally, interview transcriptions and interview notes were re-read in order to identify the relevant information for the analysis. The empirical material produced during the research for this thesis is summarized below.

CHILE		SWEDEN	
Interviews	43	Interviews	20
Forest/land/plantations owners and sharecroppers	17	Forest owners	3
Forestry service staff	2	Forest owners associations managers	2
Forestry sector	7	Forest agency staff	4
Municipalities	5	Forestry companies	3
EPA	2	Forestry companies associations	1
NGOs	5	Municipalities	2
Trade unions	3	Länsstyrelsen	1
Agronomist and consultant study area	2	NGOs	2
		Trade unions	1
		Consultant	1
Texts and documents		Texts and documents	
Municipalities development plans		Local area development plans	
Regions' development plans		Legislative history	
Legislative history		Policy documents	
Policy documents		Media reports	
Media reports		Companies reports	
Companies reports		NGO's reports	
NGO's reports		Magazines	
EIA documentation		Skog & Industri	
		Nytt i Norrskog - Norrskogen	
		Din skog (SCA magazine)	
		Shape (SCA international magazine)	
		Vi Skogsägare	
		Lokal eko (Forest service local magazine)	
		Skog&framtid (Future Forest Program magazine)	
Observations: 6 events/activities		Observations: 6 events/activities	

Box 2. Summary of the empirical material used in the thesis

4 Forestry in Chile

4.1 Introduction: The Ñuble province in the wider context of forestry in Chile

The Ñuble province of Chile is located in southern Chile and is one of the administrative provinces within the VIII Region. The province covers an area of 13,178.5 km² (5,088 sq mi) and had a population of 460,113 at the 2012 census. Land cover and land use in the rural areas of the Ñuble province are characterized by agriculture, native forests and tree plantations. In looking closer at this land, one can observe that while tree plantations mainly provide wood for timber and wood pulp, native forests are managed and used for charcoal and firewood consumption. On the other hand, tree plantations are sometimes owned by large forestry companies and sometimes by small farmers and peasants. The Ñuble province borders the geographical area that was historically considered a frontier in Chile. *La frontera* (the frontier), a vast extension of lands going south from the Bío Bío River, was an area where the Mapuche people resisted first the Spanish colonizers and then the formation of the Chilean state. Since the time of Chile's independence, the frontier became a territory where a new process of colonization was initiated. This time the Chilean state aimed to gain effective control over those lands and one of the main measures was to concede concessions for land use. Within this context, the Chilean state implemented an active process to attract immigrants from European countries who were offered lands and initial support to move to Chile and to settle in southern Chile. As a result, important colonies of Italians, Germans and other Europeans arrived in the country and for their subsistence depended on and developed agriculture and wood extraction. Large areas of native forests were felled to give space for agriculture. This process became known in Chile as the second colonization or, and because of the important role of German immigrants, the German colonization.

Its position between the northern border of the frontier and the central area of the country where the country's capital Santiago is located was an important factor in the intensive development of agriculture in Ñuble. Chile's early export-oriented economy implied a long cycle of wheat farming in which the area of Ñuble was an important contributor. The wheat farming and harvest culture is until today present in some of the municipalities' emblems in the area. Wheat was not only a main crop but it also implied the *Hacienda* system, articulating basic elements of social organization and economic life in the area. Within the area, a large peasantry was formed and those peasants, who in some cases were internal migrant populations, developed smaller scale farming that co-existed with the larger hacienda system. Agriculture, large scale ownership and peasant and small farmers are still today main characteristics and subjects of the area. The area also has forests that people refer to as native forests and are mainly located in the two mountain ranges in the extreme East of the province and in the *Cordillera de la Costa*, which is the mountain range close to the Pacific Ocean in the west of the province. During the 20th century, the Chilean state engaged in a process of forestry development where the state and private companies were interested in using and increasing wood biomass as raw material for manufacture. Pulp making became then an activity promoted by both the state and private companies and where international interests also converged. Forestry development in the 20th century depended on previous attempts to manage the forests in modern and scientific ways. Within this context, during the 19th century the influence of German forestry was crucial in Chile as forestry experts from Germany and German immigrants arrived in Chile and became key subjects within forestry and agriculture. The development of forestry in Chile included the incorporation of exotic species which came from countries such as, for example, Australia and the United States. In 1910, and within the context of the second colonization, a parliamentary commission was created with the aim of investigating the conflicts originating in the process of colonization and proposed a number of measures to ensure the agrarian and forestry development of those areas of southern Chile. In 1908, Federico Albert, a German natural scientist working with the government on forest issues, proposed legislation to incentivise plantations of trees, and this law was passed in 1916.

During the remainder of the 20th century, a number of international forestry missions visited the country and monetary support to build production capacity and technology transfers were components in the developing of forestry in the country. Within this context, FAO cooperated actively in forestry development in the country. A crucial step in this was the construction of pulp mills by both a private company and the state. One of the first pulp mills in Chile was

inaugurated by a private company in the province of Bío-Bío, next to Ñuble province. Building on the existence of a forest sector in the country, the military dictatorship passed a decree law to foment tree planting in 1974. The Decree Law 701 aimed to give tax breaks and subsidies to tree planting and it fostered the use of fast growing exotic species of eucalypts and pines. As a consequence, important areas of Chile witnessed a massive process of tree planting. Within this context, the two largest and most dominant forest companies have until today accumulated around 2 million hectares of land of which today about 1.5 million hectares have tree plantations. In the VIII region, forestry development first started in the areas close to the city of Concepción and in the province of Arauco where the then state-owned pulp mill Arauco started operations in 1972. Next to the VIII region, towards the North, the VII region is also an area of intensive forestry development and a pulp mill started operations there in 1976. This means that geographically, the Ñuble province lies between two areas where forestry and pulp production have been an intensive main industrial activity for the last 40 years.

In 2006, the US\$850 million investment Nueva Aldea wood pulp mill began operating in Ñuble province and in 2012 it had reached a production capacity of more than 1 million tons of bleached pulp per year, which was mainly for exports. This makes this territory an important contributor to Chile's position among the world's five largest exporters of pulp. Wood for the pulp mill is extracted from tree plantations of pine and eucalyptus, which are exotic and fast growing species in the country. Today, tree plantations in the province are associated with an important shift in land use which according to recent surveys indicates that from being an area mainly dedicated to agriculture, the area is today becoming mainly dedicated to forestry. Forestry development based on exotic tree plantations in Chile implied both vast land use change and documented transformations in ecosystems. Eucalypts are especially great consumers of water and pines are invasive species that have reached and colonized areas of native forests. In addition, pine and eucalyptus are planted as monocultures and when affected by pests and diseases, companies have sprayed them and affected communities close to tree plantations. Labour transformations have accompanied the process. For example, in some cases proletarianization has taken place, for example, when peasants have become forestry workers, and in other cases peasant farmers have become peasant foresters.

4.2 A forestry revolution in Ñuble province

In June 2011 the local newspaper *La Discusión* (The Discussion) informed that the province of Ñuble in southern Chile was witnessing a forestry boom in the area. The boom was seen for some as a great signal of how forestry development was changing the whole area. The news was rapidly reproduced by other media and the magazine *Lignum*, an influential magazine of the Chilean forest sector sourced the information from the local newspaper and so the information on the forestry boom produced at the local level circulated and reached a wider audience mainly composed now of people with interests in forestry. The news coincided with the release of the latest inventory of vegetation resources in Chile in 2010. The inventory identified important changes in land use taking place in the province of Ñuble in the last decade. Here it was estimated that between 1998 and 2008, the area had had:

- A diminution of 56,542 hectares for agriculture
- A diminution of 2,678 hectares of native forest
- An increase of tree plantations totalling more than 116,682 hectares in 2008 compared to 1998.

This agrarian transformation in the area is represented in the pictures below, where tree plantations exist side by side with wheat farming and vineyards. Also, a municipality coat of arms in the area shows the historical trajectory of wheat farming in an area of increasing tree planting.



Figure 4. Agrarian transformation in the study area. Photo: Cristián Alarcón Ferrari.

The establishment of the Nueva Aldea Forestry Complex is linked to this new pattern of land use and this has reaffirmed the predominant role of forestry as a means of development. This has been established in several public documents framing the terms of development for the area. In these documents, local policies have incorporated the legal framework which explicitly establishes that large areas of Ñuble province are areas preferably to be forested. Within this context a network of state agencies, private companies and professionals actively support forestry development in the area, and within this context, the region encompassing Ñuble province has been intensively planted with pines and eucalypts. Though historically pines predominated as a tree planted in industrial and small-scale plantations in the VIII Region, eucalypts are today increasing their role as plantation trees as shown in Figure 5..

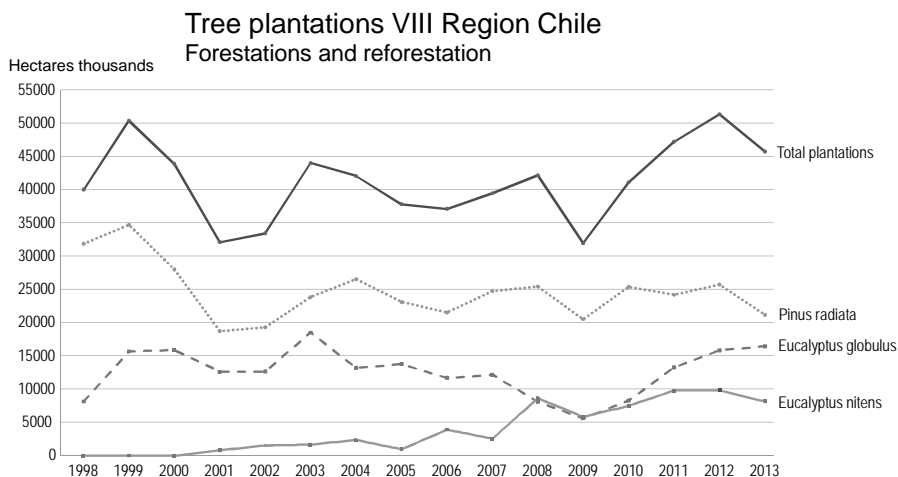


Figure 5: Areas forested and reforested with pine and eucalypt plantations in the Bío-Bío Region (to which the Ñuble province belongs). Source of data: CONAF, <http://www.conaf.cl/nuestros-bosques/bosques-en-chile/estadisticas-forestales/>

People in the rural areas of Ñuble province generally categorize groups of trees in terms of native forests or as tree plantations. A similar categorization is made in the official statistics of the country. Implicit to this categorization is the fact that a native forest implies the existence of different trees not necessarily planted by humans and that a tree plantation is composed mainly of eucalypt and pine monocultures. Lands in Chile are mostly private lands, so forestry is an activity mainly developed by private owners. The state has control over and manages vast areas with forests but not for proper forestry purposes. In the case of both tree plantations and native forests, some more

specific dynamics can be observed. Tree plantations can be owned and managed by (a) companies or, (b) they can be owned and managed by peasants or farmers or, (c) they can be owned by peasants or farmers but managed by companies or by consultants.

In the case of the native forests one can observe that they can be: (a) owned by peasants or farmers and managed and used by the same farmer or peasant, (b) owned by a farmer or peasant who works in the forest himself but also employs other workers, (c) owned by landowners and managed by sharecropper peasants or workers. Forestry consultants and experts from the forestry service participate in different stages of forestry activities. For example, sharecropper peasants managing a native forest in the Andes work hand in hand with a consultant in preparing the application for a forest management plan (OBS-C-3). In delving deeper into the different arrangements observed in the area, we can distinguish between plantations established with state subsidies and plantations established without subsidies.

In some cases, plantations without subsidies can be quite small, covering only one hectare or even less. In the case of the native forests, some owners today receive monetary support for the management of the native forests according to the new law for protection of the native forests. In the case of peasants and farmers engaging in tree plantations, one can observe that in some cases they have radically shifted towards tree planting and in other cases they mix tree planting and farming. In some cases combinations of exotic species and native trees on the lands is a dynamic in the area too, for example sharecroppers planting individual pines in the middle of native forest or native shrubs.

In many other cases, peasants and farmers sold their land and left the countryside to live in towns or cities. That selling out of lands by peasants and farmers was one of the bases for the accumulation of land by forestry companies in Chile and in that particular area. In another case the privatization of a state-owned forestry and pulp company during Pinochet's dictatorship gave rise to one of today's largest forestry companies in the country, namely, Celco-Arauco. Though land acquisitions by forest companies continue in the area (INT-C-19), for the two largest forestry companies, smaller parcels of land are difficult to fit into their economies of scale (INT-C-30). Within this context a new recent approach of companies to secure procurement of timber is the search for partnerships between forestry companies and farmers' or peasants' associations to facilitate the planting of trees under schemes defined as *clean production agreements*. Such agreements aim at providing knowledge and expertise to small land owners and to facilitate their participation in modern

forestry. The agreements are formulated in terms of contracts and are linked also to the participation of state agencies (MASISA/CMPC, 2011).

For some peasants and farmers who have planted trees on their land, being surrounded by tree planting and seeing others planting trees was given as reasons to try tree planting (INT-C-9,15). The pictures below show what the farmer and peasant referred to (Figure 6).



Figure 6. A peasant farmer in the dry area of Ñuble province and a peasant in the coastal area of the province. Photo: Cristián Alarcón Ferrari.

The establishment and management of tree plantations is a rather standard activity which is facilitated through clear guidelines and the active support of private companies, private consultants and also staff from the forestry service. As forestation and reforestation is part of the public policy in the country, the forestry service acts as the agency that foments and also provides expertise to landowners planting trees. The forestry service also works with the management of native forests. For this, a recent law established new incentives and a framework for the service. Before the new law for protection of the native forests, several initiatives in the area took place as part of the Chilean-German international cooperation. Between 1994 and 2006, a large national project of forest management funded by German aid and developed with both Chilean and German professionals was implemented in Ñuble province.

The project aimed to create knowledge and expertise for the management of native forest and to cooperate in the future implementation of the new law of native forest conservation being discussed in Parliament at that time. One of the pillars of the project was to focus on the economic potential of managing the native forests in a sustainable way and so contributing to rural development and improving the living standards of the forest owners (Wiken, p.21). By doing so, the project aimed at shifting the focus from the loss of native resources to instead see the native forest as a possibility for development. The project had a strong focus on working with communication and in doing so it

drew heavily on the notions of environmental communication developed by Open *et al.* in 2000. This approach proposes environmental communication as a tool in the achievement of sustainable development. One of the outcomes of the project was a book on communication and native forests. In the book, the main principles of a strategy for communicating about native forests were developed.

The project opened possibilities for meetings where ideas on forestry were discussed. In this case, the project was also the space for some activists to reinforce desires of a re-approach to the native forests in the area. The management of native forests is mainly done for the purposes of firewood and charcoal. In the region, a large part of the primary energy used for heating and cooking is based on firewood and charcoal, so the production of charcoal and firewood is mainly traded for consumption in the cities and towns of the area. Charcoal and firewood production is an activity still based on tools, simple machinery and labour which is developed in groups where the labour process varies according to the seasons and activities in the forests. The current legislation states that forest management plans are required and so firewood and charcoal producers work with consultants in order to obtain those management plans. This work differs considerably from industrial forestry. In addition to the quantitative aspects of industrial forestry, and manifested in the accumulated land by forestry companies and technological investments in pulp production, forestry companies rely on a workforce that is widely sub-contracted. Sub-contracting was one of the main issues in the great forest workers' strike in 2007 in which a forest worker was killed by police forces in an incident outside a pulp mill. Two years later, workers still had grievances about the way the compliance to the clauses of the agreement with the forest company were being followed (INT-C-41/OBS-C-1). One reason was that workers have a production bonus that depends on the quantity of wood being produced. However, the measurement of the quantity of timber is carried out at the gates of the pulp mill, so they only obtain a report about the quantities delivered and have no way of ensuring that the timber they have produced is fully and properly counted at the gates of the pulp mills. The two logics of forestry development and native forest management are illustrated in the pictures below.



Figure 7. The industrial forestry model in the top 4 photographs. In the bottom four photographs, the use of native forests. Photo: Cristián Alarcón Ferrari.

The forest workers in the forestry operation referred to above were aware that wood produced by them was transported to different pulp mills owned by the company. One of those pulp mills is located within the large Nueva Aldea forestry complex which started operations in 2006 and is located in Ñuble province. The establishment of this forestry complex was one of the reasons for the boom of forestry plantations reported in the local media in 2011. Peasants and farmers that initiated tree planting to sell wood to the company had to do it through middlemen. In addition, the wood trade depends very much on fluctuations in the markets. During the financial crisis that began in 2007, the forest sector in Chile was immediately and severely hit. Some forestry activities were shut down and a general feeling within the sector was that the crisis could eventually lead to questions regarding the survival of the sector. Yet, for some actors, the already established link with the Chinese market fuelled optimism. For small farmers and peasants, the dramatic drop in the price of wood generated concerns about the decision to plant trees. This is because those decisions were taken under the premises of higher prices caused by the needs of the pulp mill. However, the effect of the crisis was relatively short-lived within forestry in Chile and, as we saw earlier, already in 2011 optimism regarding forestry had returned to the area.

At its most basic level, forestry starts with seeds and tree nurseries. Today, for forestry companies this activity is developed on a massive scale on land

controlled by the companies. In this regard, the main target of companies today is to have the right species for the different pieces of land they own. Forestry companies put considerable efforts into expanding tree planting by distributing tree seedlings among the municipalities in the local areas of the province. In some cases the process is resisted by agronomists who see this as a problem for both the farmers and peasants and for themselves. In other cases the tree seedlings are circulated and promoted by staff of the municipalities. There is yet another form of producing tree plantations. This is the work of small growers that dedicate land and labour to essentially keep nurseries in artisanal ways. During the summer of 2008, the owner of a small plot of land close to the town of Cobquecura explained to me in detail his work as a grower of pine plants. He did this in his garden and at that time he had about 14,000 plants in the process of being grown for sale among farmers and peasants in Ñuble province and other areas in the vicinity (INT-C-17). His work, as he saw it, was then an activity widely expanded in the area and thus it was no longer a great source of income. In his view, pines and eucalypts can cause problems to those planting them and he was aware of the problems with water and also recently with diseases. Yet, he saw this as a source of livelihood. In analysing this case of the micro-logic of tree planting in the area, one needs also to look at how things have operated at a wider level in the state. In fact, it is not possible to further analyse tree planting in the area without looking at the legislation that was passed in 1974 by the military dictatorship.

4.2.1 Bringing the neoliberal state into the trees: the DL 701

The decree law 701 passed in 1974 became a pillar in the development of tree plantations by both small private owners and large companies in Chile. The DL 701 essentially gave subsidies for planting activities and gave tax breaks which made planting a cheap activity. Though it does not oblige the planting of exotic species, the fact is that this has been largely used to establish tree plantations. The Decree has been reformed on several occasions and it has evolved to benefit an increasing number of landowners. As one farmer said, the DL 701 in the beginning favoured mainly large companies, but eventually he was also able to obtain the subsidy. The subsidy is obtained only with the proviso that a number of species survive after the first year. Thus, loans linked to the subsidies became normal practice among landowners. Other state institutions entered into this system and so landowners were able to go to one institution to apply for the subsidies and to another to cover the costs and expenses for the time waiting for that subsidy to be transferred. The system gave rise to the development of a network of consultants that became crucial for the success of the planting operations. In some cases, consultants approached peasants and

farmers to offer services and a whole forestry package. This option was accepted in some cases and resisted in others.

For some farmers and peasants interviewed during fieldwork, the problem with giving consultants an important role in the plantations is both an economic issue and also a problem with losing control over their own lands. The system of plantations and subsidies has been challenged in several moments by critics of the large-scale forestry sector and because of the consequences of exotic species monocultures in Chile. As the DL 701 has defined time periods, when the last period was close to expiry, a new discussion in the parliament eventually led to an extension of the DL albeit with some modifications aimed at incorporating a new kind of landowner into forestation activities. This tree planting programme has been a pillar in the post-dictatorship agrarian policy of the different governments. In two important recent historical conjunctures, tree planting was a centrepiece in the announcement of economic measures in the country. One was in 2008 when the financial crisis hit the country. To face the crisis, the then president announced in a discourse a plan with 10 measures to foster economic growth and face the crisis. One of those measures was to give more support to the tree planting programme which justified the need for 1 million more hectares of forested land and to link this to the creation of new jobs in the country. In 2008, a plan was announced to add 100,000 new hectares of forested land per year. A second moment in which tree planting again became a state priority was in the recent announcement of economic measures for the next 4-year term of the current president. Again, the subsidies to tree planting were presented as one of the pillars of economic growth in the country. This time a clear link between planting and concern with the environment were articulated through the final goal of development.

In 2008, a committee was formed to work with the goal of converting Chile into a major player in the food and forest product markets. The goal was laid out in terms of *Chile: A Forestry and Food Power*. In 2013, a legislative proposal was submitted to the Parliament in order to reach that goal by 2020. As stated on its website, Chile's Agrarian Policies and Studies Bureau (*Oficina de Estudios y Política Agraria* or ODEPA) conceives its role concerning the presence of Chile in international markets as one "...*supporting the transformation of Chile into a power in agri-food and forestry.*" The statement reproduces the general plan guiding agrarian policy in the country. Though the transformation of Chile and its actual consolidation as a forest product and food exporter has been well established during the last 30 years and coincided with the late period of neoliberal rule enacted by both the military junta and elected presidents and parliaments in recent times, the need to reinforce this

today is part of a larger process. Such a process aims to materialize the definition of a strategy to make Chile a power in terms of food and forestry. Thus, the idea, the content, and the possible ways of doing it are constantly repeated by the authorities in their textual and verbal production and, one could say, in their awareness of keeping the message alive, giving it movement and ensuring its progress.

The state has not only contributed to forestry via subsidies. The national agrarian policy and regulation established a zonification where extended areas in the country, and in Ñuble province, are considered areas to be used preferably for forestry. In addition, the forestry service gives formal support to forestry and the establishment of plantations. Here the history of wheat farming enters into the history of tree planting in the area today. The long cycle of intensive wheat farming in the area eroded extended lands and also caused massive loss of soil nutrients. As one expert in agro-ecology in the area put it, forestry in the area is obtaining only the residual effect of soil fertility and so *“tree planting is like the vulture of the area”*. Yet, tree planting in the area still requires fertilizers and this is a common practice of peasants and farmers. Some argue that this creates another differential to forestry companies since they can use more fertilizers.

A recent engagement of the state with industrial forestry is via the funding of research and development in innovation. Highlighted as one of the 70 examples of projects of innovation co-funded by Chile’s development agency in 2007, a consortium for forestry genomics received more than half of the total investment from the state. The rest was funded by forestry companies and a regional university. The project aims at “studying and intervening the genetic characteristics of eucalyptus and pines”, to improve the competitiveness of the forestry sector. What the analysis of the project shows is that its research is also framed in terms of wanting to reduce “the production costs in timber production, expand the industrial base, increase exports and jobs in the local area”. A researcher quoted in the report adds to this that “the forestry sector has always been developing research with a strong ecological component, searching for more production in fewer lands” (in INNOVA, 2007: 63). For the large forestry company owning the pulp mill in Ñuble province, a main characteristic of Chilean forestry and pulp production today is to offer both short and long fibres in the international markets (INT-C-29).

In this view, and in the context of the economic decisions of Russia that reduced the availability of birch fibre in the international markets, a country able to offer both short and long fibres (such as Chile) would be in a good economic position. The selection of fibres is a key issue in achieving good sheet formation in paper production and eucalyptuses provides short fibres. In

another company, also using short fibres from eucalyptus, to increase production capacity using eucalyptus as a raw material was seen as linked to the increasing amount of eucalyptus planting (INT-C-31). Thus, in this view, the company decided to install a mill to use that available raw material. The processing of this short fibre is then a combination of changes in land use through the establishment of eucalyptus along with the demands in international markets. The increasing use of eucalyptus in Chile goes in parallel with the increasing production capacity based on eucalyptus in Brazil where two main projects to augment production are being undertaken by Chilean companies. In 2014, fears of overcapacity were raised by international consultants. It is estimated that there are signs of an impending crisis of overcapacity in pulp production and its effects could be seen as early as 2017 (Cardenas, 2014).

In interviews with managers of the forest companies, the question of overcapacity was answered as being something that was not a big problem for the companies. A main reason for this optimism is that Chile has during recent years increased its exports to China and in particular, after the collapse of the American market, China has become an important market for Chilean forest products.

The process of forestry development has been a driving force in the establishment of new roads and the transit of heavy trucks on the small roads connecting villages and towns in the area. This is in fact one of the main environmental problems that some staff at the municipalities identify as being associated with forestry. The problems this creates are basically twofold: (a) deteriorating condition of the roads, and (b) increased levels of dust in the air. However, roads are also important places for advertisement of forestry and machinery for forestry. Most of this machinery is imported into the country and advertisement is part of the competition to gain presence among small landowners. This is not advertisement for large companies, as they have their own ways for the procurement of machinery. As a manager told me in an interview, they are updated every day about new machinery being produced in countries such as Sweden, as he explicitly specified. Crucial to the circulation of machinery and technology in the area is the annual fair organized by the national wood association in the area. The fair is organized as the International Exhibition of Forestry, Pulp and Paper and has been organized since 1986. According to the organizers, the fair circulates around 100 million USD per year and it is an epicentre of diffusion of forestry innovations and technology in the forestry area of the country.

4.2.2 Pulp mill conflicts

Not far from the place where the Exhibition of Forestry, Pulp and Paper takes place yearly, the forestry complex and pulp mill of Nueva Aldea was inaugurated in 2006. This was almost two years after another pulp mill owned by the company had caused a major environmental disaster in southern Chile. In 2004, it surfaced that a large number of black-necked swans had died in wetlands declared a Ramsar site close to the city of Valdivia (Ramsar after the Convention on Wetlands of International Importance, known as Ramsar Convention). It created immediate suspicion about the company's role in this disaster. Valdivia, a city where tourism as an important activity and the location of a university where forestry science is a major field of studies, witnessed the formation of a large coalition of different groups united in the defence of the wetlands. Demonstrations in the streets of Valdivia and other cities followed the incident. The company was forced to temporarily close its operations and a series of reports from researchers from the university elaborated after the disaster that there were indications that the mill was responsible. Yet the conflict became a long process of struggles as the company decided to fight back against the evidence indicating its responsibility in the incident. The issue was only legally settled in 2013 when a court ruled against the company and the company accepted the decision. The court based its decisions on a number of scientific studies that concluded that the disaster in the Río Cruces was caused by the company's pulp mill. One of the effects of this was that a clear environmental discourse questioning pulp production in southern Chile was produced.

The same year the company caused the collapse of a Ramsar wetland in Valdivia, its first report on corporate social and environmental responsibility (CSR) was made public. The CSR report from 2004 opens by stating that *"this is the first CSR report and it is the fruits of years of engagement with the sustainable development, work with environmental issues protection and a strong sense of social responsibility."* Then the report tells of the investment in the pulp mill in Valdivia and it informs that because of improvements in technology, the company was already considering asking for authorization to increase the mill's production capacity. At one point, the report notes that the recent events in Valdivia had caused significant criticism of the company. Thus the report states that

"it is equally necessary to mention that in the wetland of Río Cruces there was detected a evident decrease in the swan populations during October 2014. This motivated a strong reaction of the community in Valdivia and of

environmental organisations. This also gave place to research to define the cause of the problem.

Then the report continues,

To date the University of Valdivia has elaborated two preliminary reports. These have identified that the possible cause of the problem are abnormal concentrations of metals, which has influenced the diminution of seaweed, which is the feed bases for the swans. Neither of these reports has found that there is a link between the increase in metal concentration and the sewage from the mill” (Arauco, 2014).

After this the introduction to the report tells of the recent engagement of the company in projects with the local communities and in specific terms it tells how the company is funding education projects in the areas where it operates. In addition, forestry certifications became rapidly incorporated into the CSR practices of the company. In articulating these practices, the company’s managers and owners made considerable efforts to be present in the local areas and show what they presented as the contribution of the company to development. In this regard, the terms of the companies have also reached the state agencies. In an interview with a forestry service member of staff, the question concerning communication in relation to EIA turned into recognition of the positive changes in forestry companies because of CSR.

At this point we can advance the following analysis: in effecting such practices, the company was in fact producing and articulating a counter-discourse. Its specific origin in time and content was to face the growing criticism that in 2004 articulated a discourse opposing pulp mills in Chile. As we will see below, through this practice a number of concepts and terms have populated the language of the company in the area. As we have seen above, the situation to which the introduction of the CSR report is referring was the context of one of the largest environmental conflicts in Chile and is still a milestone in the public discussion. There were two important events associated with this that must be described as they were linked to this case and later became an important part of the process of reform of the environmental legislation in Chile. As one of the consequences of the disaster in the wetlands in Valdivia, the company concentrated its efforts on retaking the old plan of discharging sewage into the seascape close to Valdivia. This created a long term conflict with fishermen in the area of the coastal town of Mehuín. To end the opposition to the pipeline, the company obtained a monetary agreement with some of those fishermen opposing the pipeline. As this agreement was

made in parallel with the EIA for the pipeline, the agreement was widely criticized and contested. The issue became a matter of national debate and the political authority of the region declared that this was an agreement between private parties and so was not a matter of concern for the public authority. The case motivated politicians to openly discuss the possibility of agreements between parties in the process of an EIA and as a result, new legislation was passed which considered agreements between companies and communities or individual community members to be legitimate procedures, but procedures which needed to be made known in advance of the EIA proposal. During the parliamentary discussion of the new regulation, one lawmaker saw this as a means to counter-act the work of some environmentalists in the area (Congreso Nacional de Chile, 2010: 1918-1919).

As we saw earlier, a counter-discourse by the company was largely motivated by the dispute concerning the disaster in Valdivia in 2004 and the anti-company discourse it originated. That discourse gained in importance when in 2007 and close to another pulp mill owned by the same company, a massive number of dead fish were discovered. This time the company accepted its responsibility and paid compensation before a court settled the case. However, in the Valdivia case the company rejected the accusations and in order to do this, the company constantly used scientific reports to support the company's arguments. In one report a number of scientists used concepts such as post-normal science and theories developed by the resilience alliance to offer an alternative hypothesis to demonstrate that the company did not cause the disaster (Bachmann *et al.*, 2008: 40, 59). The hypothesis was also used in important scientific journals. For example, in 2009 the article titled *Conceptual models for ecosystem management through the participation of local social actors: the Río Cruces wetland conflict* was published in the journal *Ecology and Society* (Delgado *et al.*, 2009). Its main premises were that a regime shift had caused the disaster in the Río Cruces and affected the Ramsar site in Valdivia. The use of science by the company does not only concern natural science. Social sciences are today also an important tool in the conflictive situation of forestry in the area. This is shown in how to face criticism and, in our terms, forming a counter-discourse, the company employed a number of consultants to cooperate with the company's work with its public image and its work with communities. One of the consultancy firms employed by the company is one led by a Chilean sociologist who is today a well-known follower and popularizer of the French writer Bruno Latour in the country. In his work with companies, he has largely used Latour, Callon's, Boltanski and Laurent Thevenot's ideas to generate a framework for corporate knowledge concerning conflicts (Tironi, 2011). His book on the topic is largely based on

those ideas and it was actually launched with the presence of one of the top managers of the forestry company referred to here. In his book he uses the case of his consultancy work with the forestry company to illustrate how the management of controversies works. As we observed earlier, the company accepted the rule of the court in the Río Cruces disaster, and it accepted a set of compensations. In the case of the pulp mill in Nueva Aldea, the company had also operated under a system of compensations originating in the EIAs and the different environmental authorizations it has obtained.

The Nueva Aldea forestry complex has gone through two major EIA processes. Both have been contested and have resulted in decisions by courts in Chile. In 2000, the EIA for the Nueva Aldea forestry complex project was rejected at the administrative level of the National Environment Commission (CONAMA). In 2002 an Appeal Court of Santiago confirmed the rejection of the EIA for the Itata pulp mill project. Yet, in 2002 The Supreme Court revoked the decision at the Appeal Court and authorized the operations of the pulp mill project. The EIAs included a process of public consultation in which 72 observations were made. 63 were properly analyzed and 9 were rejected because they lacked certain formal requirements. Documents and interviews in the study area, including interviews with managers of forest companies in Santiago, show that two divergent visions of EIA are present. On the one hand, a number of activists and participants in the EIAs of the forestry complex saw this project in relation to the forestry model existent in the country and criticisms aimed at questioning the forestry model as such. In addition, participation in the EIA questioned the legitimacy of the EIA and the EIA was seen in terms of an instance of those with more power in the area, that is to say, the company and authorities supporting the project. The time frame of the process is also a point of divergence but for different reasons: for participants in the process time constraints were a problem since they were forced to read, understand and give opinions about the project within a very short period, whereas for the companies it is a very long process awaiting decisions, which affects production and investments. However, in general terms managers at companies said that the EIA system was good and no major complaints were expressed.

The establishment of the pulp mill in Ñuble province was contested and it motivated a conflict. Yet, what was also at the centre of the conflict was the EIA system in Chile. In the words of an activist who participated in resisting the project,

”The conflict began in the middle of the 1990s when the company submitted the EIA to build the Nueva Aldea forestry complex which at that time was named the Itata project” (INT-C- 26)

The two EIAs for the Nueva Aldea project were processes where people in the local areas participated through public consultation. In the last EIA, participation in the public consultation developed along what one local activist opposing the project described in terms of “*organizing different media projects and always trying to get their views in the official media as well*” (INT-C-26). In terms of concerns and opinions delivered during the EIA, Table 1 below summarizes the main concerns and topics presented during the EIA consultation processes for Nueva Aldea Pulp Mill.

Table 1: Participants, groups that acted as one participant and the number of observations submitted in 2000 and 2006 within EIAs conducted for the Nueva Aldea pulp mill in Chile, plus the main results of keywords and categorization of concerns and topics contained in observations for the two EIAs. Table based on EIA consultation processes documentation available at the Chilean environmental authority.

EIA 2000		EIA 2006	
participants	66	participants	217
participants acting as a group of people or organisations	16	participants acting as a group of people or organisations	17
observations	307	observations	291
Main concerns and topics expressed in the written observations submitted to the authority in the EIA's citizens participation process		Main concerns and topics expressed in the written observations submitted to the authority in the EIA's citizens participation process	
Agriculture	57	Pollution and contamination	132
Question the EIA procedure	45	Marine resources	80
Pollution and contamination	44	Question the EIA procedure	76
Water sources	38	Agriculture	44
Forest sector development issues	34	Tourism	41
Work and labour	29	Fisheries, fishermen and livelihoods	40
Proposing alternatives	26	Proposing alternatives	19
Road damage	15	Health	17
Toxics, residues and dioxins	13	Sea water	11
Tourism	12	Development issues	13
State of the Itata River	12	Work and labour	11
Positive to the project	9	Future generations	9
Development issues	9	The company as a problem	8
Health	8	Compensation and mitigation	7
Compensations and mitigation	7	State of the Itata River	6
The future of elder and younger people	7	Monitoring	5
Beekeeping activities	5	Cultural heritage	2
Bad smells	5	Forest sector development issues	2
The environment	5	Guarantees for communities	2
Landfill issues	3	Bad smells	2
Archaeological sites	2	The future of elder and younger people	2
Marine area	2	Social impacts of pipeline construction	1
The company as a problem	1		
Rejection of plant in the area	1		
Loss of the value of land	1		

In analysing this table we can observe three salient topics:

- People manifested concerns in direct relation to their closeness to certain resources
- There were concerns and questions regarding the EIA process itself
- Overlapping points within observations and focus on certain specific topics

As we can see here, a major concern in 2000 was agriculture while in 2006 marine resources were major reasons for expressing concerns in the area. This is explained by the fact that in 2000 the EIA was aimed at the forestry complex and its impacts on land and in 2006 the EIA concerned a pipeline to discharge sewage along the coastline. We can observe two things concerning compensations: 1) In the case of fishermen resisting the project in 2006, the company agreed on a system of compensation including giving them land with tree plantations and educating them in tree planting. 2) In relation to the EIA in 2000, one of the compensation measures was to provide mobile libraries to municipalities in the area where this is taken as a contribution to the education of children.

The concern with the future of agriculture in the area has much to do with two connected transformations in the area. One is the transformation of municipalities' identities and another is the transformation of families' productive traditions. For municipalities, the problem essentially arises by the persistence of their self-understanding as municipalities in agricultural areas and the fact that agriculture becomes less and less important and forestry gains a greater role in both land use and economic importance. In analysing a number of municipal development projects, one can observe that forestry is recognized as a major driver of economic growth but this is also conceived as an economic development that does not deliver major gains for the localities. As expressed in an interview at one of those municipalities, the economic consequences of forestry for municipalities are often negative. One of these negative consequences is that because people often leave the countryside, they migrate to the towns and villages and this puts added pressure on the municipalities. Within this context, an important site of struggles is within the municipalities' departments working with development projects. A member of staff at one of the municipalities in the area expressed this as follows:

“As a municipality we have a clear position: the lands which are 100% apt for forestry should be forested. But in any case land with agricultural purposes should be forested. We will try to defend this and make it very clear. Yet this is sometimes difficult to accomplish because forestry companies are buying much land with double purposes (namely for forestry and agriculture) and they prefer to use it for forestry” (INT-C- 21)

For agronomists working in these departments, the continuing development of forestry is simply a direct risk for their own survival in the area as professionals. A main problem for agronomists in the area is that if forestry continues to grow there will be no reasons for agronomists to continue working there. To protect their professions and their own survival as professionals working in the area, and in some cases because they also hold a negative view on forestry as such, the agronomists make great efforts to communicate a positive view of agriculture to the peasants and farmers in the area. This is linked to innovation and also with agroecology. In one case, a whole municipality has seen agro-ecology become the main orientation of the municipality. Concerning changes in land use, a member of a family dedicated to making a living from wheat flour milling and who is now partially dedicated to forestry explained that he converted 12 hectares used for farming into plantation land to take advantage of the economic context, but he still believes that agriculture should be a main activity in the area (INT-C-2). On the other hand, forestry development and new projects of forestry, such as for example a Clean Development Mechanism project (henceforth CDM), have brought new professionals to the area. Some of these professionals are anthropologists and sociologists working with companies in their work with communities, and in some cases municipalities have employed an anthropologist to help them confront forestry development. On the other hand, unemployment of forestry engineers in the country grows as the sector is increasingly automatized. In addition, the combined process of market liberalization of education, and forestry concentrations led to a growing unemployment among forest engineers. In 2011 it was noted that while in other countries as Sweden, there is one school to educate forest engineers per 7-13 million hectares of forest, in Chile at that time there was 1 school per 1.5million hectares (Reyes, 2011).

4.2.3 “...*The Sword of Damocles*...”: The multiple arrivals of climate change to the area and the case of carbon credits and REDD’s boutique carbon credits

“Then we have it [climate change] only as the Sword of Damocles which is everywhere like something will happen but we do not know what is to happen in concrete terms”.

The above were the terms used by a staff member at the Environmental authority in the area in 2010 when explaining how they incorporate climate change in their work within the project of a biological corridor in the area. He then went on to describe the situation as a debt: “*we have to assume that we have to consider how ecosystems behave from the perspective of the climate*

and the water and other variables” (INT-C-35). Yet, he added that “*this is not a variable in the equation today*” (INT-C-35). When asked about what degree of knowledge he thinks existed in the area concerning climate change, he summarized by saying that “*the only thing I see is a weak approach from the side of academia*” (INT-C-35). The words used in his approach to climate change can easily be taken as a metaphor. The sword of Damocles is after all understood as *a metaphorical expression for a constantly threatening danger during apparent well-being*. When converting the metaphor of climate change as the missing variable in the equation he added that at that time there was not any concrete work concerning climate change and forestry in the area. Though he identified a national policy on it, he described it as something very general and superficial. His was a widespread view on climate change in the area during the time of my fieldwork in the area. A similar answer was given by a member of the forestry service staff in the area who recognized that nothing was being done concerning climate change and forestry. On the other hand, one of the reasons for the arrival of climate change to the area was through carbon markets.

A project of forestry for carbon sequestration and carbon trade in the area was proposed and executed by a company called Sociedad Inversora Forestal (SIF) which cooperated with the Biocarbon fund to carry out the project. In 21 January 2009, the company arranged a meeting with forest owners which was conceived as a public consultation. In general terms the language of the workshop was one of seeing climate change as an opportunity. During the meeting farmers and peasants were told about the project and about climate change. Questions about eucalypt planting were dismissed by an expert of the group who closed the possibilities to discuss the issue further by saying that all the criticisms were dealt with in a book about eucalypts issued by CORMA, the wood business association in the country. He added that maybe more editions of that book were needed. The book, essentially a defence of the eucalypt on the grounds of its many benefits uses simple language with the aim of debunking the possible negative consequences of eucalypts. Yet, as a matter of fact that clear message has never been completely accepted by all people in the area. In the same meeting, for example, farmers manifested that according to their experiences, it was true that eucalypts do cause problems.

The meeting also aimed to deal with the social aspects of the project. For this, an anthropologist told the participants about the benefits of the project within an area that according to the Chilean survey on poverty was among the poorest in the country. The meeting gave material for a whole package of documents that was finally submitted to the Clean Development Mechanism (CDM) where one can read that the project had two essential components: a)

afforestation and sustainable management and b) biodiversity values. However, the project was based on the use of exotic species and according to SIF the project involves 4,600 ha with trees between 7 and 20 years old and additionally 3,100 ha of new plantations of which 1,800 ha were planted with *Eucalyptus globulus* and 1,300 ha with *Pinus radiata*. In contrast to this information, the Biocarbon fund stated that within the context of the project, “[...] SIF will begin afforestation with native tree species and conduct other actions to promote biodiversity (eg. Establish new corridors, manage plantations to increase heterogeneity, etc.)” (World Bank Biocarbon Fund, 2008). A closer analysis of this process starts at the moment of the meeting. The meeting was characterized by a general lack of knowledge about the CDM and climate change. Overall, the meeting, though defined as a public consultation, was in practice informative about a business alternative. As supporting material for the meeting, a detailed explanation about carbon trade was attached yet climate change as such remained at a very abstract level. Once the meeting had begun, the presentations addressed general issues concerning the development of the forest sector and the possibilities found in carbon trade in an area where social indicators show poverty and marginalization. This project, along with other similar projects in the country and concerning both tree plantations and native forests, contributed to the formation of a national plan for REDD. The project was materialized in 2012 with the “*Platform for Generation and Trading of Carbon Credits in the Chilean Forestry Sector*” located under the Forest and Climate Change Strategy and which was administratively and institutionally placed within the forestry service.

In an interview, one of the managers of Chile’s new REDD platform described some carbon credits in terms of boutique carbon credits (INT-C-18). The idea, he said, was to show what was behind the credits. He added that the idea was to compete with countries that can produce very cheap carbon credits. Along with the institutional arrangements to put together different agencies working with REDD related issues, a definition based on market research was introduced. The logic was that because Chile cannot compete with countries where carbon credits are produced in a relatively cheaper way and therefore have a lower price in the international market, then a possible market niche for carbon credits from Chile can be found in offering something else and adding value to the credits produced in Chile. The idea of a boutique carbon credit was thus introduced. The main rationale was to show that carbon credits from Chile were special entities and that they were special because they were produced under special conditions. Special conditions here were for example communities that are benefiting from the REDD projects and projects that can

be accountable and environmentally and socially tested. The terminology was not new as it was already part of the World Bank's report *State and Trends of the Carbon Market 2008* (WB, 2008). Thus, by providing terms for the discourse and monetary resources, the World Bank cooperates in making this project possible. As in many other cases, the Bank co-operates with several other donors. The resources used under the logic of a national REDD programme and the expectations of a market niche for boutique carbon credit mobilizes important resources and subjects to make all this possible. Among the steps to reach that we have: 1) a zonification of the country for REDD purposes. 2) Creation of the expertise for producing REDD credits and selling them. 3) Incorporation of forest-related people into the logic of REDD. 4) Encapsulating REDD within the wider context of forestry in Chile. In one of the documents presenting this REDD programme, one can read:

“These international initiatives are complementary to the current national instruments that promote forestation, including: Law N° 20283 on the Recovery of Native Forest and Promotion of Forestry and the Legal Decree N° 701 on the Promotion of Afforestation and Recovery of Degraded Soils – both of which are financial pillars for the generation of a supply of carbon credits in the forestry sector” (CONAF, n/d).

In bringing REDD into existence and aligning it to the global project of REDD, efforts have been made to obtain the adequate expertise. For the Chilean case, important expertise in this regard can be found in New Zealand. In order to have that expertise in Chile, seminars were organized, and it was in a New Zealand research center where a report laying the basis for carbon emission trading for Chile was written (Kerr *et al.*, 2012). As part of this process, and repeating a historical characteristic of making world forestry possible, experts from New Zealand were invited to Chile and in a series of seminars and meetings they transferred the New Zealand experience with carbon credits and markets. As mentioned earlier, REDD in Chile is today very much influenced by the New Zealand experience. In this way Chilean forestry is again connected to a country that has a rather similar position regarding forestry. If the Chilean state has now formalized its attempt to develop carbon credits in Chile, one can observe that in producing a discourse on carbon markets as a response to climate change, the large forestry companies took a leading role early in the formation of the global politics of carbon markets in the local area.

As we saw above, the SIF project was one of the CDM projects generated in the area. Other modes of CDM projects have been associated with pulp mills; the forestry complex Nueva Aldea and its CDM projects being an example. The projects originated in the use of biomass to extract energy at the

pulp mill which creates an energy surplus that can be sold to the national grid. In doing so, the company elaborated measurements that link the replacing of fossil fuels to a decision based on the existence of carbon credits as an incentive. It is well-known that this possibility has been widely taken up by forestry companies. In the case of Chile, the energy is extracted from tree plantations. Questions about the real carbon neutrality of this operation were soon raised. The response of the company was to produce a carbon footprint. The important point here is that by doing so, an intensive flow of messages making a link between the forestry company and climate change responses was created. The CDM projects became a very important point in the company's content in environmental communication practices, which can be seen in its CSR and sustainability reports. However, this is not the only way that climate change is signified to justify industrial projects. Hydropower and dam irrigation projects have recently been framed in terms of climate change too, yet they are sometimes located in places where people have other environmental objectives as expectations for the area.

4.2.4 Hydropower, a dam irrigation project, and a biological corridor becoming a UNESCO Biosphere Reserve: where to put the plantations and how to replace the natives?

In 2011, the felling of 25 hectares of native forest as part of a hydropower project caused the rapid reaction of the Mayor of the Municipality of San Fabián. San Fabián is located in the Andean foothills and along the Ñuble River. The municipality, and many of its inhabitants, conceive the area as one of native forest and clean air and the Municipality's motto was for years: "*Magic palace of Rivers and Mountains*". Today the municipality uses the motto: "*San Fabián: the paradise exists*".

Thus the hydropower project was seen in open contradiction to that view of the place. In addition, what was contested here was also that the compensation measures for the clear-cut of native forest was to plant both native forest and tree plantations somewhere else, and for that purpose the company has an agreement with Arauco, the same company owning the pulp mill and promoting tree planting in the area. The opposition to the hydropower project in 2011 was deeply linked to a larger struggle concerning the plan for a major dam in the area. According to activists in the area, this would require that more than 1,700 hectares of native forest would have to be submerged to create the dam. The area is part of a Biosphere Reserve, and attained that status in 2011. All these three processes have created controversies and conflicts. The Biosphere Reserve was the result of a process where a novel conservation initiative was put in place under the terms of a biological corridor. Yet, plantations already existed within the borders of the

corridor, which implied that one of the main problems for biodiversity in the area was already established as part of the biological corridor. For people in the area and even for people within the environmental authority in the area, this was a contradiction. The project then became a proposal to be added as a UNESCO Biosphere Reserve and eventually it was added to the list of Biosphere Reserves in 2011. The declaration by UNESCO came at a time where the projects of a hydropower and dam in the Ñuble River had been resisted by activists and some authorities in the area. Thus the UNESCO recognition came in a context where criticism about the real state of the corridor was already an issue in the area. Within this context, the announced visit to the area of the Minister of the Environment for an activity to celebrate the UNESCO decision was cancelled amidst the announced demonstrations. The Biosphere Reserve also created a process where expectations rapidly proved to be nothing more than expectations, since according to critics no specific legal instrument was in place to protect the area. The state, for its part, continues reaffirming the Biosphere Reserve concept by creating institutional arrangements to manage this. In analyzing this, one can sustain that at the centre of the discussion we have conflicting views on forests and the use of land in the area. The conflict here can be described in terms of a conflict regarding land use. What the dam implies will erode the possibility of keeping the native forests and so a main source of tourism and livelihood is at risk. The same can be seen with the mini hydropower project, which by cutting trees fragmented the forest, and it uses the land for another goal, namely, to extract hydropower.



Figure 8. Felling in a native forest for a hydropower project on the left and the valley where a dam is being planned on the right. Photo: Cristián Alarcón Ferrari.

The irrigation dam planned in the Ñuble River has been a long and contested development plan. A basic point of contestation is that this will benefit farmers and peasants in the valley and so the project put their interests and the interests of the people living in the Andes foothills in competition with each other. What was initially an irrigation project designed to face droughts has recently also been framed in terms of climate change concerns. In the opinion of a farmer

reproduced in the magazine of the water council of people supporting the initiative, climate change is already there and so the problem with water is becoming more and more difficult to handle.



Figure 9. Areas close to the biological corridor where pine plantations are parts of the landscape. Photo: Cristián Alarcón Ferrari.

4.2.5 Agro-ecological challenges to industrial forestry and its tensions

Within the context of an expanding forest sector and plantations, and resistance motivated by the protection of native forests, agriculture and marine resources in the area, the practice of agroecology has become one of the articulating points for such resistance. In 2009, students of agronomy grouped in an initiative for agro-ecology organized the V meeting of the students for agro-ecology in the city of Chillán, the capital of Ñuble province. Here the appropriation of climate change arguments to develop agroecology is an ongoing process. Thus the meeting had as a theme “*agroecology as a sustainable method for peasant’s production within climate change scenarios*”. The event included an excursion to an agro-ecological farm where experiences were presented to demonstrate that the land that is defined as “*preferentially apt for forestry development*” can become highly productive land in terms of food production. From the point of view of communicating climate change, the meeting mixed the attempt to develop agroecology and the concern about how to oppose the hegemonic models of both agro-industries and industrial forestry together with a concern regarding climate change. The excursion also showed how climate change can be incorporated into the politics of agroecology. The visit to the agroecology farm put students, peasants, farmers and experts in touch with a concrete demonstration of the potential of agroecology. Several peasants attended the meeting and started to see the potential of agroecology from a new perspective (OBS-C-2). In collectively analyzing the potential of agroecology from a political point of view, the question of conflicts for land became apparent.

As agroecological developments need to protect land and if possible increase the land used for agroecological practices, such practice competes with the expansion of forestry and agro-industry in the area. That competition takes place at different levels: from the conscious knowledge of peasants and small-scale farmers and their decisions on land use to professional advisers working within municipalities and engaging in the politics of agroecology (OBS-C-2). What has to be noted here is that in the Latin American context, agroecology is widely conceived in terms of a movement that responds “*to the agronomic inefficiencies and social failures of conventional agriculture. Agroecological principles and practices combine time-proven farming methods, new ecological science, and local farmer knowledge to enhance the yields, sustainability, and social benefits of farming. Agroecology has been applied mainly but not exclusively by small-scale and resource-poor farmers, making their farming more productive, affordable, and reliable*” (McAfee, 2006, p.10).

As argued by Altieri and Toledo (2011), agro-ecology has today become a growing political alternative for peasants and small landowners in Latin America. In the area, the discourse of agro-ecology has even been explicitly adopted by one municipality that conceives agro-ecology as an alternative for peasants and farmers and as an alternative to forestry. Yet the discursivity produced through agroecology is not free of tensions. One of these tensions is caused by the questions of whether eucalypts and pines fit into the definition of agro-ecology. As the agro-ecology farm visited during the meeting had some planted eucalypts, this created a direct response during the visit. There, members of some organized peasant groups voiced their anger about this. The issue circulated rapidly between people and in a few days people that had not attended the meeting were already aware of the polemic. The context of this criticism is one where several movements, including peasant movements, have contested forestry development by negating the condition of a forest for tree plantations. Two slogans here have been “*plantations are not forests*” and “*plantations are green deserts*”. One of the main organizers of the agro-ecological farm and a pioneer in bringing agro-ecology to the area explained that they were aware of the criticism but they argued that peasants and small farmers need fuel and materials and in that case it is better that they produce it for themselves. Thus, for him, they are not against trees in themselves and think that good land planning can avoid the problems with water sources caused by eucalypt planting. He added that they also consider cooperating between forest companies and peasants and farmers as they see this as a possibility for peasants to combine both forestry activities and farming (INT-C-43). One of the peasants attending the meeting and participating in the

excursion was already engaged with tree planting on his land. However, he said he would stay involved with farming and husbandry as he saw tree planting as simply a source of income but not as work for him. Thus, he was starting to think that agro-ecology could provide some new ways to continue with farming in the area (INT-C-9). Within the context of peasants and agro-ecological NGOs engaging with small-scale tree planting, another meaning of forestry is created.

The analysis of how agro-ecology challenges large-scale plantation forestry in the area needs to take into account how this is a practice necessarily linked to a concrete practice on the land and how this practice operates through the action of subjects seeing agro-ecology as a labour alternative. The meeting of the students for agro-ecology was in itself a communicative event that aimed at disputing the meaning of climate change in the area, as demonstrated in the title of the conference, *“Agroecology as a sustainable method for peasant’s production within climate change scenarios”*. Yet, to make sense of this the excursion was a key component of the whole elaboration. As I was told by participants, one needs to see to believe, and as was shown in the visit, the agro-ecological farm is also a place of technology innovation where the issue of energy is a basic aspect of the work. According to the farm organizers, the recent years have witnessed an increasing interest in seeing what they do and, according to observations during the fieldwork, in showing what agro-ecology does on the land a large part of the argument for agro-ecology is formed. A final analytical moment here has to do with the analysis of the kind of movement that agro-ecology articulates. In conversations with participants in the movements it was clear that this is neither an environmental nor a social movement. For participants in agro-ecology, the movement is one that does not distinguish between the social and the ecological. Thus, the analysis of how this movement is articulated in practice gives reason to see this as a social-ecological movement. What one needs to consider here is that this is not something that only occurs in the case of agro-ecological movements in the area. This is part of a larger process of self-resignification of several movements in Chile where expressions such as social-environmental assembly, for example, have been part of some other struggles concerning resources and territories in other areas of the country. What can be a specificity of the agro-ecological movement in the area, and a specificity that it shares with some of the movements for urban agriculture in the country for example, is that in showing how agro-ecology is done on the land a great part of the movement is formed in itself. The dialectics of showing is, I argue, formed by environmental communication acts and the long-term process of agro-ecological mobilization has already created an agro-ecological discourse in the area. Though this

discourse was largely initiated as a counter-discourse in relation to the agrobusiness sector, it became a discourse in its own right through mixing contestation, productive autonomy and converging imaginaries in the area.



Figure 10. Agroecology practices in an area of forestry development. Photo: Cristián Alarcón Ferrari.

4.2.6 Mega fires, alternative forestry projects and the instability of discursive relations

If in 2011 the positive aspects of forestry were reported by the local newspaper *La Discusión* as a great advance in the development of the area, only one year later, in 2012, the newspaper had to give space to the expression of concerns about forestry in the region. What came to be known as the mega forest fire in Bío-Bío had devastated more than 25,000 hectares of vegetation including large areas of eucalypts and pines. Even the forestry complex Nueva Aldea in the heart of Ñuble province was affected by the fire. Firemen struggled to control the fire that during its peak was catalogued as uncontrollable. The concern expressed in *La Discusión* echoed the language used during the forest fire and it basically raised concerns about “*the productive, but unplanned and dangerous forestry model in the area*” (Vega, 2012). The fire surrounded the forestry complex and eventually affected an important part of it. At this point

one observation is due. In Chile firefighting is a voluntary activity which obtains state support but is largely based on voluntary local associations of firemen. Yet in the study area there exists de facto a parallel private fire service working for the large forest companies. A major question about this is that those private firemen are employed to protect plantations and not necessarily native forests. Thus, it is argued, even in relation to the fire regime there are inequalities in the country. The mega forest fire of 2012 was widely televised and images of the disaster were witnessed nationwide. In radio programmes at that time people, voiced their criticisms of the model of forestry in the country.

Though there have been attempts to try different tree species, the fact is that the pine and eucalypt planting has continued. It was only in 2014 that the government announced the creation of a special task force to combat forest fires. This happened after another large forest fire affected a large area of one of Chile's largest cities, Valparaíso and close to Santiago, the capital. As happened during the mega forest fire in Bío Bío, critical voices concerning tree plantations were also raised this time, and voices of considerable weight in the public discussion interrupted the overall positive assessment of the forestry model in the mainstream media in Chile. In an open letter to one of the most influential newspapers in the country, a scientist awarded the national prize for natural sciences in 2010 expressed the view that a discussion on the role of eucalyptus plantations in the fires was needed (Kalin, 2014). The table below show the trends in forest fires in the VIII Region to which Ñuble province belongs and the damage caused by forest fires from 1990 to 2014.

Table 2. Hectares affected by forest fires in Bío-Bío region from 1990 to 2014.
Source of data CONAF, <http://www.conaf.cl/incendios-forestales/incendios-forestales-en-chile/estadisticas-historicas/>

Year from June to July	Thousand of hectares affected by fires
2014	19202
2013	3037
2012	37593
2011	2428
2010	14170
2009	21023
2008	9589
2007	28736
2006	1977
2005	8859
2004	10689
2003	4541
2002	33220
2001	1759
2000	2347
1999	52587
1998	6595
1997	23393
1996	7025
1995	5820
1994	10260
1993	9607
1992	1495
1991	8880
1990	2334

The case of the forest fire in the Bío-Bío adds a new dimension to the already conflictive situation of forestry and land use in the Ñuble province of Chile. Within this context, we can observe that conflicts related to forestry and land use in the area concern: (a) tree plantations located within a biological corridor added as a UNESCO biosphere reserve, (b) a dam project potentially leading to the submerging of native forests, (c) a hydropower project which led to a clear cut in a native forest, (d) plantations established where there used to be native forests, (e) conflicts between agro-ecological expectations and forestry

development, (f) conflicts originating in pulp mill production in the area, and (g) conflicts in the plantations originating in workers' demand for better salaries and working conditions. What is a commonality in these situations is that all these conflicts can be explained in terms of contradictions between use value and exchange value, and this contradiction is mediated by capital in the area. We can define a forest and plantation conflict here as a moment when the contradiction between use value and exchange value comes to the surface and is made visible, territorialized and subjectivized.

What these processes indicate is that there is a struggle for meanings about what the trees and lands really are. It is through that struggle where native forests and plantations are confronted at the symbolic level. Within this context, struggles imply that sometimes plantations are negated as forests, artificial forests are contrasted to natural forests and the notion of tree plantations as green deserts is developed to mark a clear symbolic difference between capitalist forestry and other alternatives. These are value struggles at the material and communicative level and here contradictions between use value and exchange value are part of the process of environmental communication and political ecology. In the case of the tree plantations, some people rejecting them see the land where the plantations are established as places where there should be either native forests or agriculture. Yet, many of those areas have been defined as forestry areas and in the official terms of innovation, land here is seen as a means to increase forestry production. On the other hand, the terms to resist it are the terms of subsistence and avoiding expansion and hegemony on the land. In fact, the big pressure of forest companies, both in material terms as when they colonize new areas, and in discursive terms, as when they hand out information on tree plantations in the municipalities, are ways of both expansion and efforts to keep a sort of forestry hegemony in the area. This happens in wider discursive terms such as when forestry is taken as a state priority and thus more pressure on land use change is created. As we have seen above, there are reasons to think that important practices of contesting forestry development in the area are articulated with the aim of an alternative social-ecological imaginary where subsistence is seen in the sense of means of supporting life and livelihood. Here the concept of subsistence allows us to see these processes in the context of a struggle for the means of life in the area.

Within this context there is often a clear attempt to go beyond the relations between use value and exchange value as mediated by capital and wage labour. This shows how agency, contingency and the structuring of political-ecological relations interplay here. In fact, it is agency in those different places of struggle that makes possible contingency and subjectivity regarding the use of trees,

and, as shown above, such resisting agency is very much a process initiated from specific labour and environmental communication positions. The practice of both labour and communication, mediated by a totality of social-ecological relations in permanent conflict, become thus fundamental processes in the structuring of political ecology and environmental communication relations in the area.

The constant struggle to constitute political-ecological relations in the area means limits of one or another set of political ecology relations where alternative political projects conflict. Within this context, plantation conflicts are characterized by an increasing use of land for plantation purposes and confrontations regarding pulp mill projects. On the other hand, conflicts concerning native forests are linked to different development projects. Thus, though one can distinguish between different forest and plantation conflicts, one can theorize them within a common framework. Concerning conflicts originating in the tree plantation system in the area, it is evident that the conflictivity of capitalist forestry is a process internal to forestry itself and not a consequence or an external effect of forestry. This happens because a generalizing and expanding contradiction between use value and exchange value lies at the centre of capitalist forestry development. At the same time, resistances and alternatives to capitalist forestry emerge as loci of alternative political ecology relations from which the becoming of social-ecological movements obtain a material basis. The terms of land use change must be explained here since in more concrete terms it is a change in the relations between the use values of land. As relations produced by people in the area they imply re-signifying resistance and subsistence. Within this context, environmental communication practices have an important role in producing the instability of discursive relations of forestry but also in maintaining them. In fact, the possibility for a discursive relation concerning forestry is importantly articulated through environmental communication practices, and forms of labour are important in fuelling the meaning of difference and resistance both within and outside capitalist forestry development.

The ways through which subjects struggle to form and transform social-ecological relations and processes in Ñuble tell us about a sort of interdependency between changes in labour and changes in the land. Here, we can note that without labour there would not be political ecology relations such as those existing in the area and without communication there would not be shared and conflicting meanings about what the different logics of forestry and forest use really mean in the area. Therefore, the process involving forestry and forest use in Chile is one of people labouring and communicatively making sense of what they do and of what other subjects do. In that process, forms of

labour and environmental communication practices become enmeshed in the structuring of a concrete political ecology in the area. The analysis indicates that tree plantations and groups of trees that people call the native forests or Chilean forest are literally the terrains of a vast change in the political ecology of the area. The combined process of production of political ecology and environmental communication is then a combined but uneven process where different logics of forestry and forest use are in place. One is the logic of the industrial tree plantations owned and managed by large forestry companies depending on and imposing wage labour as what makes such capitalist forestry development possible. Another is the logic of the management of native forests. Finally we have the logics of smaller tree plantations owned by farmers and peasants where production needs and subsistence co-exists. The reconstruction of the different processes of forestry and land use in Ñuble allows an unpacking of the logics of labour and of environmental communication. The important reasons for people to engage in planting trees and managing native forests are essentially the reasons for their subsistence as farmers and peasants. The forms of labour and communication implied in making possible these logics of forestry can principally be explained by seeing how in one case wage labour is resisted and in the other peasant labour is reaffirmed. In the case of peasants this is not a pure process: sometimes peasants employ people and work with consultants. Within this context such processes of resistance need explanation as they are crucial moments in the present and future of forestry in the area. Resistance here cannot be attributed a priori to certain subjects. Resistance is materialized in a relational form and in defence of concrete and specific interests concerning forestry and land in the area. Resistance here refers to the objective existence of different processes of attaining divergent social-ecological projects. Thus in order to explain processes of resistance, this needs to be linked to the process through which subjectivisation takes place. In other words, resistance needs to be qualified. In more illustrative words: there are forest companies resisting and there are agroecological movements resisting too. Each one resists what they see as a limit to the development of their interests and goals. Yet there is another form of resistance: resistance by planting trees. Here what is resisted is the forced abandonment of the area and what is affirmed is a subsistence practice. This is the resistance of the small farmers and peasants who instead of selling their land plant trees and maintain the practice of farming and agriculture for subsistence. Because resistance is a relational process, in this case it takes the form of planting trees as an alternative option to selling the land and leaving the countryside. The same can be observed in the case of the agro-ecological farm we analysed earlier where planting trees is seen as part of resisting a

complete dominance of forestry in the area. Thus, the environment produced by forestry and in which forestry develops is one constituted in the middle of different resistance practices toward the forestry model. As seen above, resistance takes different paths. This is a main dynamic of the conflictive nature of forestry in a particular local area in Chile.

Another is the more specific dynamic of making and unmaking discourses and environmental communication. Above we looked at subjects engaging in environmental communication practices and producing discourses within forestry companies. This allows proposing an explanation of discourses and environmental communication practices based on those subject positions. In the case of other subjects, the desire to reach wider spectra of the public discussion motivates people opposing the forestry model to constantly try to reach the media and wider audiences. In some cases people call out for the media to cover what happens and in other cases people develop media for their claims. Thus, the spreading of communication through radio and online pages is one of the many ways through which people try to resist forestry in wider scales. On the other hand, companies are aware of the need to defend their view on forestry and resist such critical views. Within this context the notion of Corporate Social Responsibility (CSR) became a key point in their environmental communication practices. As we have seen above, used as a response to the growing criticism against the industry, CSR became one of the corporate means to struggle within conflicts. The idea has penetrated state agencies so as to become the language of their staff too.

One of the discourses one can identify in the interplaying between forestry and development is the aforementioned policy known as *Chile: a food and forestry power*. The terms of this agrarian policy have become a discourse in such a way that: (a) it is constantly referred to in public and private texts. This inter-textuality allows the incorporation of different projects into the terms of a common goal for the whole country, (b) the discourse operates in interdiscursivity terms as this implies the terms of the discourse of forestry development here are re-affirmed as a way for progress in the rural areas and creation of jobs, and (c) the discourse reproduces the neoliberal ideology of development through exports. In doing so, and concerning forestry, this discourse aims at keeping the legitimacy of forestry as a pillar of the economic model in the country.

Chile: a food and forestry power, as a discourse, also brings into its own terms environmental challenges. In the context of framing climate change adaptation policies and preparing the third national communication on climate change, the discourse was also part of how Chile contributes to adaptation and faces climate change (Ministerio de Agricultura, 2013). As we saw above, the

relations between climate change and forestry have mainly been materialized through CDM projects and carbon trade. Yet, as we saw above, the area has recently been affected by a mega forest fire and in the area the staff at both the EPA and forestry service recognized that very little knowledge and measures concerning climate change and forest are in place. In addition, interviews with managers at forest companies indicate that the link between climate change and specific forestry management was not a part of the immediate measures taken at the forestry management level. The fact that according to climate change scenarios the area would become drier put CDM forestry projects within unstable social-ecological relations. The intervention of the agro-ecological movements in this context represents a moment in the struggle to give a meaning to climate change in the area. Thus, forestry and the use of forest resources as a direct or indirect way to face climate change becomes a politically contested process. The contrast between the agro-ecological movement and forestry companies developing discourses and views on climate change and forestry gives reason to think that two different discursive communities and different publics are part of these processes. Being parts of different communities of discourse and different publics is in this case a process that goes beyond the geographical limits of the area. In fact, many of the discourses and ideological terms produced and reproduced by environmental communication practices here are terms used and reproduced at the international and global level too. Connected to this, one can observe that often the structure of the arguments when criticizing the forestry model in Chile refers to the international experience. One example of this is the association of forest engineers for the native forest. The group has a critical view of the forestry model in Chile and has become an important actor in bringing a constant critique of the tree plantation model. In addition to the critique, the association has made public and proposed a document containing an alternative forestry model for the country. Two pillars of the proposal are a new approach to the management of the native forest and a redistribution of the benefits obtained by the export-oriented forestry model in Chile. In making some of its arguments, the association refers to Sweden as a country which, according to studies, has a well-implemented framework for sustainable forest management (Agrupación de Ingenieros Forestales por el Bosque Nativo, 2011). Thus, in this case, reference is made to the Swedish forestry model when arguing for changes in Chile.

Recently, on 22 January 2015, the creation of a forest politics council was announced in Chile. This council was formed by the current president and is composed by representatives of different institutions and organisation related

to forestry and forest resources in the country. In the public activity to launch the work of the council, the Minister for Agriculture stated:

“I think that a cycle of the forest sector is finished now. Therefore, we must now search for another forest model which is adjusted to the demands for the future and which can benefit everyone, especially those poorer people in the country. This is in line with President Michelle Bachelet’s mandate to decrease the gap in terms of equal opportunities” (INFOR, 2015)

This council can be seen as a result of growing criticism concerning forestry and the forest sector in Chile. As we noted above, when critiquing the forestry sector in Chile, some actors refer to Sweden. To make sense of this and to explore the wider dynamics of forestry, we will now look into forestry relations in Sweden. Within this context, we will further reconstruct and explore world forestry connections between Sweden and Chile.

5 Forestry in Sweden

5.1 Introduction: Forestry in Middle Norrland (Jämtland-Västernorrland) and its wider context

Jämtland and Västernorrland are administrative divisions located in an area of Sweden also known as Mellersta Norrland (Middle Norrland). The area has been historically linked to the use of wood and forestry development as a basis of economic activity. It is crucial to consider two important historical processes in the analysis of the current situation concerning forestry development and the use of forests in the area. One is the historical development of forestry and pulp and paper milling in the area and the other is the process that created the conditions for the Land Acquisition Act in Sweden and which is still referred to by actors when they explain the current land arrangement in the area. Regarding the history of forestry development in the area, it is important to note that according to Arpi and Hjulström (1955) the district of Sundsvall, a district within Västernorrland, had in the past the largest and most concentrated forestry industry area in Europe and probably the world. In addition, these authors date to 1915 the first time that wood consumption for pulp production was higher than wood consumption for sawmilling in Sundsvall district. The development of pulp production meant the concentration of industries in some areas where pulp and paper mills became main employers and drivers of economic development. Besides the reliance on forest resources, pulp milling has historically implied great consumption of water and according to Christian Valeur's history of the Östrand pulp and paper mill (1997), a mill located close to Sundsvall,

“[...]if the prohibition from 1880 concerning the discharge of residues from pulp mills into waters would have been enforced, the pulp industry could not have been developed in Sweden” (p.285).

If the development of pulp mills created the conditions for infractions against water regulations, the process of sawmill development during the second part of the 19th century was followed by an intensive process of land acquisitions by forest companies. Those land acquisitions motivated intensive discussion in the country, which became known as the Norrland question. Based on growing concerns for the future of agriculture, forest resources and the populations in the different regions where the acquisition of lands was taking place, a parliamentary committee was formed in order to investigate it in 1901. In 1904, the Norrland committee proposed a number of measures to tackle that social problem, one of which was the Land Acquisition Act. The act came into effect in 1906 and it aimed to stop companies buying lands from private owners. On the other hand, and in parallel to the Norrland committee, Sweden implemented important forestry legislation in 1903. The new law was conceived as a means to deal with the massive and devastating consequences of the previous period of forestry development in the country.

5.2 Local forestry governance in Jämtland-Västernorrland

Today, forestry continues to be one of the main economic activities in the area and includes the activities of different actors. Among those actors, large forestry companies and thousands of forest owners play a major role in defining the terms of forestry in the area. Forest owners are organized in Sweden in four different forest owners associations and they also belong to the Swedish farmers association. The main association of forest owners in the area organizes 13,000 forest owners who own about 1 million hectares of land. The main forestry company in the area is Svenska Cellulosa Aktiebolaget (Swedish Cellulose Company, SCA) which was founded in 1929 and is today a multinational forestry company owning pulp and paper mills, sawmills, and 1,621,000 hectares of land in the area. The origins of the company are in a merger of forestry companies in Sundsvall in the province of Västernorrland. Another crucial actor in relation to forestry in the area is The State Swedish Forest Agency which comprises an extended network of offices and staff working in different districts.

A salient aspect here is that today an intensive and growing discussion about the future of forestry, which is a common issue for the whole of Sweden, takes place in the area. Questions and doubts originating in recent environmental assessments and which indicated failures in reaching environmental goals established in the country in 1999 and also concerns about increasing infractions against the Forestry Act identified in recent assessments have become contested issues. The evaluation of living forests – one of the

environmental objectives established in 1999 – for the area has shown that none of the goals will be reached by 2020. In explaining what is needed for this, the report indicates higher environmental concern.

Within this context, today the terms for discussing forestry in Sweden are very much defined by the terms of the reform to the Forestry Act in 1993. One of the results of that reform was the inception of the principle of *frihet under ansvar* (Note: This expression has officially been translated as freedom under responsibility. However, a more appropriate translation would put it as freedom with responsibility. Yet in this text I will follow the official translation in Sweden and will refer to this as freedom under responsibility). Freedom under responsibility concerning forestry has been understood as a situation where the state imposes minimum requirements to the forest sector and forest owners and they in turn work to improve the situation above those minimum requirements. Though freedom under responsibility has been a way to frame other political processes ideologically formed under neoliberal premises, the concept obtains its specific dimensions in the contexts where it is re-signified. In this case, freedom under responsibility became an expression of a way to do forestry and it was declared an official principle for forestry in Sweden.⁴

Yet, if today the Swedish Forest Agency declares this to be a principle of forestry in the country, the principle had already been critically assessed in 2002 when the Swedish Forest Agency considered that the principle of freedom under responsibility was not sufficient to achieve environmental goals (Enander, 2007, p. 294). Yet, since the inception of the principle of *freedom under responsibility* and its entry into the political terms of forest owners and companies, this has become a fundamental articulating principle to both represent the interests of forest owners and companies and also as a principle that is invoked to reject more legislation on and regulations for forestry. An analysis of the magazine of the forest owner association in the area shows that fears of more stringent legislation were essentially conceived as a threat to the principle of freedom under responsibility during 2013. A main source of fears of more stringent legislation was the work of the parliamentary commission on land use change which at that time was proposing more regulations to achieve environmental goals concerning forest resources in the country. In fact, when the commission issued its first reports, its proposals were fiercely contested in the forest owner association magazine and also by other actors in the forestry sector. According to the views of forest owners, new legislation was also a threat to their property rights. Also at the level of the forestry industry, this was seen as an attack on the Swedish forest model which, according to the

⁴ Forest Agency webpage: <http://www.skogsstyrelsen.se/Aga-och-bruka/Skogsbruk/Bevara-skog/Frihet-under-ansvar/>

representative of one company, is based on freedom under responsibility (Skog & Industri, 2013, 1, p. 9). Similar views can be found within the other forest owners associations active in the area. This time and during the same period it was highlighted that two main challenges facing forest owners were the decreasing consumption of paper for newspaper and the threats to the principle of freedom under responsibility. Again, in this latter case the threat was identified as coming from the ongoing discussions on a strategy for sustainable land use in the Swedish parliament. As we can observe in this latter case, the link between economic problems for the forest sector and problems at the level of possible new legislation is a link that is often observed in the framing of the problems for forestry in Sweden. Within this context, one can observe that the recent years have been years of constant concern about the prospects of forestry in the country and the differential situation this implies for companies and forest owners. Skogsbarometern (the forest barometer), which is commissioned to Sifo Research International through a joint initiative between a Swedish Bank – Swedbank – and the farmers' association of Sweden (LRF) has mapped the general situation of forestry in the country. A reading of its recent annual studies shows that in general terms during the years 2006, 2007 and 2008 there was a general optimism among forest owners and signs of good prospects in terms of revenues and satisfaction with the overall situation of forestry in the country. Yet in 2009 the barometer contained an assessment clearly contrasting with the optimism of forest owners and it noted that overall, sawmilling, pulp and paper production were, according to the barometer, facing imminent restructuring. In addition, it was noted that the factor that had made the situation better was the exchange ratio of the krona. Yet, the report noted that harder competition and scarcity of raw materials were the main factors for this difficult situation of that particular sub-sector of the forestry sector.

According to the next report, 2010 was a positive year for the forest sector. Yet, for 2011, 2012 and 2013, the barometer reported mixed views and signs of a more moderate optimism about the future and, in general, it noted that problems of key areas of the forest sector were due to competition with other producers. The period covered by the aforementioned barometers of forest in Sweden is also the period in which the 2008 and 2012 assessments of the national environmental objectives and in particular the objective of sustainable forests made it evident that the objectives were not being reached (Note: *levande skogar* is the environmental objective in Swedish which could be translated literally as living forests. Yet, this has been officially translated as sustainable forests and I will follow this translation here).

The environmental objective Sustainable Forest has been presented as follows:

“The value of forests and forest land for biological production must be protected, at the same time as biological diversity and cultural heritage and recreational assets are safeguarded.

This objective is intended to be achieved within one generation” (Environmental Objectives Portal)

Yet, a national assessment of prospects of achieving the objective forecasting by 2020 concluded that this would not be attainable and explained,

“The status of several forest types is unstable, and many forest species are threatened. Long-term protection of forests is making headway, but greater environmental consideration is needed in felling. More needs to be known about how different measures and increased competition for forest land affect forest ecosystems” (Environmental Objectives Portal)

If the 2008 assessment set the tone of the discussion by affirming that there was no time to lose, the 2012 assessment coincided with another assessment of forestry practices in the country, namely, Polytax, which is the mechanism to measure infractions against and compliance with the Forestry Act in Sweden.⁵ This time the results from the latest Polytax showed the persistence of a large number of infractions against the Forestry Act in the country. The period also coincides with an intensification of proposals to find new paths of development of forestry in Sweden. Previously, in 2006, the final assessments of a decision from 2004 aimed at seeking new routes for the forest politics in the country ended in a report labelled *Mervärdesskog* (Note: this report is sometimes translated as *multiple value forest*, and sometimes as *forest for added value added*). During 2011 and 2012 the minister of rural affairs produced a new approach to forests. This time, under the title *The Forest Kingdom* and qualified in terms of values for the world, was presented as a project with the goal of creating the conditions for more jobs related to forestry in the country. As a result of the negative results from the environmental assessments mentioned earlier, a dialogue process was initiated in 2011. The aim of the dialogue process was to seek agreements regarding the most pressing issues revealed by these reports.

At the academic level, a project entitled *Future Forests* put together researchers, companies and the state to advance new models of forestry and

⁵ “The main objectives of Polytax are monitoring of environmental considerations in connection with final felling and of regeneration quality against the standards set in the Forestry Act” (Gustafsson, 2008, p.10)

also to understand the current critical moment of forest use in the country. The growing number of reports and initiatives summarized above, and their content, shows that here has been an intensive process regarding the question of the future of forest use in Sweden. We will now look at salient moments and aspects in that process.

5.2.1 The future of the Forest Kingdom is formed now: a conference in 2013

To get deeper into the analysis of how all these changes are being faced in the local area, we will now analyze a local conference organized by the Swedish Forest Agency with the aim of discussing the future of forestry in the area. The conference was one of several conferences organized during the second half of 2013 in different parts of Sweden. The conferences aimed to bring all important local actors to discuss the future of forestry in the country. To the already existing programme labelled the *Forest Kingdom*, the prospects of a national forest plan were added as a conference theme. Eighty-eight people registered to attend the conference that took place in the middle of Jämtland. In addition to the main motto for the conferences, namely, 'The Future of The Forest Kingdom is Formed Now', the organizers aimed to move things forward. Therefore the sub-title for the conference was: From talk to results in a changed climate! (In Swedish: *Från prat till resultat i ett förändrat klimat!*). Almost all prominent persons active in the discussion on forestry issues in the area attended the conference. The final part of the conference was then planned in such a way to allow participants to identify the main challenges for forestry. Representatives from the main actors represented in the conference were invited to the floor and asked about priorities for forestry to be worked on in the future. By inviting 5 representatives (one from a forest company, one from an environmental organization, one from the government, one from the forest owners association and one from the forestry service) to be in the scene, and asking them to select among eight challenges for forestry in the area, a process of prioritization was implemented. Below we state the main themes and following this, two pictures showing moments of this process:

- Climate change - adaptation;
- To identify, understand and adapt to changes in the surrounding world;
- The industrial gap in forestry; including energy
- To manage sector responsibility; Moose-Production-Environment
- The rest of society (public) view on the forestry sector;
- Productivity and development;
- To recover the triple helix
- Ensuring competences for the sector



Figure 11. Process during the local Forest Kingdom conference 2013. Photo: Cristián Alarcón Ferrari.

In the pictures above we see aspects of the process on the left and the preferences of the 5 representatives already mentioned on the right. The results of this process are translated and reproduced in the table below:

Table 3. Main challenges for forestry discussed, decided and voted at the local conference on The Forest Kingdom in 2013.

Challenge for forestry	VOTES	
	By 5 representatives	By audience
Climate change - adaptation	0	3
To identify, understand and adapt to changes in the surrounding world;	3	15
The industrial gap in forestry; including energy	1	9
To manage sector responsibility; Moose-Production-Environment	0	8
The view of the rest of society (public) on the forestry sector;	2	2
Productivity and development;	2	2
To recover the triple helix	4	10
Ensuring competences for the sector	2	5

Some observations are important here. First, as we see above, climate change as such was not identified by the 5 representatives in the selection of challenges. For the five representatives, the most important issue was what is known as the triple helix. The triple helix in this context is understood as the cooperation between research, authorities and business. Second, for the audience the most important issue was related to the surrounding world. Third, the issue of moose management became an important issue in the final part of the conference when a sort of coalition between a representative from one forest company and a representative of an ENGO agreed that a main priority should be to fight against moose overpopulation. This is explained in the vast

damage that moose cause in forests. Fourth, as we noted above, according to the minister's statement of intention for *The Forest Kingdom*, this was a project to create the conditions for more jobs related to forestry in the country. Yet, no representative from the forest workers trade unions attended the conference, but one can observe that at least one of the challenges identified as challenges for the future and discussed in the last session may directly concern forest workers, namely, the challenge of "*ensuring competences for the sector*". Fifth, a crucial articulating principle during the conference was to conceive the conference as an activity of the forestry sector. In addition, many of the participants' connections in the meeting were older ones and many of the participants in the meeting knew each other and were part of a long conversation on forestry in Sweden. Though few critical voices were openly expressed during the conference, observations during the conference and interviews after and prior to the conference with participants in the conference show that there exist divergent opinions about the state of forestry and the measures that should be taken about it. In one case a worker at the forest agency interviewed after the conference openly criticized the reform to the Polytax system and was clearly in favour of more stringent legislation (INT-S-4).

As we saw above, during 2013 the view that the principle of freedom under responsibility was being eroded was manifested in several publications of both forest owners and the forestry industry. Within this context, the defence of the principle of freedom under responsibility has implied that one of the recent historical leaders of the farmers' and forest owners' movement in Sweden has recently conceived freedom under responsibility in terms of tradition in Sweden (Segerstéen, 2014). In more general terms, one can observe that during the conference the need to reaffirm the principle of freedom under responsibility was constantly emphasized by different actors and this, observed in the case of forest owners, was opposed to more stringent legislation.

One characteristic of the conference was to discuss terminological definitions of relatively new terms in the environmental management literature. An example of this was the discussion on the concept of adaptive forest management. This was introduced to the conference participants as a concept that was still unclear regarding its use, and the presentation offered a quite concise meaning for this concept: adaptive forest management is understood as the possibility of combining increased production and environmental consideration. The terms of this definition resonate with a report from the Swedish Forest Agency which gives the context and understanding of the context of adaptive forestry management as follows:

“The curiosity of forest owners, which extends to alternative methods to increase production of different forest of timber resources, increase care of the value of nature and cultural memory and the different experiential values in the forest, can be one of the most important conditions for adaptive forestry management” (Swedish Forest Agency, 2003, p.14)

In analysing the terms of this understanding of adaptive forestry management one can note that the abstract term *adaptive forestry management* is filled with concrete content by first linking it to the condition of the forest owners and second by making it compatible with increased production and environmental concerns. By doing so, the term becomes deeply associated with the contingent situation of both forest owners and the forest industry as such. We can analyse how the conditions for forestry are thought in Sweden today through a closer examination of the contemporary situation of forest owners and forestry companies in Sweden.

During the same week of the conference organized by the Swedish Forest Agency, a meeting of the forest owners association in the area was organized in the village of Ullånger. The main goal of the meeting was to provide information about new possibilities for the use of forest resources in the area. In support of this, two presentations covered topics concerning the challenges facing forest owners and the forestry sector in Sweden today. One of the main issues discussed was the need to develop new products from the forest, which was largely justified in the decreasing consumption of paper and the troubles faced by pulp mills in Sweden (OBS-S-3). Within this context, the prospects of a new bio-refinery in the area and the new possibilities of producing, for example, textiles and food for fish farming by using forest raw materials were seen as some possible future markets for forest resources. The global dimension of the problem, as one of the expositors highlighted, was essentially a problem with competition from other countries. As the expositor commented during the meeting, he had been in Chile many times as a consultant at a Chilean pulp mill and he knew about the development of forestry in Chile. The bio-refinery was one of the innovation projects in the area and it emerged from the restructuring of a pulp mill facing closure. Today the industry uses cellulose to extract bio-energy and to produce textile materials. In addition, it produces a single-cell protein as fish feed. The industry worked with an innovation company in the area formed in 2003 on biotechnology and energy development based on forest raw materials. This example shows that the economic restructuring in the area is a restructuring of industrial processes relying on the same raw materials. Thus, the provision of forest raw materials becomes a crucial issue concerning the forest owners' knowledge about this possibility and also their willingness to be part of the change. Within this context the question of change becomes crucial.

Both the conference and the subsequent meeting analysed above are moments in the processes of changing relations concerning forestry, pulp production and the governance of the whole process in the area. This is part of the wider process implying a shift in a pattern of forestry development which is nonetheless based on the possibility for continuing the use of the forest resources in the area. When it comes to use of forest resources in the area, a crucial aspect today is the role of forestry technology and machinery concerning forest owners' labour processes. One forest owner who participated in the meeting in Ullånger told me that he can do forestry practices alone only with his own machines (INT-S-1), and in doing so he is part of a chain of production where he even has a personal code to identify his produce for the purposes of transport (OBS-S-2). The pictures below illustrate this.



Figure 12. Forest owner machinery and his produce. Photo: Cristián Alarcón Ferrari.

It is crucial here to understand a shift in industrial processes keeping the same raw material. Here, innovation at the industrial and technological level means permanencies at the extractive level. Within this process, two contradictions become apparent. One is the contradiction between resource-industrial use and extraction of resources on the one hand and environmental objectives on the other. The other is the contradiction between the conditions of forest owners and forestry workers today and the kind of contemporary industrial development based on forest resources. In addition, new ecological conditions are already clear in the area, which is manifested by the profound impacts of recent storms and pests affecting the forests. Within this context, it is crucial to understand the situation of the forest agency and we will analyse this now.

As mentioned above, storms have been a constant problem in the area. The storm Dagmar in 2011 brought down 4.5 million cubic metres of timber, while in 2013 the storm Hilde brought down a further 3.5 million cubic metres of timber and the same year Ivar brought down 4.5-6.5 million cubic metres of timber. In turn, a follow-on effect of the storms has been the spread of the European spruce bark beetle (*Ips typographus*) which has affected vast areas of windfall after the storms. A study shows that the beetles have colonized 31% of the studied cases of windfall in 2013 compared to 5.4% in 2012 (Schroeder, 2013, p.4). A factor that compounds the situation is that there are still windfalls from the previous storms lying in the soil, so the forest agency has spent important resources dealing with the issue. The assessments of the forestry services in this regard are important for the overall knowledge about the effects of storms but also for forest owners who need such assessments for the purposes of felling and insurance. The work of the Forest Agency staff is then aimed at both public and private goals. For the forest agency this is one of the services it can sell to private companies or individuals. In this case, for example, the forest agency provides the information to the insurance company which in turn has the basis to evaluate possible compensations. The pictures below show the effect of storms and the labour of the forest agency staff in this regard.



Figure 13. Forest agency staff assessing forest damage by storm. Photo: Cristián Alarcón Ferrari.

At the very point of producing this information one finds the labour of the Forest Agency staff dealing with an increasing problematic concerning the forests. As the storms have been increasingly damaging and frequent, an important part of the work of the forestry service staff goes into tasks related to this. On the other hand, lack of resources and time is given as a reason for weak levels of control over companies and private owners. In an interview with a staff at one Forest Agency district, the terms of the agency's work were explicitly connected to ensuring compliance with the law, which in itself was seen as difficult given that monetary incentives were more important than environmental concerns (INT-S-14).

The situation with storms and the associated problems with the invasions of the European spruce bark beetle add to the complex links between new ecological conditions for forestry in the area and the overall expectations regarding forestry. Within this context it is crucial to look at how forest owners think about this. During interviews in 2014, two forest owners that participated in the meeting of forest owners referred to previously concurred in considering that when it came to environmental issues, the question was exaggerated (INT-S-1,3). For one of them, this was an issue mainly driven by some people outside the area who do not really know about forestry in the area and have an idealized view about forests. Further elaborating on this issue, a forest owner manifested that he had read that according to another report, the situation with the forests seemed to be not as bad as was thought. This view was the particular expression of a wider process today concerning environmental questions about forestry in Sweden.

That is the process of permanent critique of the methods and the assessments used to evaluate the state of forestry. In the case of Polytax, for example, a point of discussion in the dialogue process is to agree on how to

assess these results. For Forest Agency staff, one of the most difficult questions when trying to advance measures was that there were no agreements regarding the methods to be used to assess the situation (INT-S-14). In addition, the existence of forest certification adds an argument in this discussion. For forest companies, the fact that they have certified their forest and follow the certification's criteria for evaluation make the results of Polytax questionable, as the results of measuring compliance with forest certification show, according to their view, that no major problems with forestry operations can be identified (INT-S-11). Another demonstration of this is found in the notes from one meeting within the dialogue process on forestry and environmental consideration in Jämtland, where one can observe that some actors showed surprise with the result of the evaluation of infractions against the forestry law since for them this went against the fact that according to the certifications, other measurements should be used (Forest Sector Meeting Jämtland 2011-01-Notes - Forest Agency). This overall dispute on reliable data to assess the state of the forests in Sweden can also be found in the magazine of the local forest owners association.

There, the view was that to state the existence of environmental problems depended on the methods being used to assess the state of the forest resources, and a similar view was expressed in an interview with a forestry company representative working with forest and environmental issues (INT-S-11). For him, the negative results of the Polytax evaluation can be relativized if one considers the same situation from another point of view. A general observation here is that efforts to discredit the results of environmental assessments of forest resources pervade the overall discussion. Yet two important differentiations emerge from this. For forest owners, this is clearly an issue of scale and this means for them that helping to fulfil the environmental objectives was harder than it was for companies which owned larger areas of forest. They in turn implied that for forest owners, environmental goals affected their labour possibilities. In relation to this, in describing the main changes in forestry, both forest owners referred to above pointed to the question of entrepreneurship as being a main characteristic of forestry in the area now and considered the arrival of temporary migrant workers from other countries to work on the plantation as another feature of forestry in the area. An important observation in this regard is the question of entrepreneurship which has meant important changes in labour relations in the forest. One of these changes is that, as a forest owners and forest entrepreneur explained, the system of subcontracting implies subcontractors have the pressure of ensuring a salary and also depend on their own machinery (INT-S- 3). This implies a gain for large forestry companies.

Within this context, one can observe that this is related to the way in which the meaning of the forest sector is constructed and the overall approach to create consensus and partnership regarding forestry in the country. However, this implies a major problem of legitimacy-legality relations concerning the role of the state in forestry development. In the conference, for example, the idea of being a conference of the forest sector is represented in one of the themes identified as challenges in terms of managing sector responsibility.

5.2.2 The meanings of forestry sector and forestry industry

Forest sector and forestry industry are two terms that congregate different actors and even positions in deciding the terms of forestry in Sweden. The process of producing a meaning for the forest industry has a crucial dimension in the context of dealing with problems for forestry and pulp and paper production in Sweden. As described above, the problems with pulp and paper production have been a main concern within the forestry sector in the country. During 2007, for example, one large forestry company closed down one of its pulp mills. In an interview at another of the pulp mills owned by the same company, a manager engaged in the following dialogue:

“Q: What are the main goals of the pulp mill in terms of development?

A: well...the first thing is to survive...as these are hard times for the forest industry...(INT-S-19)

In another part of the interview she expressed,

Q: What are the reasons for the problems the mill is facing?

A: I would say all the new investments, all new mills are built outside Europe, most of them where the trees grow faster. Stora Enso has for example one mill in Brazil, in one line it is producing twice as much as this mill is producing in 3 lines and of course is much more effective and they are using eucalyptus as a wood raw material and it is growing between 10 and 15 times as fast as the trees in Sweden, so of course it is more effective...

The reason is new investment outside Scandinavia, Europe. But also in Europe the using of paper is reduced, the daily papers ... people today read on the web..” (INT-S-19)

The view that one of the problems in relation to pulp production in Sweden is competition from other countries in the South has been a constant aspect in the discussion on the future of the forest industry in the country. Though in 2011 SCA’s Östrand pulp mill in the area obtained authorization to increase pulp production to 660,000 tons annually, this increase in pulp capacity went against

the overall situation of decreasing pulp production capacity in Sweden. For the increase in capacity in the Östrand pulp mill, an Environmental Impact Assessment (EIA) was needed. In comparing this EIA process and the process of EIAs in Chile that we analysed in the previous chapter, one can note that in Sweden this EIA was a process with no major discussion and public participation. When looking at the wider issue of EIA for this pulp mill, we can note that the EIA only concerns the industrial processes associated with pulp production and it is disconnected from the issue of forestry and forest resources. Thus, the term *environmental* implied in the EIA is limited.

An additional observation in this case is that this increase in production capacity at one mill does not seem to indicate changes in the perception that regional development in the area should be conceived in a context of negative trends for pulp production (Landstinget Västernorrland, 2011). For another municipality, close to areas of large forest resources and of timber extraction, forestry is still considered a major form of local development and here current development projects based on forestry are mainly aimed at favouring transport of raw materials so the municipality can continue being at the centre of forestry development (INT-S-7). Within this context, two different dimensions of the position of Sweden in international markets can be discerned. On the one hand international markets are seen as a possibility for exports of certain forest products and on the other hand competition from other producers is seen as a source of problems for other forest products, for example wood pulp. Overall this issue is linked to the question of jobs and the future development possibilities in rural areas where forestry is a main and critical activity. As we noted above, the government's project *The Forest Kingdom* was framed with the explicit objective of creating the conditions for more forestry-related jobs in the country. In dealing with this issue, the increase in productivity through machinery and technological development in forestry becomes a main problem. Yet, today, signs of stagnation in terms of forestry productivity have become an important concern within one of the main forestry companies in the area (INT-S-11). Thus, new efforts to educate workers have been identified as a way to face that challenge and important efforts to educate workers in new techniques for better machinery operation have been implemented. However, as two forest owners observed, two important changes in the conditions of labour within forestry in Sweden have been the externalization of services to entrepreneurs and also the arrival of lower paid workers to work in manual operations within forestry. Within this context, according to a leader of the trade union of forestry workers in the area, times are different today. For him, the union is now a negotiating union and this is understood in relation to the past when the union was a fighting union. Within this context, forestry

machinery and technological development means a neutralization of the capacity of the union to organize workers and grow (INT-S-10). Yet, in terms of the long-term pattern of diminution of labour employed in forestry and machinery incorporation, the interviewed trade union leader identified the 1970s and 1980s as the times when the forestry workforce was dramatically reduced in the country. In this context, he noted a sort of stabilization in the number of workers within the sector after those waves of massive machinery introduction.

In 1975, forestry workers organized one of the last largest workers' strikes in Sweden. Then Swedish forestry workers had as a main objective to establish a payment system where the larger part of the wage was a monthly salary and only a part was a piecework-related wage (Thörnqvist, 2007). In the reconstruction of the main characteristics of that strike, one observes that:

“In March between 8,000 and 10,000 forestry workers all over northern Sweden turned out on a wildcat strike that would last for eight weeks. ‘Northern’ Sweden is geographically about two thirds of the country’s area. Still, the workers managed to maintain internal unity all through the strike and stick to the overall claim: to replace the piecework system with monthly pay. When the chainsaw was introduced in forestry work in the 1950s and 1960s, the piecework system had been very beneficial to the workers, simply because the forest-owning companies did not know how to set the piecework rates. In the mid-1970s, however, the piecework system was in line with the new technology and the rationalization that followed from it had turned out to be a big work environmental problem with many accidents as a consequence” (2007, p.331).

I bring this strike into this presentation here as we can observe first the different situation of forestry workers trade unions between 1975 and 2013 and also because we see here how the introduction of forestry machinery, for example the chainsaw became a major factor in the detriment of workers positions. In addition, it is important to observe that there are remarkable similarities between the strike in 1975 in Sweden and the strike in 2007 in Chile.

We can close here by observing that the question of labour was never clearly addressed during the conference on *The Forest Kingdom* analysed above. Yet, as one can see in the categorization of challenges for the future of forestry, the question of labour is there, though this is encapsulated in terms of providing competences for the sector. In these terms, the changes in production are implicit and the main point here is to conceive of labour fitting into the production of new products that could be developed from forest resources. However, the relation between forest resources and production goals in

Sweden is mediated today by the relations between forestry and environmental relations. One main reason to contest how production and the environment are linked comes from environmental reasons which link forestry activities with loss of biodiversity and also destruction of land and native forests. In making this critique, and aside from reporting problems and making campaigns, several organizations have aimed to show the problem in a more concrete way.

5.2.3 Swedish forestry development contested

During the local conference to discuss forestry in Sweden, a member of the Swedish Society for Nature Conservation (henceforth the SSNC) participating in the conference was also part of the final plenary session and voted to define priorities for forestry in the area. In a group interview prior to the conference, he shared a substantial critique of forestry which has been widely reported and communicated by the SSNC in several reports. One main issue raised in the interview was that forestry legislation was not being applied in Sweden. In addition, some members of the SSNC emphasized that within this context, one main problem was that the Swedish Environmental Code does not regulate forestry in Sweden (INT-S-9). The complaint of the activists concerning the strong link between the forest agency and the forestry companies obtains a clear materiality when one observes in the picture below (taken during fieldwork in the study area in Sweden) that one building is the place where a large forestry company operates and also the forest agency has its offices.



Figure 14. Building housing a forest agency office and a forestry company office. Photo: Cristián Alarcón Ferrari.

A different expression of contestation of forestry development in Sweden is shown in the organization *Protect the Forest*, which struggles for radical change in the relation between forestry development and the forest sector in Sweden. This NGO has organized different versions of the Festival of the Forests in Sweden. In 2010 the festival was organized outside Örebro in central Sweden. The festival consisted of lectures, discussions and study visits and participants camped at the location. To an important extent, the festival was organized through the principle of living in common during the political event (OBS-S-6). The clear critique of forestry and the forest sector in Sweden was the unifying theme of the festival. Months before the festival, in an interview with one of the founders of Protect the Forest, the radical critique of forestry in Sweden was articulated through the view that industrial forestry in Sweden was devastating the remaining forests in the country and this was happening against political decisions taken on the contrary (INT-S-20). During the Forest Festival, and besides technical presentations indicating the serious failures of environmental governance concerning forestry in Sweden, a guided tour to one forest and to the place of forestry operation was organized. In charge of the tour was an activist who before the tour introduced the topic in terms of the real situation of the Swedish natural forest. The visit was divided into two parts. First participants visited a preserved forest where in situ analysis of insects, biodiversity and forest ecology was made. Later, participants visited a recent site of forestry activities where damages in the soil were still visible. The participants engaged in situ in the counting and measurement of the age of the trees that were cut. During the excursion, people exchanged views and told of the situation in the areas where they lived. The discussions were a mixture of feelings and also data-based assessment of the consequences of the logging. The pictures below show moments of this activity.

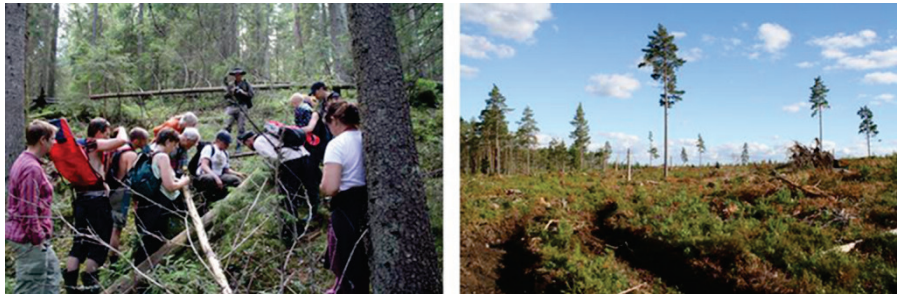


Figure 15. Study visit during the festival of the forests in Sweden in 2010. Photo: Cristián Alarcón Ferrari.

Data on recent studies concerning soil damage as a consequence of forestry machinery in other areas was part of the overall discussion. Though many of the participants were experienced in this kind of activity, there were younger people learning from what the older ones were saying. Though *seeing* here is an apt term for what an observer like me and many others, including the organizers, experienced during the excursion, the idea of the dialectics of showing seems to be a better term to explore the very acts that made possible that collective seeing of the forest, the clear-cut and its effects. Showing processes, at two places during the same excursion, constituted a comparative act suggesting that in the very organizing principle of that activity there was a feeling that one could frame things in terms of the need to show this and so people could compare and see the difference. To show things can be interpreted as an imperative for movements such as this. At a very crucial point many of the movements making the ecological process a political process need to show to others what they see as a problem. This is a process that seems to be an important shift in the way the politics of resistance are produced today. As we saw in the case of Chile, these are politics recognizing that to just tell of problems is not always the best way of moving things and alternatives forward, and showing here can be understood as a process very much developed through environmental communication practices. In fact, this could never happen if there were no narrative about the environment here.

Many of the critiques articulated in this festival got public prominence during 2012 when Maciej Zaremba (2012), a prominent and widely read journalist, published a critical assessment of forestry in Sweden. The critique was delivered in several instalments in one of the most important Swedish newspapers and eventually became a book. This motivated several interventions and responses from among others scientists, the Forest Agency and forest owners, which represented how science, the state and private interests are immersed in a material and symbolic struggle to define meanings about forestry and its impacts in the country. This took place in parallel with the process of dialogue including different forestry actors which was initiated in the country with the aims of finding solutions to the problems of environmental standards for forestry. Also during 2012, journalist and essayist Po Tidholm published a book titled: *Norrland: Essay and Reportages*. In opening the book he asked: "*Norrland, and today's possible Norrland question is not something to which the Swedish media gives much attention*" (Own translation, p.23).

The symbolism of the Norrland question actualized here also expresses something about a longer perspective on the conflicts on forests in Sweden. The Norrland question is still present in the study area and operates as a

material and symbolic regulating principle for land use and change. During observations and interviews, the Land Acquisition Act was sometimes labelled “that old law” that impedes companies from buying lands from private owners (OBS-S 3, INT-S- 11). In fact, the Land Acquisition Act is still in force and this is one of the bases of the existence of private forest owners and what is known as family forestry in Sweden. Only just recently a land acquisition was stopped by a court by application of this legislation. This fact makes a brief reconstruction of that process an important step in understanding the communicative dimension of conflicts of forestry in Sweden. In his economic history of Sweden, Lars Magnusson (2000) has offered the following summary of the Norrland question:

“A clear example of the way interests organized is the ‘Norrlandsopinion’ movement of the 1890s, whose main purpose was to counter the large forest companies’ purchase of agricultural land. In a motion to the lower chamber in 1892, seven members of parliament from the Kopparberg and Gävleborg counties warned of a ‘real danger threatening our country’. The threat to the existence of the land-owning farming population called for resolute government action. The question was tossed back and forth until 1906, when legislation banning the large-scale purchase of forest holdings came into effect. The driving force behind this resistance to the forestry companies was a group of left-wing Liberals led by Carl Lindhagen. Through their work in the Norrland Committee (formed in 1901) these Liberals came to define the ‘Norrland issue’ as a separate special interest. However, this matter extended beyond the interests of the small farmers of Norrland. By generating a veritable storm of opinion, the Committee managed to win the support of many different forces that were opposed to large-scale industry and that wanted to improve the conditions of ordinary people in the craft and small-scale industries. Although its ideological expression was derided as ‘incipient agrarian romanticism’, this did not prevent the Committee from capturing and giving voice to a special interest that was, for many years to come, a well-articulated response to the rapid pace of industrial change” (2000, p. 205).

The work of the Norrland committee took place in a context where different interests were confronted concerning ideas of development for northern Sweden. In one of its first statements, the committee established a certain question of method concerning its work:

“If one wants to make this question the object for a critical investigation with the aim of gaining a deeper view in such a question, it is obvious that the issue is constituted by two objectives of different characteristics. One of those questions is whether the lands of Northern Sweden are divided in a larger area for peasant

farms or if they belong to a few larger companies. The other is whether the lands of Norrland and Dalarna should be converted in objects of agriculture or forest management” (Norrlandskomitén, 1904, Volume I, p.10).

The presentation states another point:

“One needs to look at the issue partly from an economic point of view and partly from a social and political point of view” (ibid.).

Based on the public documents originating in the work of the Norrland committee and additional literature on the topic, one can observe that the process included the important participation of different actors in the local areas where the process of land acquisitions had taken place. In looking more closely at the method of the Norrland committee, one can observe that a main tool in the work of the committee was to submit questions to the different actors in the local areas. For example, to gain a better understanding of the whole process, we can look at question 16 contained in the second form used during the investigation. The question was the following:

“how do the peasants’ forest management stay in comparison with the companies’ forest management, and, in which specific management practice do they differ?” (Norrlandskomitén, 1904, Volume III, p. 17).

In the case of the response to this question submitted from the area of Jämtland-Västernorrland, one finds a quite divided opinion. Yet, in some of the answers one sees a clear defence of the management of the peasants and a clear negative opinion of the kind of management undertaken by companies. In observing the quality of those arguments one finds that in relevant cases the assessment of the better management of the peasants was based on the fact that the peasants had seen the value in the forests and that they also did it in a rational way. This indicates that while the argument of the sawmill sector was to a significant degree based on the idea of science and modern forestry production, the peasants were fighting from a conceptual terrain where that rationality was contested in terms of the peasants’ rationality and in terms of value. As a result of the investigation of the Norrland committee, the Land Acquisition Act was passed in 1906 and this essentially imposed restrictions on the selling out of land from private owners to companies. According to the Norrland committee, the measures proposed by the committee were legitimized through the wide support found in the people’s opinion (*folkopinion*) which, as the committee argued, was expressed in the answers delivered from the local areas to the committee. It is important to highlight two important dimensions of

the Norrland question here. First, during the work of the committee, the actors were aware of the international dimensions of the problems at hand and thus a report on the international experience dealing with similar questions was submitted to the committee. Secondly, the discussions at the parliamentary level confronted the views of two politicians representing two opposing views in the discussion, namely, Karl Lindhagen and Frans Kempe. Both figures became representatives of the opposing views not only as the public face of the Norrland question but also in relation to the internal work of the Norrland committee. Lindhagen, for example, sometimes discussed more radical measures in this context whereas Kempe articulated the critiques concerning the method used by the commission by arguing that the premises guiding the whole resolution of the inquiry were flawed.

The international dimension is important here since it shows how in trying to look for knowledge about it, the issue of looking at other countries was already a practice at that time in Sweden. As we will see later, this characteristic of how discussion on forestry and land use took place in Sweden are similar to what happens today in the country.

Though scholars have discussed the real effect and the timing of the Land Acquisition Act (for some it came too late), the Act became a sort of condition of the possibility of what is family forestry in Sweden today. Two important observations can be made here. First, the terms of the discussion during the Norrland question were deeply affected by the question of the future of agriculture, and land, and forest resources and the relation between those resources and society at large. Second, one of the consequences of the imminent Land Acquisition Act was that a first wave of internalization of Swedish forestry companies took place during the early years of the 20th century. Within this context, Swedish forestry companies moved to the White Sea in north-western Russia and established what in the terms of a Swedish historian became a sawmill *El Dorado* (Björklund, 2003). Thus, in this first process of Swedish forestry internationalization, the inland area of the White Sea served as a zone of refuge for Swedish forestry capital facing imminent legislation banning the acquisition of new lands in Sweden.

One of the important aspects of the Norrland question is that the question was to a significant degree formed through a series of newspaper articles published in 1894 by Jonas Stadling, who gave them the expressive title of *Our Irish question?* (Stadling, 1894). We can observe here the similarity between Zaremba's act and Stadling's act. These two processes of critique concerning forestry in Sweden show the clear interrelations between the material bases of forestry development and communicative processes. That during 2012 the

critique against forestry reached the media again in the way it did is clearly the manifestation of a wider forestry crisis in the country.

The recent critique against forestry in Sweden coincides with an effort to bring a new meaning to forestry in the country. This time the terms of this are the terms of ecosystem services and forests' social values. In March of 2014, the governmental report on ecosystem services and biodiversity stressed the importance of forests in both dimensions of the environmental goals in Sweden (Regeringens proposition, 2013/14, p. 141). Within this context, law reforms were expected to come into force in September 2014 in order to develop a strategy for biodiversity and ecosystem services in Sweden. To achieve those goals, the governmental proposal establishes that for the policy makers, communication has a fundamental role as a tool in achieving environmental quality objectives in the country (p. 73). Thus, to elaborate possible solutions through linking the term *ecosystems services* with communication is then considered crucial in Sweden today. In parallel to this, the Forest Agency highlighted the question of forest's social values in a report from 2013. To understand more deeply the conflictive and contradictory situation of forestry in Sweden today, I will now explore and analyze the crucial new question regarding the relations between forestry and climate change and how this has been manifested in the country.

5.2.4 Climate change and forestry relations

The important reports concerning climate change and forestry published during 2006 (Stern review) and 2007 (IPCC report) along with the IUFRO-FAO conference on climate change adaptation in 2008 and the World Forestry Congress in 2009 indicate that those years were important moments in the establishment of a certain way of seeing forestry and climate change globally. The view that climate change created a context for forest and forestry implying risks and opportunities became globally reproduced along with the process of thinking of climate change and energy transition in a combined way. For some forest owners associations, this meant good prospects in terms of income. For example, at the XIII World Forestry Congress in Buenos Aires in 2009, Christer Segerstéen, at that time the president of the Confederation of European Forest Owners, discussed bioenergy developments from the perspective of family forest owners and noted "*that over 60% of forests in Europe are owned by families in mostly small-scale holdings*". He added that "*the EU's decision to increase renewable energy use to 20% by 2020 from the current 8.5% represents*", as he saw it, a "*significant opportunity for forest owners, provided they increase forest production in a sustainable way, balancing forest production and biodiversity*" (IISD bulletin, 2009). In

parallel, the question of forestry and climate change as a new possibility for forest owners also gained attention in the forest owners association magazine in the area of Middle Sweden. In the editorial note of Issue 1 of the magazine *Nytt i Norrskog* from 2008, it was noted that:

“2007 has been a year for forest in many ways. The question on climate change has been high in the agenda and the forest is a part of the solution by sequestering carbon which is emitted in great quantities. The EU goal of replacing 20% of fossil fuels used within the EU with renewable energy is a decision that will in time affect the forest businesses in a significant way” (*Nytt i Norrskog*, 2008, N4,p. 3).

In the same year, Issue 4 of the same magazine highlighted the adoption of the governmental proposal on forest politics for the country in parliament. This proposal originated in an investigation initiated in 2004 and it aimed to adjust forestry in Sweden to the new challenges and changes in forestry. In the view of the forest owners’ magazine, two important things were highlighted in the proposal: one was the importance of climate change for forestry and the other was the question of property rights. In the words of the magazine:

“Climate change is highlighted as important but the report also highlights the importance of property rights and aims at a simplification of rules” (*Nytt i Norrskog*, 2008, N4,p. 5)

This topic also became a matter of important interest in the work of the Swedish Forest Industries Federation, which between 2008 and 2009 was intensively taking the issue of climate change through positioning forestry and the use of forest raw materials as the remedy to solve climate change. Within this context, the federation produced a climate manifesto in which the basic statement “*The forest industry is going to have a crucial role in climate mitigation*” is then concretized in different goals and an imperative: “*The carbon sink value of the forest must be included in international and domestic climate policies*”(Swedish Forest Industries Federation, n.d.). In more general terms, the overall view on climate change in forestry was conceived by both forest industries and forest owners as an opportunity to reposition forestry in the debate on development in Sweden, to present forestry as an environmentally friendly activity and to counteract the critiques against forestry development. In particular, for the forest industries to make the link between facing climate change through forestry and manufacturing of forest products in Sweden was also a way to reaffirm views on comparative advantage for forestry in Sweden. If these two important actors were during

2008 and 2009 intensively trying to make sense of climate change and energy issues from their respective interests, the question of how to think climate change in Sweden was the central goal of another of the State's reports. This time the *Sweden Facing Climate Change* report tried to identify risks and opportunities and also gave some economic assessments for the discussion (SOU, 2007/60). Today climate change is without a doubt a central aspect of the assessment of environmental governance in the country, yet an analysis of how this is incorporated and discussed in the practical process of policy making indicates that the level of knowledge and the possibilities to firmly decide what can be done are rather problematic. Below we can observe why incorporating climate change into policy making is difficult and express a wider problem of knowing and acting in terms of climate change politics.

In September 2013, the All-Party Committee on Environmental Objectives working on the proposal of a strategy for long-term sustainable land use in Sweden invited and put together experts to discuss a number of topics identified as relevant and in need of expert knowledge for the future work of the committee. The committee had already delivered preliminary proposals that were contested by the forest owners association as they saw them as undermining the principle of freedom under responsibility. Out of 10 topics considered for discussion during the meeting, three were directed at dealing with climate change and during the meeting one of the pressing questions was to obtain knowledge about how the issues are being dealt with in other countries (OBS-S-5). Thus, the need to have inputs from other countries where perhaps ideas about the problems at hand were more developed than in Sweden was felt. During the meeting it became evident through discussions with some groups that participants recognized that they had little knowledge about the matters discussed and uncertainties about the technical aspects and works related to climate change. In one case, during the work of one group, the first minutes of the group's work were largely devoted to questioning the question put to the discussion (OBS-S-5). Thus, the lack of clarity regarding what experts meant in the analysis of climate change issues became clear during the meeting. Though the issue of conflicting objectives concerning climate change was one of the points highlighted in the seminar, in general terms the realization that more knowledge was needed was a common issue in the work of different groups. In commenting on this process, a politician from the area of Middle Sweden commented that one problem in this kind of parliamentary work was the time constraints and the lack of knowledge about the issues under discussion (INT-SWEDEN-9).

In this regard, we can have a closer analysis of the seminar organised by the All Party Committee on Environmental Objectives in Stockholm in 2013

referred to previously. Here one can observe that the different working groups were assigned specific tasks through different questions. As I mentioned earlier, the question of climate change was present in a number of questions. Here we can focus on a question dealt with in one group, which was asked to discuss: *What are the kind of requirements needed to create enough conditions for society, and the necessary integration and holistic assessments that are needed, for an effective adaptation to climate change?* (All Party Committee on Environmental Objectives- Notes from Seminar-, 2013)

In the discussion concerning the topic, my observations are very much divided into three kinds of observation. First, we had one discussion where a very important question was raised: the question of perhaps having a climate department in Sweden, or as other people asked, to consider whether the Minister for Finance should have the responsibility in this regard, or to have a climate advisory group in order to deal with this. This is because the recognition of the complexity of the topic went beyond the boundaries of the different state departments. This meant a political question which was linked to the question of the seriousness of climate change, but also to the fact that, as one of the participants said, when we look at the whole system one realizes that the kind of legislation and the kind of measures are something that should be considered. Within this context too, the need to consider the international experience was brought as a way to see what other countries are doing and to use that knowledge in Sweden. A second observation is that in the notes distributed after the seminar, one can see that the already-existing mechanism in Sweden, such as for example environmental impact assessments (EIA), were re-signified in this context (p.28). In this regard, it was argued that EIAs were a good mechanism that should remain because this can give the possibilities for consultation and allow people to meet and discuss. However, because this group was dealing with the issue of what in the Swedish context is seen as exploitation of natural resources, questions were raised over whether the EIA could prevent such exploitation. This happened in the group discussing what kind of further knowledge is needed to plan in terms of landscape planning and infrastructure. Here I can make a third observation that concerns me personally. As I was carrying out observations and thus taking notes during the meeting, I was asked about how things are dealt with in Chile concerning the topic of one group. I made a point about strategic environmental impact assessments (SEIA) in this regard. This was considered as a good idea and highlighted as something that could also be explored in Sweden. However, the fact is that there is already a system of SEIA in Sweden. My observation here is that in this discussion, and because the people participating there were sometimes exposed to questions beyond their expertise and their knowledge

and even profession, this led to inputs being produced here that did not necessarily imply expert knowledge on the matters and on what already existed in Sweden in terms of environmental governance.

In more general terms, and although climate change issues are widely addressed in Sweden, there are some complex relations between climate change and forestry that are especially problematic and show the conflictive and contradictory nature of the political ecology of forestry in Sweden. The large forest fire in Västmanland in the summer of 2014 – the largest in modern Swedish history – shows important dimensions of this question. The fire and its dimensions took many by surprise and it showed the lack of preparedness in Sweden for such a large fire. The final investigation into the origins of the fire indicated that a forestry operation by a sub-contractor for a large forestry company caused the fire. Yet, with the very unusually warm and dry summer as a background to the forest fire, questions about one cause and relations between the fire and climate change must be put into perspective. Our closer analysis of salient aspects of the recent forest fires in Sweden starts in 2007 when in the report previously mentioned and entitled *Sweden Facing Climate Change* the following statement was made:

“As far as we can judge, forest fires are set to increase. Preventive measures will become increasingly important. These include both communicating restrictions regarding the lighting of fires and ensuring that these restrictions are complied with. It may also be necessary to refrain from certain forestry measures during extremely dry periods” (SOU, 2007, p. 338)

The forest fire in 2014 in Västmanland was originated by a forestry operation. Thus, it is important also to mention here that the report at that time also noted that:

“Build-up of knowledge, research and development Knowledge about how climate changes affect the forest and forest ecosystems is still limited. Knowledge concerning the management of broadleaved trees, mixed stands and new tree species is generally weak. In addition, increased knowledge is required as regards genetic variations in forest trees and how we can benefit from these. Damage to forests often follows complex connections, where many different factors play a role. Our understanding of the dynamics behind the extent and distribution of wind damage needs to increase, as well as the link to various climate variables. Similarly, research regarding forest fires needs to be strengthened” (p. 341)

The limitation highlighted in the report indicates that 10 years ago the more specific dimensions of the relations between forest and climate change were

considered unknown in Sweden. Still, the report ventured an economic assessment of possible costs and revenues originating in climate change and its more specific relation to forest fires. In this regard, the report estimated that the increased cost caused by damage from storms, fires etc. would be between 50-100 billion SEK between 2010 and 2100 (p. 21). The report estimated that increased aggregate revenues from increased growth would be between 300-600 billion SEK between 2010 and 2100.

Yet, the bases for the previous observations are more complicated when one looks at the overall field of climate change science and its relation to forestry. Forest fires and the obvious connection between drier weather conditions because of climate change has been a topic of research during recent years. The literature points to the need to think that these new conditions will inevitably mean new needs and approaches in terms of forest management. Yet, in some cases the measures are unspecified and so the large framework for this is understood through the wider and abstract terms of forest adaptation and mitigation to climate change. In the IPCC reports, both in 2007 and in 2013, forest fires were part of the assessment on the relations between climate change and fires. In the 2007 report, for example, one can read:

“There are indications that higher temperatures in boreal regions will increase fire frequency; possible drying of the Amazon basin would increase fire frequency there as well (Cox *et al.*, 2004)” (2007, p.547).

The IPCC continues by suggesting that there is a difference between developed and developing countries in this regard:

“Forest fire prevention and suppression capacities are rudimentary in many developing countries, but trial projects show that with sufficient resources and training, significant reductions in forest fires can be achieved (ITTO, 1999)” (p.569).

We can note that the question about knowledge of the relation between climate change and forest fires was again dealt with in the latest IPCC report from 2014. There the IPCC report synthesized what has become known as optimal forest harvesting and within this context one finds the issue of forest fires presented as follows:

“Optimal forest harvesting is defined as the fraction of sustainable harvest levels (often set equal to net annual increment) in forests available for wood extraction, which is additional to the projected biomass demand for producing other forest products. This includes both biomass suitable for other uses (e.g., pulp and

paper production) and biomass that is not used commercially (Smeets and Faaij, 2007; Chum *et al.*, 2011). The resource potential depends on both environmental and socioeconomic factors. For example, the change in forest management and harvesting regimes due to bioenergy demand depends on forest ownership and the structure of the associated forest industry. Also, the forest productivity—and C stock—response to changes in forest management and harvesting depend on the character of the forest ecosystem, as shaped by historic forest management and events such as fires, storms, and insect outbreaks, but also on the management scheme (e.g., including replanting after harvest, soil protection, recycling of nutrients, and soil types (Jonker *et al.*, 2013; Lamers *et al.*, 2013)” (p. 81).

During interviews with forest managers and experts within forestry associations, the logic of forestry as part of the solution to climate change and a context of possible benefits for forestry became two fundamental articulations in the way they were conceiving the relation between climate change and forestry (INT-SWEDEN-11, 17 and 16). What is also clear is that one could not say that at that time specific measures to manage forests and to carry out forestry in relation to climate change were a clear component of forestry on the ground.

During the fire in Västmanland, it seemed obvious to think of climate change as a factor. Besides the obvious questions concerning climate change and forestry in Sweden which were motivated by the forest fire in 2014, in the wake of this, discussions were initiated about the future of the land in the area devastated by the fire. One of these discussions again took place through the pages of one of the most influential newspapers in Sweden. The discussion started when a group of scientists proposed converting the area devastated by the fire into a conservation area (Andrén, *et al.*, 2014). In their view this was a good possibility, taking into account that the cost of buying the land was low and that some companies were willing to give lands for this purpose. Responses came fast and a debate was initiated. One participant argued that people in Sweden have always used the forests and so to transform the area in a conservation area was against the historical use of forest in Sweden. A group of farmers and representatives of forest owners rejected the proposal radically. One of their arguments was that to use the fire to affect property rights was unacceptable. Other replies aimed at debunking the view of low costs for the land. Here it was argued that taking into account ecosystem services and other factors, the price should be much higher. An analysis of this discussion shows:

1. That thinking of the future of the land affected by the fire rapidly became an issue where different interests about and within the area came into confrontation.
2. The monetary evaluation of the areas devastated by the fire was highly contested.
3. The problem concerning the cause of the forest fire was mixed with the analysis of what could happen in the future, which rapidly took over the discussion
4. Overall the problematic relation between climate change and forest resources became mediated by the different interests involved in the discussion.

The previous cases show how issues of property rights and the defence of a certain meaning for forestry and land use are fundamental problems in Sweden. Here one can observe that in Sweden today, what the notion of systematically distorted communication tried to capture happens, and one can observe that the current situation in Sweden not only indicates that systematically distorted communication persists but also that this is deepening in the context of climate change. This is also a process we can understand as leading to systematically distorted deliberation. One of the basic processes in this has to do with a hegemonic conceptuality to deal with forestry issues in the country which reinforces both a capitalist ideology and its appropriate discourses regarding forestry. For example, the fears of a possible more stringent legislation are a symptom of a much deeper crisis of legitimation of forestry practices. Another dimension of the conflictive and contradictory situation of forestry and land use in Sweden today is given by the discussion about the future of the land where forests were devastated by the forest fire as happened in Västmanland in 2014. This case shows how environmental communication practices are the representations of particular interests and expectations and those are confronted by other environmental communication practices. Because they are mediated by a conflictive political ecology, they tend to erode the possibilities of alternative social-ecological relations, but this proves an additional thing too: the explanation of the reasons behind those different subjects carrying out those acts of environmental communication is deeply associated with forms of labour. It is in fact the labour of the farmers and forest owners that is risked in the proposal resisted by farmers and forest owners; and this is the case even for the scientists. In proposing what became a source of indignation and contestation in the area, and beyond the area, the scientists were thinking in terms of their labour as scientists. Thus ecology here becomes further

politicized. Thus, one can see here that environmental communication articulates important moments in the political ecology relations.

For the farmers, the initial loss of use value and possible exchange value was first a material fact and then it became a possible second loss of what they still conceived as use value. In seeing use value from another perspective but still mediated by a monetary system, scientists attributed another use value to the soils where trees could regenerate and bring important biodiversity gains. This abstraction is not separated from the concreteness of the case. This happens in terms of environmental communication practices in which ideology and discourses can be thought in the terms of spaces of communicative struggles. This is because the different instances where forests and forestry are discussed in Sweden today, and where different interests are part of those instances, are organized through divergent discourses and ideologies, and those discourses and ideologies are produced and reproduced through environmental communication practices.

In addition, but not separated from the problem of distorted communication, there are signs indicating that the question about the risks of forestry in Sweden has become highly problematic in Sweden. This is because approaching risks within and of forestry shake the dominant view on how climate change and forestry are entangled in Sweden. Here we have difficulties in giving risks a proper place within a discursivity where the relation between forestry and climate change has to an important degree been seen in positive terms. Here what Beck theorizes in his book *World at Risk* (2013) in terms of differentiating catastrophe from risk seems to be relevant. In the words of Beck:

“Risk is not synonymous with catastrophe. Risk means the anticipation of the catastrophe. Risks concern the possibility of future occurrences and developments; they make present a state of the world that does not (yet) exist. Whereas every catastrophe is spatially, temporally and socially determined, the anticipation of catastrophe lacks any spatio-temporal or social concreteness. Thus the category of risk signifies the controversial reality of the possible, which must be demarcated from merely speculative possibility, on the one hand, and from the actual occurrence of the catastrophe, on the other. The moment risks become real, when a nuclear power station explodes or a terrorist attack occurs, they become catastrophes. Risks are always future events that may occur, that threaten us. But because this constant danger shapes our expectations, lodges in our heads and guides our actions, it becomes a political force that transforms the world” (2012, pp. 333-340 [Kindle Locations]).

These points are pertinent here since an important part of the meaning of risk and catastrophe and of possible gains from climate change can be understood

in terms of environmental communication practices. For example, one can think that to face this, more stringent legislation would be needed. Yet, as we saw above, more stringent legislation, understood by forest owners and forestry companies as eroding the principle of freedom under responsibility, have articulated important discursive opposition during the last discussions on forestry in Sweden. The rejection of more stringent legislation on the one hand and the argument for more stringent legislation concerning forestry is a key process articulating environmental communication on forests in Sweden today. Yet the case is that it was in fact a legislative act that gave legality to the principle of freedom under responsibility in 1993 and it gave rise to its discursive formulation. The recent formulation of the principle as a tradition in Sweden means much more than a simple statement and re-statement of a principle. It is a way to defend a particular position in a debate where antagonism has resurfaced lately in the country; and labour is clearly an issue here. As we have seen, today forest owners try to defend both their property rights and their labour, and they contrast their position with the position of the large companies at important points. Yet in other places they act together with the companies under the premises of a unified forestry sector. As we saw above, the meaning of the Swedish forest sector here is a fundamental political issue with a number of policy implications. We can say here that forestry in Sweden is today a space where economic problems and crises run in parallel with problems of legitimization and crises of legitimization. Here, the conflict around the different assessments of the state of forests in Sweden confronts different views about legitimacy and legality, and for this, different legitimacy criteria are invoked and different struggles at the level of the material sources of the law are developed. As Alasdair Macintyre put it in the wider context of political legitimacy, “[...]to call an authority legitimate is to appeal to an accepted criterion of legitimacy” (1996, p.137). Here, one can observe that today environmental communication practices are fundamental processes in the formation of criteria of legitimacy and of already established legitimacy and legality arrangements for forestry in Sweden. However, our analysis would be incomplete if the question of how legality operates between multiple sources of legitimacy is de-coupled from the question of how profit operates in relation to forestry under neoliberalism today. We need to make explicit that in most of the situations analysed above, profit has a clear mediating role. Profit here cannot be understood without thinking the relation between use value and exchange which can potentially become the substances of environmental communication practices. Within this context we can think in terms of systematically distorted communication as being linked to what for some actors is a legitimization crisis of forestry in Sweden. In fact, the critique of

forestry that in 2012 again took a prominent place in the public discussion, the defence of interests concerning forestry and the constant effort of bringing policy strategies into forestry are manifestations of a critical conjuncture of forestry in Sweden.

5.3 A critical conjuncture of forestry in Sweden

As we have reconstructed earlier, during recent years, different discussions and processes concerning forestry have been taking place in Sweden. From the criticism about the role of production goals versus biodiversity, to the role of the laws and institutions in regulating the development of forestry in the country, from climate change issues to the bioenergy development and, in this latter case, when it comes to climate change the new issues in relation to the forest fires and storms. In what follows, I will try to obtain a deeper view on those different moments that I have described earlier and will add new views in terms of political ecology and environmental communication. To do so I will mainly take texts and explore them in terms of critical discourse analysis. Thus we will approach texts and situate them in the context reconstructed and presented earlier and at certain points, some issues will be re-stated, for example issues concerning the forest fire in 2014. The selection of texts includes mainly forest agency and governmental reports, forest owner magazines, forestry industry magazines, NGO reports, interventions and media coverage of important events.⁶

Reporting possibilities for forest and forestry

Three reports that came in 2013 and were produced by the Swedish Forest Agency serve as a place to start here. One is the study concerning a national forest programme for Sweden, another is a report that elaborates issues concerning visions for forestry for good environmental consideration in Sweden, and the other is the report on forests' social values. First we will look at the report on the visions for forestry for good environmental consideration. Concerning these reports there have been many seminars and meetings. These meetings were very much a result of criticism of forestry in the country and are also a result of a common understanding of the need to create new ways to deal with forestry in the country. Such meetings were also taking place in the study

⁶ A number of forestry related magazines from Sweden published in the Swedish language have been referred to in this section of the thesis, and their Swedish titles have been adopted for this purpose. The originals of these magazines could be found in their respective websites. In addition, secondary sources in this research have been multiple and they are identified in the analysis of the case.

area. In notes from one meeting we can observe that the idea of having a common view of the objectives for forestry was something that was regarded as necessary. This was also part of the conference organised by the forest agency in the study area and presented earlier.

In the report from 2013 concerning visions for forestry for good environmental consideration (Swedish Forest Agency, 2013b), the forest agency elaborated on knowledge gaps in terms of the forestry politics and in relation to environmental concerns. Here it was argued that there was a need to have more knowledge about the levels at which forestry policy was used. However, lack of knowledge was an issue understood as being different when it comes to private owners and to forest companies. The report is a national report that takes into consideration those local discussions referred to earlier and is organized in a way that divides different environmental concerns and presents at certain points clearer visions about them, for example, those concerning sensitive habitats. Also there are visions about the environmental consideration in relation to final felling, as it gives views of how this should be done in specific areas as for example buffer zones and the report offers illustrations thereof. Other issues considered for visions on forestry included for example cultural environment, relations between forest and waters and lakes, and recreational aspects of the forest. Thus, the report presents a new context for the discussion, where these preliminary visions for the future are established in a text. Yet, the report declares that there are still a number of challenges and it recognises a number of unclear issues, and more work is needed to arrive at all the desirable visions about the objectives for forestry. It is said that it is necessary to develop these views taking into account the different environments and conditions in which these views are to be used. Here for example, the status of sensitive habitats is recognised as an important point to be considered. There is also an important point about the regionalization of these views and there is recognition concerning much-needed work in the development of these regional criteria. As the work was organized by considering different working groups, we can observe that when it comes to the understanding and perception of the process by different actors, there are important differences. For example, we have here a representative of a forest company who emphasised the need to have clearer views to use these visions in different regions of the country (p. 147). In turn a representative from the Swedish Environmental Protection Agency considered that the document did not give sufficient grounds to be precise in relation to sensitive habitats. The argument was for example that there are important issues that are not dealt with in the report and a concern was expressed on this. Importantly, the representative said that there are definitions that are incomplete. He added

that the definitions should be clear about the question of sensitive habitats in relation to the real practices of forestry. Also the representative said that it should be clear about forestry activities in sensitive habitats (p. 148). When it comes to the Swedish Society for Nature Conservation (henceforth the SSNC), the organisation recognised the work with the dialogue process with the understanding that the visions will show what kind of environmental concerns are needed, as a way to work with forestry and to attain the objectives (p. 150). In this regard, the SSNC expressed that this should include the responsibility of the forest owners and other institutions, such as the state. However, the SSNC added that the ambiguity in what the visions will show has been unfortunate for the dialogue (p. 150), and for the SSNC, the visions are unclear concerning their future use. Furthermore, the SSNC argued that the visions are not enough, and that there are insufficient conditions and resources to obtain a good result with this work (p. 151). In assessing this aspect of the process, the SSNC highlighted their own proposal concerning social values of forests (p. 151). For the SSNC it was important to establish a link between the dialogue on the visions and a holistic perspective and also to have a clearer and shared responsibility and to have tools to work with this (p. 152). In addition, the SSNC expressed that an important lack in the process was the low participation level of municipalities in the process. Other views regarding the processes were also expressed. A view shared by the forestry companies SCA and Södra and Skogskapellet was that the views that have been expressed during the work are characterized by common grounds (p. 150). They added that the work in these groups has in their opinion been good in relation to environmental consideration and social values in forestry and they should have increased importance (p. 153). We see here some of the different actors' views about aspects of this report and the processes behind this and how in some cases there is already important criticism concerning these. Within this context, the issue of forest's social values became an important concept.

This kind of procedure to generate reports in Sweden considers that different organisations can send referrals, and these are answered and commented on by the authority. In this case, the forest agency answered several referrals. In this regard we can observe points made by the municipality of Sundsvall in its referral (p. 155). In one case the municipality linked the issue of forestry to the EU directives, in terms of environmental qualities and objectives. In addition, the municipality manifested concerns about goals and how they are going to be solved. What is the real responsibility, the municipality asked, concerning biological diversity, outdoor recreation and culture values? In relation to the issue of the EU, the forest agency answered that the project with visions for forestry will be developed within the current

policy framework, which in this case has a national and also an international characteristic. The agency manifested that the core of the forest sector's responsibility lay in the forest owners and land owners who have the responsibility to achieve the environmental objectives. The agency added that authorities and the forestry sector had the responsibility to preserve the forest landscape and expressed that the sector's responsibility is being developed in this way.

Another referral was sent by the SSNC where it was argued that a fundamental lack in the process concerned instruments and tools or measures necessary to attain the visions (p. 157). The work with these instruments is something strongly emphasised by this organisation. In observing this we see two important things as forming the terms of the discussion here. One is the question of the social values of forests, which we will later see give rise to another report by the forestry agency. The other is the constant emphasis by the SSNC concerning what the real measures to be taken are.

Within this context, we can observe that in a seminar on a dialogue on nature consideration that took place in Stockholm in January 2012, it was highlighted that *“the task of the forest sector is to take responsibility to reach the goal of the forest politics. To reach these goals a higher ambition than what is required in the law is needed”* (Seminar on dialog for environmental consideration- Stockholm, 2012-01-31- Notes - Forest Agency, p. 5). At the seminar, different groups met to discuss and in the notes one can see contrasting views on the process. A representative from SSNC, for example, expressed worries about the real mandate and the agenda in the process and said that they considered that there was an imbalance concerning the composition of the different working groups, as for the SSNC a high number of participants in the working groups was from the forestry sector. Another opinion was expressed by a representative from a forest owners association who said that there was recognition of a lack of environmental consideration in forestry and this needed to be improved. He took the issue of the need to have a vision for visions (*målbild för målbilder*) and that the vision should be of practical application out in the field. Thus, the two points were related to the common issue of having common visions but also what the purpose of such visions should be. As we saw above, for some participants in this process, visions for forestry are still unclear in important ways.

As mentioned earlier, the question of social values of forests was also part of the discussion of the vision for forestry. Forests' social values were the focus of another report issued by the forest agency in 2013 (Swedish Forest Agency, 2013c). The work to define social values for forests was strongly linked to the process of dialogue for environmental consideration in place

within the forest sector (p. 7). Here the process was also linked to the question of visions for forestry and the question of social values was discussed under those terms. An initial point stated in the report is that forests' social values depend on different political areas; among other forest politics, environmental politics, business politics and the politics for local and regional development (p. 7). Thus, it is said in the report that when dealing with this question of social values of forestry we have to be aware of the different political areas that are implied. Then the report deals with the questions of the importance of forests' social values and brings an initial definition that says that:

“Forests' social values are those values that are generated in humans' experiences of the forest” (p. 6 - own translation-).

That is an initial definition and as such became an important aspect discussed in the report. In this regard, the report recognised that more precision was necessary. For this, more precise meanings of social values were linked to, for example, ecosystem services and the value of forests for outdoor recreation and in populated areas. Thus the question of being more precise with the definition was an issue in the report, and the report recognises that a central question concerns the concept and the meaning of forests' social values. The report said that forest's social values have been defined in previous documents submitted to the government as values that contribute to welfare as oppose to values in terms of production of timber or in terms of biological biodiversity (p. 36). However, the forest agency recognises that the previous more precise definition is difficult to apply with the current knowledge. Within this context, there is an important observation to be made. Interestingly, here the question on social values was also a question of interest within the future forest programme. In issue number 3 of 2012 of the magazine *Skog & Framtid*, it was reported that social values of forests were a source for conflicts. This according to a study done in the context of this research initiative, *Future Forests*, where part of the analysis included cases where felling in proximity to populated centres is one situation where the high social values of trees gives rise to more conflicts. Also, differences between people interested in berry picking and commercial tourism is part of this complex situation.

In turn, the forestry agency's report also highlights the question of sector responsibility in relation to forests' social values and here it is said that such social values are part of the forestry sector responsibility. Here the forest agency considers it important to further clarify how the sector responsibility for the social value of forests is differentiated from other environmental values (Forest Agency, 2013c, p. 37). The proposal for measures that are presented is

very much about creating cooperation concerning the forests' social value to create more consciousness and competences on the topic, and it is here where the proposal links to the other parallel projects concerning forestry taking place in Sweden. For example, the project dialogue on environmental consideration taking place in the country is seen as a platform from which to continue the work on forests' social values (p. 43). The report closes by establishing that the need to create a meaning of forests' social values should be more clearly integrated and taken within different actors. In this regard, the report establishes that the work will continue and proposes a following up of this work in order to integrate the work on forest's social values within different actors. In the same context, the question for developing a method to have the knowledge and social planning needed to reach the objectives with forest's social values is something emphasised in the report.

The report includes examples of how different actors work with forests' social values. For example, the SSNC highlighted that they work in order to protect all the values of the forest, including social, biological, cultural and economic values of the forests (p. 55). In addition, the SSNC expresses that it works for the improvement of the law to take into consideration the forests' social values, taking physical planning, a holistic view, and to have more cooperation regarding these issues (p. 55). Other actors that were also part of this inquiry were forest companies. One forest company, Sveaskog, expressed that its definition of forest's social values has to do with what is important for people's quality of life (p.50). The company relates what they do in this regard to forest certification and the right of public access (*allemannsrätten*). Other actors, such as for example The Swedish Forest Industries Federation (*Skogsindustrierna*), expressed recognition of the issue of social values too (52). For the federation, Sweden has special conditions to develop the different values of forests. Here an important point is that for the federation, all the forest's values can be combined. The federation argued here that with wise forest management the forests can offer recreation, biological diversity, working places and also important products for society. For the federation this should be seen in relation to the creation of knowledge (p. 52).

In arguing for a combination of different possibilities to use the forests, the federation links its argument to an understanding that has been around in Sweden in the discussion on forestry. We can observe this in, for example, a document from 2009 when Gunnar Olofsson, the CEO of Sveaskog, was awarded an honorary doctorate at SLU and gave a speech titled *five factories for the woodpile* (Olofsson, 2009). He started by making a historical connection between forests in Sweden and the development of the country, using Carl Linnaeus in his speech to elaborate that forests can be seen as a raw

material factory, oxygen factory, environment factory, energy factory and experience factory. Thus, when making this point he was trying to make a strong argument concerning the possibilities of combining these five different uses of forests in Sweden, and he saw here possibilities of working with all these in a combined way. The point here is very similar to the point of the The Swedish Forest Industries Federation contained in the report on forests' social values in 2013, where it was emphasised that these different objectives or uses of forests can be reached in Sweden. For Olofsson, in all this there was a key role of an "iterative process with continuous learning - a constant co-operation between research and application" (p.5). However, these views have not gone unchallenged. In 2010 for example, and because this discussion of the future of the forest was gaining momentum and more publicity in Sweden, and even in the magazine Kupé (September, 2010), which is distributed for free within SJ, the government-owned passenger train operator, there was special coverage on the future of the forest in Sweden. The articles were motivated by the fact that increasing demand for forest, as raw materials for high-tech industries, as fuel and, as nature and for making fashionable furniture for houses, was putting new pressures on the forests. Thus, the articles noted that there existed different views on the forest use in this context, and they referred to researchers arguing in this context. In one case a researcher argued that to build with trees or wood was an environmentally friendly alternative compared to cement and steel. Also the article highlighted that the demand for forest resources was increasing in different ways, and that the forests were being used to produce pulp, paper and sawn wood, but it also stated that forests could stay in the soils and sequester CO₂ or could be used for recreation. In this regard, it was mentioned that forest resources not used previously were now being used. A contrasting view is again offered by the SSNC, which expressed concerns with the increasing demand for forest raw materials and considered it as a threat to the forests. Here the SSNC argued that forestry companies had in recent times plundered several very valuable forest areas where they had found threatened species. They made the point that only 2 % of the untouched forest areas below the mountain range border were protected (p. 43). This shows how the contrasting views on what to do with the forest and the new demand were a contested issue in 2010.

Also within the context of the discussion on forest's social values, the forest agency developed another report during 2013, this time with a focus on nature consideration contracts for areas with social values (Forest Agency, 2013b). In this context, the definition of social values is repeated: "forests' social values are those values that are generated in humans' experiences of the forest" (p.4). The possible consequences of this are also highlighted: "an increased use of

contracts for protection of social values where the biological values are limited decreases the rate of protection of those areas with the highest biological values. This given not changes in subsidies for formal protection” (p. 9). In addition, it is said in the report that at the same time an increasing use of contracts could imply that people can have more access to attractive environments and spend more time in the forest.

In an editorial note in SCA’s *Din Skog* in 2013, the magazine emphasised that from the beginning Sweden has built a large part of its prosperity on long-term forestry and it was argued that forestry in fact creates many of forests’ social values. Thus, concerning the discussion of forest social values, the editorial note expressed the view that the forest’s social values cannot be subject to univocal definitions (Din Skog, 2013, N. 3).

In the previous cases we see how from 2013 to 2009 and 2010 the discussion on whether it was possible or not to put the forest resources to different uses and values, adding more environmental protection and bioenergy to the more traditional uses of forests was becoming a matter of new discursive relations concerning forests in Sweden. Underlying this was the issue of forest values and conflicts concerning forest use.

We can make here a connection to another report from 2013, which is the study for a national forest programme in Sweden (Forest Agency, 2013). Within this report there is recognition of conflicts concerning forests in Sweden. One reads here that among the important goals of a national forest programme in Sweden is to have a mechanism for conflict management (p.2). Also it is said here that according to an expert, a national forest programme can among other things serve to create a balance between economic, environmental and social values of forests, and also to obtain a balance between property rights questions and societies’ interests. Thus some principles are mentioned for a national forest programme, such as for example, participatory processes, holistic thinking to build capacities, an ecosystem approach and creation of knowledge, which are among the 11 principles for a national forest programme (P.2). The possibility of a national forest programme has been well received by different actors in forestry in Sweden (OBS-S-4). The possibility of having this as a way to solve some of the important conflicts is something that requires closer examination. This is actually one of the points of the report, which says that a SWOT analysis (SWOT meaning here strengths, weaknesses, opportunities and threats) shows important issues when thinking these possibilities (p.13). Here issues concerning policy implementation and strategic planes are relevant according to the report. In this regard, the objectives should be identified and also the means for implementation. One point here is that according to some studies, when comparing the Swedish process to create forest policy and the national forest

programme principles, including participatory processes, Sweden to an important degree already possesses the requirements for a national forest programme (p.16). However, it is said that in relation to those principles, one of the principles that is lacking in Sweden is a specific mechanism for conflict management (p.16). Thus the idea and discussion for this national forest programme are very much linked to the goal of having a way to deal with conflicts. In this regard, the report established that:

“For Sweden to become a world leading forest nation there is the need for a social contract between citizens and forestry. Thus forest politics should start from a wider and more system oriented, societal and landscape perspective and through this reach the forest politics’ intentions in a better way” (p. 17, author’s translation).

Within this context, there are several issues concerning a way to deal with forestry conflicts and recognition that a new relation between citizens and forestry is needed. When it comes to the weaknesses of participation and cooperation, it has been highlighted that the development of national forest programmes have been recommended to solve social and economic conflicts that have to do with sustainable management and use of forests (p. 23).

Thus we have here emphasis on a way to solve these conflicts in Sweden. As the report was oriented to have a comparative view on the matter, it is said here that there are international experiences showing that one of the challenges for national forest programmes is that there are difficulties in combining different actors’ interests, which affect forestry. Thus, the comparison with other countries is used here to consider lessons that can be learnt in Sweden. Thus, when discussing prospects of a national forest programme in Sweden, it is again stated that research shows that there are some commonalities between Sweden and a national forest programme process (p. 41). Within this context, one reason to start a national forest programme process should be that that there are problems that should be solved in Sweden (p.41). This means that a national forest programme could lead to a change in comparison to the current situation. It is here that a point is made that the solution to the problems should be part of any discussion about a national forest programme (p. 42). Thus a concrete measure that is presented here is that taking into account the abstract and scientific level in which the reports have been done (assessing literature in countries with national forest programmes), it is evident that there are important problems observed concerning national forest programmes. One is for example that measures within national forest programmes are not concrete enough or that they are not realized in practice. Here an argument is that it is important to consider different explanations for such a lack of concrete

measures. Here the report identifies power relations and how they mean an imbalance in terms of the possibilities of influences among the participants within a national forest programme process (p. 43). The report also highlights that more powerful actors can be successful in creating compromises in terms of the measures. In this regard, the report adds that other problems concerning national forest programmes identified in the literature are for example clientelism and strategic actions of actors. Then the question of the objectives with the national forest programme becomes a problematic issue. In this regard, the interest of the actors is important and it is emphasised that the question of having too much space for interpretation in terms of what is to be done is also a problem concerning the implementation of national forest programmes. In the practice, the report concludes, there is a risk of too much space for interpretation about what is to be done. The report makes clear that there are differences between developing and developed countries when it comes to thinking about a Swedish national forest programme process. This is because national forest programmes have been mainly thought for non-developed countries (p.44). At this point, to look at how within the FAO system the question of national forest programmes has been conceived is relevant. In 2000, and taking into consideration the first elaborations on national forest programmes, one reads in *Unasylva* that: “At the fourth session of the Intergovernmental Panel on Forests (IPF) in 1997, consensus was reached on the definition of national forest programmes (nfps) as the generic concept for a wide range of approaches to sustainable forest management” (*Unasylva*, 2000, No. 203). Yet, in this context, the note in *Unasylva* added,

“Although there has been progress in developing and implementing nfps since UNCED, many countries are having difficulty translating these intentions into action, particularly - but not only - developing countries and countries with economies in transition, which lack sufficient resources and effective institutions. A survey of experience in the implementation of nfps in 145 countries, carried out by FAO in 1998-1999, identified the following constraints:

- lack of capacity to plan and implement programmes;
- lack of knowledge about sustainable forest management in the national context;
- resource constraints, principally shortage of staff and funds;
- poor coordination in the implementation of nfps, including lack of coordination within the country and lack of coordination among international donors;
- failure to relate plans for the forestry sector to the provisions of other sectors” (*Unasylva*, 2000, No. 203)

Now within the Swedish context in 2013, it was stated that in the group of traditional forestry countries there is a specific issue with power relations in relation to a national forest programme. Here it is argued that interests concerning forest in such countries are related to interests within the forestry sector and also with the interests of the environmental movements, hunting and outdoors life associations. As such groups have strong interests in the questions at stake in a national forest programme, this is something that the report highlights as part of thinking a national forest programme for Sweden (Forest Agency, 2013, p. 44). In concluding the report, it is stated that the work will continue, but the process needs to be related to experiences in other countries and a plan to perhaps add studies of two other countries in the analysis for the discussion in Sweden is considered.

Linked to the previous processes, the forest agency in the study area has organised different meetings within the framework of dialog for environmental consideration. Such meetings brought to the study area issues discussed in the context of a proposal for a national forest programme, social values of forests, the All Party Committee on Environmental Objectives given, and the work on visions for forestry. In this regard, these different but linked processes were connected in order to produce a meaning of this in the area (LocalEko, Västernorrland, 2013, N 2).

Here we can observe a document from January 2011, containing notes from a meeting in Jämtland, that one of the issues raised was that a common view on environmental consideration was lacking in the area (Forest Sector Meeting, Jämtland 2011-01 - Notes- Forest Agency). In another meeting, in May 2011, it was also emphasised that a common view on environmental consideration was lacking in the area. In addition, there was a desire expressed for a new polytax inventory (Forest Sector Meeting, Jämtland 2011-05 - Notes- Forest Agency). Here it was said that the role of forest politics was important and this was not conceived as a problem in terms of responsibility when it came to the realization for the forest politics. Yet it was said that it is difficult to deal with the different interpretations of the responsibility. Thus there was an emphasis on more education being necessary. These points and issues raised by actors participating in these meetings at the local level were strongly related to assessments on compliance of the forestry code emerging from the recent polytax inventory. A point here was that such discussion created disappointment to forestry companies, since, according to these notes, they were engaging in good environmental protection. Here a key point has to do with the certifications, which according to the notes imply that the number of trees per hectare considered in the different assessments can make a difference. Thus those different criteria are playing a role in the way the polytax inventory

results are finally assessed. Thus, an argument here was that it was important to work with more information and knowledge.

In this document from the local area we can see how the dialogue process was evolving at that time and also how important discursive relations present at the national level and in other periods of time were also present in the local area.

Freedom with responsibility

In parallel, to the previous processes, the All Party Committee on Environmental Objectives arrived at preliminary reports in 2012 and these were heavily contested by the forestry owners association in the study area. In 2013, issue 1 of the local forest owners association's magazine highlighted that in 2012 the report from the All Party Committee on Environmental Objectives proposed more detailed rules for forestry and affected freedom with responsibility. In page 6 it says that Norrskog said no to the proposal of the Committee (Nytt i Norrskog, 2013, N. 1, p. 6). It was added that it was a pity that the expert group chose more regulations for developing environmental considerations on forestry because this risks their own driving force and their own engagement and pride as forest owners, so they said that they were a power factor and were driving the political question in this area. In 2007 there was a mention in relation to this in which the association stated that there is no other actor within the forest sector that, as the forest owners associations, has as its tasks to look out for the forest owners' interests (Nytt i Norrskog, 2007, N. 3, p. 3). This is connected to what one can see in the roads of the areas where these forest owners associations are defending the rights of these forest owners (see pictures below).



Figure 16. Forest owner association Norrskog promote themselves as ‘Free, profitable and active private forestry’. Photo: Cristián Alarcón Ferrari.

In issue N. 6 of the association’s magazine from 2011, there was a statement that the business politics of Norrskog aim at protecting the forest owners’ interests and property rights (Nytt i Norrskog, 2011, N. 6, p. 14). In this context it is said that in different moments of the year, forestry received a good deal of criticism over its environmental consideration and that the debate was started with the polytax, which is the forestry agency’s inventory of infractions against the forestry law. Here there is recognition that this should be improved, but this is connected to the fact that for all the forest owners’ movement it is important to remedy the problems of deficiencies in the system. Therefore it is expressed that they started work with the forest agency to solve issues concerning this assessment and then to arrive at the same vision on this issue (Nytt i Norrskog, 2011, N. 6, p. 14).

The work and preliminary outcomes of the All-Party Committee on Environmental Objectives were crucial issues when it comes to the political views of the forest owners in the study area over recent years. Here, the forest owners association in the area was very critical of some of the measures discussed in this Committee. They considered some proposals for new forestry legislation as a threat to their forestry activities, interests and freedom under responsibility. One point here was that one of the reports produced in this context proposed more detailed regulations for forestry. Yet, the situation

changed later in time. Within the magazine of the forest owners association from the study area one reads in 2014 that they declared:

“In the last two years there has been an intensive activity in terms of business politics.

Several processes, investigations and working groups have been formed by the government and are dealing with questions that directly or indirectly will affect the forestry family owners’ everyday life.”

“The Party Committee on Environmental Objectives final proposal is an example of how the active business politics work has contributed to a reasonable situation for the family forestry owners.

Here we have been successful in influencing to your benefit , not least when it comes to the issue of setting aside productive forest lands and the rejection of new regulations for forestry ” (Norrskogen, 2014, N.2, p.26 – from 2014, the magazine *Nytt i Norrskog* changed name to *Norrskogen*)

Also in the same magazine we read in 2014 that they welcomed that the forest agency had informed in October 2014 that forestry activities in Sweden were taking more environmental consideration than was previously thought (Norrskogen, 2014, N. 2). The wider context here is given by a new assessment of environmental considerations in forestry in Sweden where the forest agency manifests different views to the ones expressed earlier. This was based on a new assessment on the conservation status of forests in the country. In a press release from 24 October 2014, the Forest Agency informed that taking into consideration new information provided by forestry enterprises concerning areas freely exempt from forestry (areas that land owners freely and without economic compensation exempt from forestry production), now the agency could with a safer basis re-assesses aspects of the state of the forests in Sweden (Forest Agency, 2014). Thus, according to this new information the forest agency re-assessed the previous assessment and concluded that now they knew better the real state of the forests and the agency considered that more environmental consideration had been taken in forestry, in relation to what was known previously. The agency also recognised that this was important because it showed that the authorities, the forestry sector and other interested people were now in possession of the same information. For the agency, this increases the possibilities of making safer analysis and prognosis according to one of the staff working with the forestry agency. The point here is that this re-assessment reveals how a crucial issue in this concerns information which is linked to political decisions regarding the state of the forests in Sweden. The fact that the forest agency announced this publicly caused reactions from both the magazine of the forestry owners and from a local representative of the SSNC. As we read

in the blog of an SSNC activist in the study area, she expressed being “surprised” by this but welcomed that there was good news concerning forests (Sahlin, 2014b). However, she questioned the consequences of this new assessment and one of her points was that the whole picture must also be taken into consideration. In this regard, she argued that the time and scale of this kind of assessment was important because, she argued, in many cases what is conserved today is not equivalent to what will still be conserved in the future. She added that there are a number of examples where environmental consideration is not always permanent, something that is finally very important for the assessment of the effect in the long term. She considered that for this, the forest agency should be more careful when communicating such views to the public and the policy makers.

If the association of forest owners in the study area made a positive assessment of how they affected the policy process and legislation proposal in 2014, during the same year the national organisation of forest owners was also positively welcoming how the discussion concerning forestry was evolving in the country. In this case we see how the governmental proposition on ecological diversity and ecosystem services was appreciated, since in it, the environmental minister had been highlighting the role of the dialog and cooperation with the forest owners in order to develop environmental consideration in the forest, and the organisation recognised this as a positive new trend contained in the proposition (LRF, 2014). One reason for this was that ecosystem services, and the significance of these for welfare and business, were included in the proposal. In this regard, the connection is made to climate change as well and a representative of the association also considered that the national forest programme process can open the possibility for a holistic view on the forest as resources; a direction that however needs the provision of sufficient means to work with it. Regarding the previous reports and acts of the forest owners associations in Sweden, the crucial question of freedom with responsibility we observed earlier is a crucial question to be understood. Here we will again look at this and now, with a more clear focus, understand this as a discourse and thus a process implying the communicative dimensions of any discourse.

As I mentioned earlier, a critical discourse analysis can take as terminological points of departure the processes of interdiscursivity, intertextuality and the production of discourse, taking into account the wider context where texts and subjective positions are produced. Taking into account what has been presented above, in what follows I explore freedom with responsibility as a discourse. This is a discourse which articulates meanings of forestry and assembles signs, symbols, messages and different practices

regarding forestry in Sweden. It becomes entangled with subjectivities linked to the discussion on forestry, such as those of forest companies' representatives and forest owners. Also, it implies that this view on forestry is also part of the institutional understanding of the forestry agency, which has taken freedom with responsibility as an official principle. In addition, this is even signified as tradition according to what we have seen earlier. However, we can also see how the discourse has been contested and its terms criticized. Here the expression freedom without responsibility has been used. This is a very clear way of attacking the principle in discursive terms. One example of this can be found in the media in 2011. In that year, a media article reproducing the contents of a radio programme expressly argued that the Swedish model of forestry was built around the principle of freedom without responsibility (Sverigesradio, 2011). Here a number of actors, such as for example the SSNC, were quoted and referred to, highlighting a critique of forestry in Sweden. In this regard, the issue of Sweden defining environmental objectives, such as for example biological biodiversity, was discussed by one researcher who explained that this is not possible to achieve. This has also been the case in other discussions in Sweden concerning forestry, where researchers have publicly criticized forestry in Sweden by arguing that the environmental goals were not being reached, and this was something related to the emphasis on production in forestry in Sweden. Yet, the issue of taking the words of freedom with responsibility, but transforming them into freedom without responsibility was also taken by a forestry workers union in a report from 2010, and from a rather different perspective. In this case the union considered the principle of freedom with responsibility as a cause for having too much forest that was not being utilized in the country (The Swedish Union of Forestry, Wood and Graphical Workers, n.d.). Thus, in this case there was another reason for criticizing the principle and the Union argued that the lack of pre-commercial thinning was a threat to the forest sector and forestry jobs in Sweden. For the Union, this was a threat to the growth of forests and finally, it was a threat to the Swedish forest and wood industry. Therefore, in this case the union criticized the effect of the legislation in 1993 as forest politics that were actually against certain other principles that were important for the growth of the Swedish forest sector.

In turn, the SSNC has further criticized the forestry sector in several reports from 2011 and 2013. In those reports, the SSNC has scrutinized different aspects of the forestry sector in Sweden. In one report the principle of freedom with responsibility is linked to failures in legislation. Thus, the critique of freedom with responsibility as a discourse becomes at certain points linked to the critique of the idea of a Swedish forestry model, such as for example, in the

report *Cutting the Edge – the Loss of Natural Forests in Sweden*, where one can read:

“The Swedish Forest Agency is the authority charged to ensure that forestry is carried out in a sustainable way, while at the same time preserving biodiversity. The forest policy structure is characterized by “freedom under responsibility”, where the government and the forestry industry have a shared responsibility to contribute to a durable development of society by a sustainable use of the forest. Unfortunately, the Forestry Act does not protect forests above the montane region, old-growth or virgin-like forests from being logged, nor does it guarantee that biodiversity will be preserved. The Forestry Act is focused on profitable forest production rather than on the two equal objectives of production and biological diversity. (n.d, p.6)

Then, in page 12 and under the title ““freedom with responsibility” – the reality in the Swedish forests”, the report uses field studies to sustain that

“The threat to the last old-growth forests in Sweden is very real. The clear cut-based, so-called modern forestry has resulted in a biodiversity crisis, which is indicated by the large number of forest-dwelling species on the Red list for threatened and endangered species. Natural processes, like changes in species composition in different stages of succession in the woodland landscape, have been disrupted, and large-scale rotation forestry is converting the natural forest ecosystem into a large mono-crop of export timber “ (n.d. p. 25)

Another report, *Under the Cover of the Swedish Forestry Model* (SSNC, 2011), uses case studies to show the areas where companies have not complied with the standards within the forest certification of the Forest Stewardship Council (henceforth FSC). These case studies are the basis to show that there are important infractions against the rules of forest certification, a tool of environmental governance that has become important in forestry in Sweden. One case is from Jämtland and here it is used as a probe that the forestry company SCA was breaking these standards. The details of the case are given and also another company is linked to the infraction against the environmental regulations in Sweden (p.15). In this case it is announced that after a field visit, the SSNC documented impressive findings of different red-list species in the area and the report states that the company had failed to recognise the value of this when planning to log there and no environmental consideration was in place, though red-list species were found there. The report asked for the company and for the forestry industry to take “full responsibility in preventing the depletion of the national forests of Sweden and called for a moratorium on logging of any forest with documented high natural value” in order to enable

the fulfilment of national the goals for protection of biodiversity and fulfil international agreements” (p.29). Later, in 2013, and in the context of discussions on the effects of forest certifications, the same organisation issued a report in which it was highlighted that the forest certification of the FSC was failing to save forest biodiversity in Sweden. Here the question of woodland key habitat was a main issue. At that time, the SSNC had left its membership on the board of the FSC. What is interesting to note here is that the SSNC assessed its participation in the formation of the international certification by highlighting that in 1995, together with WWF Sweden, they took the initiative for the first standard and invested considerable resources in it (SSNC, 2013, p. 5). However, the documentation of infractions moved the SSNC to leave the board of the FSC in 2008. The report is again largely based on case studies. Again the area of Jämtland has an important place. Here a company owned by Stora Enso, Bergvik Skog, is denounced for not considering woodland key habitat. Eventually Bergvik Skog lost part of its FSC certifications in 2014. The report takes different criteria within the FSC in relation to certification in Bergvik Skog and SCA and the SSNC shows that they were violating those criteria. In the language of the SSNC, there was a positive aspect of certification as an instrument for companies and business, yet the SSNC recognizes that its field surveys for many years have demonstrated that FSC certification does not measure up to its promises. As we have seen above, the question of FSC standards in Sweden became an important articulating point in forestry relations in the country. In addition, in other cases, the discussion on FSC also brings issues of climate change into the discussion. In 2008, for example, SCA’s magazine *Din Skog* informed about a critique against the forestry company SCA concerning FSC standards and they expressed that they were taking the critique with responsibility. However, they stated that this did not mean that the issue was settled. They emphasised their interest in working with forestry that protects forests’ biological diversity but they said that the forest is also related to several other different environmental questions too. Thus, the role of Swedish forests in taking and sequestering CO₂ was highlighted here and so forests, it is argued, have a role in solving the climate change question (*Din Skog*, 2008, N. 1, p. 2).

Within the context of discussions on freedom with responsibility, the issue of property rights has become crucial. In this context, we can note that when the new CEO of the Federation of Swedish Farmers took his position in 2009, he was clear in saying that he was taking the struggle for property rights. Here he gave his view on forestry and property rights by saying: “property rights of particular individuals who take their own responsibility for their property is extremely important within a welfare society. When the interests of society are

stronger than the interests of individuals, society still needs to show respect, find solutions and not run over this person like a steamroller” (Vi skogsägare, 2008, N.4, p. 8).

Within the previous context, it is useful to look at the relation between freedom with responsibility and what is understood as The Swedish Forestry Model. We can look at how The Swedish Forestry Model is presented in a brochure from 2009, one of the many brochures where the history of the forest sector in Sweden is officially depicted and the national forest policy principles are also presented. Here one reads:

“The new forest policy, which took effect in 1994, was influenced, above all, by the wish for greater liberalization in the business sector and the need for greater attention to conservation issues in forestry. The policy structure was changed from one characterized by the imposition of regulations, to “freedom under responsibility” based on management by objectives. Two overriding goals of equal status were formulated: one for production and one for safeguarding biodiversity.

One principle underlying the new policy is that more room should be afforded in the market for different forest products and services. Both the levy on forestry and the associated subsidies have therefore been abolished. In addition, forest policy and legislation now apply equally to all forest owners.” (Royal Swedish Academy of Agriculture and Forestry, 2009, p. 6)

This statement of this principle was made in 2009 and is still available in the online version of the official presentations of the forestry model in Sweden. Within this context, it is also useful to connect this with the internal environmental policy within the forest agency from 2011. Here it is stated that the forest agency “leads the development for forest for sustainable development and that the forest agency works according to the citizens’ interests in order that all the values of the forests are in good balance” (Forest Agency, 2011a)

We can observe how the previous texts are located in period of intensive textual production concerning the idea of freedom with responsibility in Sweden, the role of forest certifications in environmental governance, and also issues concerning climate change and forestry. Within this context we can further explore issues concerning a journalist’s intervention in the forest question in Sweden and the series of environmental communication practices it catalysed.

The discussion on forests obtains increased media attention

Important issues included in the reports and processes presented above were present in Maciej Zaremba's intervention in 2012. A point to be highlighted here is that Zaremba at crucial points writes about "our forest", and refers to the fate of the forest in Sweden by bringing an assessment of the lack of protection of the forests and makes a connection between the state and companies in plundering what for him is a "common resource". In his critique, relations are made concerning the links between forest companies and the state. Zaremba's articles are at certain points based on historical accounts, in which he brings previous examples of how the power of forest companies has really played an important role in defining the terms of the forestry in Sweden. He also made a clear connection between how in his view the forest agency has grown along with the forest business, in a way that for him would be unthinkable in other economic sectors. He uses interviews with different actors and his arguments are very much about the relation between the law, institutions, and the companies in the forestry sector. There is an important component of class analysis in Zaremba's articles too. The rationale of the series of articles is strongly based on concrete cases, where issues of legislation and issue of power of different sectors are highlighted to define the contemporary situation with the forests in Sweden. Zaremba's series of articles raised three important issues for the purposes of an analysis focused on environmental communication and political ecology relations concerning forestry in Sweden. One was that Zaremba met different questions in an online open chat organised in the newspaper that published his articles. In one of his interventions after the articles were published, and when asked about the issues he raised, he clearly stated that,

“..this is a political question and forest politics has not been questioned seriously and maybe it is the time to do that” (Zaremba, 2012)

Yet, we can see that there was an important activity by NGOs raising important questions concerning forestry in the country prior to Zaremba's intervention. The second thing has to do with the issue of Zaremba having being criticized for his views on forestry in the country. Here the level of accuracy in Zaremba's criticism was raised. For that a number of actors went on to say that he was not accurate, that there were exaggerations in what he had presented, and others said he was wrong with his views on how forestry legislation works in Sweden. The third thing is that this discussion led to a discussion on climate change and also the management of the forest. Here there were scientists that intervened in relation to the intervention of the then Minister of Rural Affairs

who argued that clear-cuts were a climate smart way to use the forest. Here there were different reactions in this regard. A business leader supported the minister. However, other scientists questioned the role of clear-cuts as a climate smart way to deal with the forest and in relation to climate change, and other scientists questioned the assumptions of the scientists criticizing the view of the minister. In many ways this case shows the complicated relation between science, climate change and forest use in Sweden today, and in our terms this shows how political ecology and environmental communication relations interplay here.

Here we can conceive the discussion concerning Zaremba's articles as a crucial discursive event that took place in 2012. Yet, the political question Zaremba put into the discussion was not isolated from the wider scale in which forest politics are played out in Sweden. We can see this in looking at how 2012 was also the year of a consultant report submitted to the Swedish All-Party Committee on Environmental Objectives which gave insights into the Future Swedish Forest Policy Process. The report by Professor Sten Nilsson gave a number of insights into how the policy process concerning forestry should be reformulated in Sweden (Nilsson, 2012). In this regard, two important points are relevant in this analysis. One is the comparative approach it used to look at national forest programmes in other countries. Here, as a part of the report's global outlook, the following view on conflicts was expressed:

“Forestry is a hot topic not just in Sweden but in many other countries. Conflicts between different stakeholders of forestry have been common in many counties during 20 to 30 years of time” (p. 32).

The other point is that for the author of this report, it is important to see how the country deals with the policy issues and conflicts, and a point is made concerning the fact that conflicts are an important driving force for the development of forestry and the forest sector:

“Conflicts are an important driving force for the development of forestry and the forest sector. A completely conflict-free forestry may contribute to a stagnation of development” (p. 32)

Contrasting with this view on conflicts of forestry in Sweden, another view in Sweden implicitly avoids talking about conflicts of forestry in the country, as an activist in the study area expressed after participating in a seminar on conflicts in relation to forestry (Sahlin, 2014a).

In the context of the forest debate in 2012, forest agency staff in the local area noted that this opened possibilities of having different views on forestry.

In this regard, forest agency staff noted that in the debate the forestry branch must be better at communicating with regard to how one works, the significance of forest as a space for recreation and also from a social-economic perspective (localEko Norra Södra Jämtland, 2012, N. 4 p. 1). Also, in this context a point was made concerning the importance of forest owners in relation to adapting forestry to their own objectives and that there are possibilities in the forestry law to have continuous cover forestry as a possible forestry practice. Thus, the issue for debate mentioned previously became an issue in the very local area represented in this intervention in the local magazine of the forest agency.

During 2011 other academics were also dealing with the issue of the conflictive situation of forestry. One of the issues here was the debate of the forest's role in climate change, in which it was highlighted that there were two competing understandings. One argued for a reduction of logging activities to build up large timber storage as carbon sequestration, and another view sustained that the forests in the country should be used to produce more bioenergy and biological products (Skog & Framtid, 2011, N 1, p.4). In addition, it was said here that a group of experts had a common understanding concerning the important role of forests in relation to climate change work, and the starting point here was that the need for services and goods was not going to be reduced, and on the contrary it will increase, which requires solutions in the long term (p.5). Therefore it was argued that increasing forest growth and increased use of biological raw material was a way that may lead to sustainable development, but it was also pointed out that it is important that the resources are used as smartly as possible. Finally it is said that a big challenge is to manage this without producing negative effects on biological diversity and other values of the forest (p. 5). The discussion was getting to the roots of the challenges facing forestry in Sweden. Elsewhere a researcher highlighted the importance of forestry actors taking their responsibility to develop nature consideration, which was required in the forestry laws and the certifications (Skog & Framtid, 2011, N 1, p. 15). Here it was expressed that there is good knowledge in order to have environmental consideration so it is a matter of applying the knowledge in practice. This assessment is made in the context of new methods to take nature consideration into forestry operations. So an important point here was the issue of the gap between knowledge and what is done in practice. Then it was expressed that there are positive signs and question marks in relation to nature conservation (p.20). This was based on studies on general nature consideration in recent years and again this is a point in the increasing debate about this as a way to assess the state of forests in Sweden.

In another issue of *Skog & Framtid*, n. 1 from 2012, we see that the Swedish forestry model was under discussion. The assessment was that the model had been in existence for more than 100 years and there had been important changes in the context that made it necessary to rethink the model, for example how the forest's role as a source of energy had grown recently and also how it was important to consider world climate concerns (Skog & Framtid, 2012, N. 1, p.12). Therefore, the future is discussed here in terms of more effective but also more differentiated forestry (p.13). In issue N. 2 of 2012 of the same magazine there was an assessment of the debate of forest environments throughout history, and here the different debates that had taken place in Sweden were divided. The 1970s, for example, was considered an age of protests. Here, 1993 was identified as a year of an international debate on forests which preceded the time where issues of biological diversity marked the debate. In this regard, the current time was identified as one of a debate where new factors are being taken into consideration (pp.4, 5). Here it is emphasised that the Swedish model of forestry is under scrutiny. In taking into consideration the 100 years of the Swedish model, it was sustained that analysis of the strengths and weaknesses of the model were needed, and here it was important to have a tool for decision makers to work with trade-offs and look for a balance between the different interests on forestry and revealing alternative ways to move forward (p. 2).

Within this context, one can observe the task of knowing the real state of the forest in Sweden became an important issue in the discussion, and here different scientific ways to look at the questions contributed to the question of producing a different understanding of the real state of the forest in Sweden. In this regard, one proposal from academia has been to develop models to enable priorities to be given to different measures for nature conservation in different parts of the forest landscape, which means perhaps to accept less consideration in certain areas and take more consideration in others. In this regard it was argued that it was necessary to have more effective instruments that could lead to a point where everyone's wishes can be included in all aspects of sustainable forestry. Thus how to establish priorities and where to put emphasis on forest conservation are the issues at stake here. Interestingly, as we saw earlier, during the forest festival in 2010, one important issue was to discuss *the real situation of the forests* in Sweden.

Regarding the questions presented above, the question of legislation and forestry practices has gained important attention and motivated the interventions of different actors. For example, in SCA's magazine *Din Skog* from 2011, issues of legal certainty concerning forestry were highlighted in the context of the forest agency's Polytax inventory, indicating that more than one

third of the final felling violated the legislation and the requirements for environmental consideration. Here it was said that there was a problem in the way that the forestry agencies carried out these assessments. It is argued here that one problem was the lack of clarity of the forest agency's methods (Din Skog, 2011, N.2, p.2). In this context it was argued that the role of the forest agency should be to help the development of Swedish forestry and not operate on weak grounds which undermine the trust in the forest owners of the country. As we have seen above, the forest agency was also one target in the critique of Zaremba whereas in this case the forest agency faces criticism coming from a forestry company, one year before the articles of journalist Zaremba,

As we saw earlier, the Forest Kingdom project was a key process in the study area in 2013. During that year the Minister of Rural Affairs, in a interview for *Skog & Framtid* evaluated the project and he highlighted that this aimed at increasing production of biomass and more biological products, which was a priority for the government, which considered this along with effective forestry as a key factor for a successful transition to a sustainable society. He argued that through the project, 60 million Kronor were being invested during three years of research, environmental consideration and to increase wood production. He mentioned that there were different projects to deal with the role of forests in society and one was the effort to approach young people and schools with messages about forestry (Skog & Framtid, 2013, N. 1, p. 24). In the study area, one can see how possibilities concerning alternative forestry practices as an issue addressed by two representatives from the forest agency (LokalEko Norra och Södra Jämtlands, 2013, N. 2, p. 3). They argued that though there is knowledge about this, it is not used. In this case they highlighted the need for communicating to forest owners the fact that there were different forestry management methods that could be used. For them, the forest agency could give forest owners this knowledge within the framework of the Forest Kingdom project, and they considered this project as a way to deal with these new questions concerning forestry (p.3). Here we see how the relation of the Forest Kingdom project and the possibility to have new forestry knowledge within this context was being produced. The same year a point was made concerning increasing work to support the application of the forestry law and also that the Forest Kingdom project and the EU funded programme (landsbygdsprogrammet) were instances to offer development of competences (LokalEko Norra Södra Jämtland, 2013, N.1, p. 1).

Within this context we can move into a further exploration of climate change issues. When it comes to climate change and forests, the SSNC again sustained its political work in a report that dealt with climate change science and put the management of boreal forest at the centre. The report, to manage or protect - the

boreal forest from a climate perspective (Olsson, 2011), claims that there are serious objections to following a strategy focused on more intensive investment in forestry to create sequestration of carbon. Here the report refers to studies showing that there are significant risks, such as for example, infestation by pests which leads to carbon emissions. Thus the report puts in question the taken-for-granted idea of management of the forests in a way that implies more harvesting for the purposes of climate change. In this regard, it is emphasised that an important measure is to reduce paper consumption while keeping harvesting at the same level (p. 42). This, according to the report, would have a positive effect and there should be forestry oriented towards a higher use of timber and fuel, with the aim of reducing emissions associated with production. At the level of the study area, efforts are also made to create a meaning of forestry in the context of climate change. For example, practical ways of dealing with climate change were part of the information distributed by LokalEko. In one case, the views of a forest owner and his approach to spreading the risks in relation to climate change were presented. He is quoted as advising other forest owners to plant different trees, such as for example, hybrid aspen as an approach to combating climate change. Also, his experience with *Pinus contorta* (lodgepole pine), is highlighted in this context (LocalEko Norra och Södra Jämtlands, 2012, N 2, p. 6).

As we saw earlier, the forest fire close to Sala in 2014 began to create a new basis for a reformulation of the terms of the discussion on forestry in Sweden. The fire in Sala was a national event and we have seen how it created different post-fire discussions. Two important discussions related to climate change and future land use in the area. When it comes to climate change, we can see that post-fire media coverage and opinions on the issue were directly connecting the fire to climate change. For example, on 3rd September, a special report on Swedish radio highlighted that it is expected that the climate would become warmer and scenarios show that there are increasing risks for forest fires in a warmer climate (Sverigesradio, 2015). Here, and quoting an expert on the topic, it was also demonstrated that there were reports showing this connection between climate change and forest fires. In the report, it was asked whether the sub-contractors working for companies should maybe have large capacity water tanks with them in the forest where there are high risks of fires. Also, questions concerning the need to start considering planting of less inflammable trees were raised and in this regard a similar view was expressed by a leading science journalist in the country (Bojs, 2014). Connected to the discussion opened by the forest fire, there were also disputes and criticisms about the political use of the fire. This happened for example when the Green Party was criticized for engaging in a “climate change game” with the fire. In this case, the then Minister of Defence argued that the critique regarding the lack of

resources available during the fire was unfair, and that it was cynical and not in good taste to use such a situation to drive party politics (Miljoaktuellt, 2014). Here the dispute was centred in the availability of planes for combating the fire, as they were no such planes in Sweden and one had to be transported from Italy to tackle the fire. As we saw earlier, another issue that was important in the discussion was the proposal by a number of scientists to create a large natural reserve in the area affected by the fire. For them, the goal with this was, among others, to protect nature. What I would like to highlight here is that at some point, the economic discussion gained a prominent place. Also in a very important way, the issue of property rights was highlighted from the side of the land owners, who in one of the open letters that became part of the debate, asked for respect for the basic and protected property rights in the country.

The fire motivated a special governmental directive in order to explore lessons for the future emerging from this (Swedish Government, 2014). Therefore, the task in the directive is to see how society can be prepared for this situation, and what actors must be involved in such a process. A question is presented as a question of crisis and a statement is made concerning the need to have adequate means to deal with such situations. Here the idea of working from the local to the regional and from national and also including work at the level of the European Union and international work is highlighted. The directive recognised that the affected actors here are the people living in the area of the forest fire and therefore it establishes that it is important that the questions concerning the preparedness for this kind of crisis in terms of land and forestry are to be considered in all their aspects when it comes to society's preparedness for crisis. It is expected that this will create what the report sees in terms of considerations about what is needed in a changed climate and how to deal with it (p.3). As mentioned earlier, the connection between forestry operations and the forest fire in 2014 was a key aspect in the discussion. Yet this is not the first time that such a connection has been discussed. We can read in the magazine of what at that time was the forestry and timber workers union from 2006, where the company SCA was denounced for having responsibility in a forest fire in the area of Östersund (SIA, 2006, N. 9, p. 45). According to the magazine, there was a big forest fire originating in soil preparations at that time. Thus, this was similar to the forest fire in Sala in 2014. There were opinions saying that this was a catastrophe and no-one understood what SCA was doing at that time. The SCA representative in the area defended the company saying that it was an entrepreneur and sub-contractor who decided the level of fire safety. SCA's representative is quoted as saying:

“I know that when we had our own machines we did not use them during the drought” (p. 45)

By bringing this news from 2006 we can make the point that there has been this issue of forest fires caused by forestry operations before, but also that the issue has in the two cases concerned sub-contractors. This creates an issue of responsibility as in both cases the responsibility was put in unclear terms.

To close this text-based reconstruction of relevant aspects concerning forestry in Sweden, we will take three issues in relation to all that has been presented above. Two of the issues concern new issues put into the discussion by The Swedish Forest Industries Federation concerning transport of forest resources and how this appears as an issue along with climate change, and here we will mention the context created in the study area with the European spruce bark beetle during recent years. The third issue has to do with questions concerning the SCA forestry company and global relations with regard to the previous discussions.

In 2014, The Swedish Forest Industries Federation published a magazine with the title *Our New Forestry Industry* (Vår Nya Skogsindustri, 2014, N1). Here the representative of the federation expresses the view that the sector has a fantastic raw material with a great potential. Within this context one of her main points was that the Swedish forestry industry is a world leader (p.8). Yet, to face competition, the industry is proposing some changes concerning forestry in Sweden, one of which relates to infrastructure. In this regard she argued for a change in the regulations that limit the forestry trucks' transport capacity to a maximum of 60 tons. In this regard she expressed the interests of an increase in capacity to 74 tons. Another petition concerns changes in the kilometre tax. In addition, she expressed concerns that the EU rules in 2015 would mean cheaper transport costs for producers in other parts of the world. We can note here that the question of improving transport conditions to make the circulation of wood and forest resources more quickly, has been faced within the forestry industry in other ways too. For example, SCA has concentrated efforts to give better education to the truck drivers to make the transport of timber more *effective* (Din Skog, 2007, N. 1, p. 14). *In Our New Forestry Industry from 2014*, the representative of the Swedish Forest Industries Federation also highlighted climate change as an important issue, which was framed in terms of our time's biggest challenge and for which the forestry industry is an important actor, as in this context it has great possibilities to use forests in different ways. In the same magazine, the rector from SLU also refers to the fact that Swedish forestry, and its products, reduces emissions of CO₂ equivalent to 60 million tons of CO₂ per year (p. 2).

Going back to the study area, we can observe how during 2014, a LokalEko in the study area reported about the damages caused by the storms, which continued being an important problem. Here, as in issue number 1 of the same year, the risks are highlighted again (LokalEko Vätternorrland, 2014, N. 2). In this regard, the situation is framed in terms of a crisis in with the storm Ivar in focus.

Dimensions of world forestry

As seen above, we have reconstructed important processes concerning forestry in Sweden by referring to the SCA's magazine *Din Skog*. The magazine is an attempt to create a communication link with forest owners in Sweden and it also express the political views of the company. One important role of SCA in relation to forestry in Sweden is its work with *Pinus contorta* (lodgepole pine) plantations. In 2009 an evaluation of *Pinus contorta* (lodgepole pine) plantations was offered in the SCA magazine *Din Skog* (Din Skog, 2009, N.4, p.p. 4-5). Here, and in the context of thinning of plantations, SCA showed that it had substantial experience with *contorta*, as it first tested with plantations in the 1960s and today (in 2009), the company had around 300,000 hectares of *contorta* on its land, which was half of the Swedish total with this tree species. It was highlighted that this was the equivalent of a wood volume of around 100 million cubic metres in final fellings. In this regard, it was expressed that SCA had general knowledge about how the best possible value of *contorta* could be obtained. Here the growing rate of *contorta* was compared to the Swedish pine to show that the growth of *contorta* was 40% better. It was concluded that after 40 years growing *contorta*, they could show that a larger number of plants survive the first sensitive years in comparison to the Swedish conifers. In this regard it was stated that the *contorta* are planted closer to each other, and thinning must be carried out earlier and with more care. The case of SCA's *contorta* plantations is important in the study area. For example, two forest owners interviewed during the fieldwork planted *contorta* following the example of SCA. Also in relation to better tree species, SCA informed the same year about Power Plot, a new seedling created by SCA that was named as a result of a competition among the readers of *Din Skog*. The seedling was described as a seedling that makes growing, transportation and plantation cheaper, as almost double the number of plants can be transported in the boxes used for this purpose (Din Skog, 2009, N. 2, p. 25). In 2007 in *Din Skog*, it was emphasized that work with the forest owners through a programme called plus-value and plus-felling was in place. This was linked to a new approach to forestry where SCA offered forestry operations under the standards of FSC (Din Skog, 2007, N. 1, pp.4-3).

Yet, besides the forestry activities of the SCA company, SCA implies the agency of powerful people in Sweden. Within this context, an important scandal involved SCA in 2015, when one of their CEOs and one of the most powerful actors in the business associations in Sweden decided to leave his position after it was revealed by newspaper journalists his use, for personal purposes, of SCA's company jets and facilities to go hunting. The scandal was widely covered by the media. In a radio programme on 22 January 2015, one of SCA's employees expressed that this was unacceptable and that the behaviour of this CEO contrasted with the conditions of work in the company that were "tougher and tougher" according to him (Ekot, 2015). This scandal showed that the connection between wealth based on forest resources and forestry workers' working conditions became an issue in this context. Here we can recall a comment made during the context of the forestry workers strike in 1975, in which it was said that the forest companies had resources that according to the workers belonged to the Swedish people as a whole. In this context, they called for mobilization against an adversary that according to the striking forestry workers was strong as "they can put all the Swedish capitalist system against us, they control large areas of our natural resources and all the industries, large banks and multinational capital. In addition they have direct and indirect influence in the mass media, but we have a force that cannot be stopped, it is workers' solidarity" (Arbetapress, 1975). In contrast, in 2015, media journalism played a key role in affecting the power position of a large forestry company's CEO in Sweden.

In closing this section, I will take some relevant issues concerning the question of world dynamics of forestry in relation to Sweden. Here I will take different issues to illustrate the levels at which these relations are formed.

In the *Vi Skogsägare* magazine we note that the forest owners movement was in 2008 working very much at the international level, addressing questions concerning forestry and energy in the EU in Brussels (*Vi Skogsägare*, 2008, N. 2, p.62). At the same time there was a request for the prices of forest energy to be increased (*Vi Skogsägare*, 2008, N. 2, p. 1). Here climate change issues were very much present and it was said that the forest owners were crucial in this context, as they have a resource that is important and growing (*Vi Skogsägare*, 2008, N. 2, p. 62). In the same period, Russian restrictions for timber exports were linked to the closing down of the Norrsundet pulp mill. At the same time there are quotes of the influential academic Sören Wibe, the founder of the *Journal of Forest Economics*, saying that according to the history of the last 40 years, the forest has protected its position among Swedish industry. Therefore, the views on threats and catastrophe scenarios have never become true (*Vi Skogsägare* 2008, N. 3, p. 38).

However, the assessment of forests in Sweden as having a protected position concerning their role in economic development has been challenged. One example of this is a forestry innovator interviewed in Din Skog in 2011, who mentioned that one problem in the forestry branch in Sweden is that everyone thinks that everything is done. Yet, he argues, nothing is always clear. Thus he added that the forestry industry should put more efforts into development. On the contrary, he continued by saying that countries such as Brazil will win. Here we have a clear example of Brazil presented as a source of problems (Din Skog, 2011, N. 2, p.30). The fears of this forestry innovator contrast with the attitude of other innovators in Sweden who have considered the potential for Swedish forest technology not only in Brazil but in other countries of South America, including Chile.

In 2006 a delegation from Sweden consisting of representatives from technological companies was visiting countries in South America where possibilities for these companies were found in the continuing growth of the South American paper and pulp industry. They visited among other countries Chile, together with Argentina and Brazil. At this time, the South American pulp and paper industry was strong and there were signs that it was to continue expanding, so they said that though Chile and Uruguay are new leading suppliers of pulp to the world markets, the question was whether the industry would become more integrated through increasing production of paper (Skogssverige, 2008).

The travel of this delegation coincides with the governmental report Mervärdesskog from 2006. Here it was stated that the Swedish forestry sector faced a context of global competition where pressure was coming from production of pulp moving to, among other areas, South America (p. 354). The discussion about the closing down of the pulp at Norrsundet, owned by Stora Enso, in 2008, which for some actors was caused by Russian restrictions and for others the organisation of Stora Enso, motivated a proposition to the Parliament in order to look at Swedish companies' actions in other countries where one of the reasons was to examine how the closure of pulp mills took place at the same time that companies were participating in building capacity in South America, Asia or Eastern Europe and Russia (Ceballos *et al.*, 2008). They referred to the situation created by Stora Enso when it was closing down Norrsundet and at the same time had a project with Veracel in Brazil. Therefore, the issue of the controversies of this investment was highlighted and the proposal was to create an investigation to identify the social and environmental requirements for companies from Sweden moving to other countries. During that time there was considerable media coverage about how this global development and the building of pulp capacity had historically put

pressure on the pulp mills in Sweden. A contrasting view has been sustained by some forest owners' representatives who have mainly considered that international markets are a possibility for the export of Swedish forest resources. As one example of this, we can see how in 2002 a forest owner considered that Sweden was receiving a positive view in the international forest debate on forests, which he considered to be one of the best guarantees for Swedish forestry products in the future, since it allowed Sweden to hold a strong position in the markets (Vi Skogsägare, 2002, N. 3, p. 58).

In closing this part, one can make a final mention of the fact that forestry questions motivate actions of influential persons in Sweden, who also have important political roles globally concerning forestry. One example of this is the case of the former prime minister of Sweden, Göran Persson, who gained increasing attention in the forest owners' movements, as he took up a board position in the state-owned forestry company Sveaskog after leaving his position as prime minister and also became a forest owner (Persson also became the president of high-level discussion and information-sharing forum "ThinkForest", created by the European Forest Institute (EFI)). Concerning climate change issues, interviewed in Vi Skogsägare in 2008, at one point he expressed the view that it was not easy to simply take for granted a positive relation between climate change and the forest. He made the point that though the growth of the forests could be bigger, this could also mean other problems such as storms, fires and insect attacks. Thus, he expressed the view that there are no winners in climate change (Vi Skogsägare 2008, N. 1, p. 8). On the other hand, Persson has argued that the critique of lack of environmental consideration in forestry in Sweden is an "unfair critique" (Persson, 2013).

Here we see another dimension of how the processes of producing discursive relations concerning forestry take place in Sweden today. Here we can say that at important points there is no homogeneity in the way that discursive relations between climate change and forestry are formed in Sweden. Here we have a case of interdiscursivity too, which shows how the positioning of subjects is related to the conflictive nature of environmental communication and political ecology concerning forestry in Sweden.

What I have tried to show above are some of the relations through which a certain discourse on forestry and forest use develops. I have tried to show how the discourse on freedom under responsibility, as a discourse, operates through what I have conceptualised in terms of environmental communication practices. Within this context, the conflictivity I have mapped here is then very much linked to those practices. Within this context, when it comes to the emerging discussion on forests' social values, the question of value gains a material and communicative historical meaning here. In the terms I have

developed above, this is certainly a question that I would theoretically put in terms of use value and exchange value and contradictions. Here, within the terms of commodity production with forest resources in capitalist forestry in Sweden, the communicative dimensions of forest use are then entangled in the process that Marx conceptualized as commodity fetishism. This is also a question of conceptuality, as elaborated in the terms of Adorno and presented above.

In closing the chapter by showing a number of global questions concerning forestry and its communicative-material dimensions in Sweden, I now wish to move forward the comparative exploration sought by this thesis.

In what follows we will see how there are some important and deep connections between forestry development in Sweden and forestry development in Chile.

6 Chile, Sweden and World Forestry Relations

6.1 Introduction

As a way of introducing this chapter, I will summarize what we have seen in the previous two chapters where we reconstructed trajectories of forestry and land and forest use in Sweden and Chile. We have seen that in the two countries, important contemporary forestry events are associated with climate change and the global situation of forest product flows. This has implied in Sweden a rethinking about the future of pulp mills and forestry and in many cases, as pulp mills have been closed down, uncertainties about the future of that specific sub-sector of the forestry sector have emerged. We have seen that within this context the need to find new products for forest resources has meant efforts towards technological and knowledge production. This has become linked to the need to connect those developments to the meaning of forestry within forest owners' activities. We have also seen how climate change has been introduced into the forestry discussion in both countries and at the same time we have seen how the recent events with storms and forest fires have created new discursive arrangements for the understanding of the more concrete links between climate change and forestry. In the case of Chile, we noticed also how a forest fire led to discussions about forestry development in the local area and recently at the national level the discussion has been developed again, now by taking into account a forest fire near a major city of that country. We also observed that in Chile, and because of new needs within the industrial forestry sector, there is a focus on the participation of small forest owners or landowners in forestry development. This has been observed in the case of reforms to the system of forestation subsidies and also in the efforts of forest companies to approach the small landowners and in one specific case we highlighted how a so-called clean production agreement is being used as a

contract for producing the relations between large companies and small companies. Also in Chile, we reconstructed how in the case of climate change, the arrival of REDD projects and the combination of carbon markets and forestry practices has created a new context for the understanding of forestry and forest and land use in the area. Here we noted that the understanding and interpretation of climate change has created contestation and different views on what should be done in this context.

From a historical perspective one can observe that the Norrland committee and the forestry legislation from 1903 in Sweden were parallel processes to the commission on colonization in Chile and Chile's forestry legislation from 1916. Yet, whereas the Norrland question also focused on the need to deal with the migration of peasants from Sweden, the conclusions of the commission in Chile aimed to regulate the inflow of immigrants, and so it recommended ending the official policy of attracting immigrants to the country. However, for the commission in Chile, the already initiated process of migration to the country could continue as the interests for migrating to Chile had already been shown. In addition, the commission on colonization proposed measures to reinforce the right of the state to give new land to colonists in southern Chile and so also to deepen the process of colonization. Coincidentally with the work of these two commissions, forestry legislation in both countries at that time aimed to deal with the double goal of facing overuse of forest resources and also to ensure the growing of new trees in both countries. In Chile that was an important step in the tree plantation systems we have analysed earlier.

During the 1970s, a new parallel process took place in both countries. In Sweden a new commission set to investigate issues concerning the future of forests and forestry was established in 1973 and the results of its investigation were made public as the Government Public Investigation in two volumes in 1978. In the directive to carry out the investigations, and amidst a clear focus on production goals, state support for forestry and environmental issues were considered as well (SOU:1978:6). In trying to address the future of the forest, the directive also added:

“...woodlands will be used with the perspective of the best for society” (p.11).

In Chile, as we saw above, the DL 701 was passed in 1974 and aimed to ensure the future development of the forestry sector via the intensification of tree plantations.

For the purposes of the presentation, Chapters 4 and 5 presented forestry in Chile and Sweden separately. Now in what follows we will reconstruct historical trajectories of interrelations between Chile and Sweden and we will

keep in mind the concept of world forestry as the articulating concept to guide our presentation.

6.2 Plantations in Chile, knowledge from Sweden

When reconstructing the trajectory of forestry in Chile during the second part of the 20th century, the Chilean Forest Institute (INFOR) regards Chile as a country where a clear path for forestry development was taking place and in which pine plantations were a key component (INFOR, 1999). Here the experience of plantation forestry in Chile and the development of the industrial forestry sector for exports in the country are regarded as a successful experience. Today the role of Chile in the global pulp markets is based on the existence of large plantations of pines and eucalypts and large companies producing pulp through a network of forestry relations.

Radiata pines were the main tree species used in the first efforts to develop industrial and large-scale plantations in the country. It is in this context where we find a fundamental connection between Chile and Sweden. In fact it was a Swedish professional working for a private company in Chile who was in charge of the industrial pine plantation in one of the first forestry complexes in the country. Details for this are given in a book published by the Chilean Wood Producers Association (CORMA) in 2002 and in the context of the association's celebration of 50 years in existence (Bluth, 2002). Here we read that in 1947, and in the context of the beginning of industrial paper production in the country based on wood pulp, the CMPC company began operations of its forestry division, namely, *Forestal Mininco*. This company took the responsibility for managing land and woodlands to supply raw materials for CMPC. The forestry department within this company was led by the Swedish engineer Pablo Agren. Talking about the participation of Agren at the beginning of industrial tree planting in Chile, Fernando Léniz, a former representative from CORMA, and who eventually played a crucial role in the enforcement of DL 701 in Chile when acting as a minister in Pinochet's dictatorship, remembered Agren as follows:

Pablo Agren brought to Chile forestry technology and knowledge from Sweden and he was one of the great pioneers of pine planting in Chile (p.77)

For Léniz, Agren's vision was a very valuable contribution to the Chilean forestry industry. What we have here is an early example showing how at the basis of pine planting in Chile there was Swedish technology and knowledge that was transferred to the country by a Swedish engineer. In the same period of time, and because some Chilean professionals were part of the work on

forestry realized by FAO, the participation of Victor Bianchi in discussions about the development of world forestry were noted in the FAO journal *Unasylva*. There, one of Bianchi's contributions reviewed was his book published in 1947 aimed at dealing with erosion. The full title of the book is *Erosion - the cancer of the soil*. What Bianchi did in his book was to collect data and studies conducted in countries such as Switzerland, Sweden, Canada, Mexico, the United States, Peru and Chile on the topic of erosion. Importantly, the book was published by the department for forests, land and colonization in Chile. In the book, he tried a comparative assessment of policies and politics concerning erosion and he specifically dealt with what he conceived as remedies for erosion (p.17). He expressed the view that taking into account the knowledge produced in Switzerland and in universities in North America, and legislation in Sweden, Norway and Canada, one could arrive at the same conclusion:

“The soils in lands that have an inclination higher than 18 degrees cannot be cultivated. It is necessary to use those lands for forestation and the cutting of trees has to be rationalized” (p. 17)

He made this arguments thinking in the Chilean context and it is here where he took the case of Sweden to state:

“Sweden was the first country that took administrative steps in this regard. The way that the law was passed in the country forces the owner of forest land to use it only for those objectives” (p. 17).

Bianchi emphasized that this ensured an appropriate number of trees in those lands and he continued the analysis by stating that the exploitation of trees should be done by marking the trees that should be cut and so the young species would remain in the land, which can provide timber for the future. He stated that in this case, “*if a forest is destroyed by a fire or an insect or a storm or another calamity the owner is equally forced to replant*”(ibid.). He summarized the lesson he extracted from the Swedish example by proposing:

“This wise legislation, which aims at the conservation of the forest wealth of Sweden as well as the soil that the trees defend, resulted in important and brilliant economic results. The prosperity of this Scandinavian country is based to an important degree on the forestry industry and its related products” (ibid.)

Then Bianchi stated that other nations that faced the same problem had “copied” much of Swedish legislation and they had adopted this legislation. Then he continues by problematizing this in the Chilean context:

“In Chile it is necessary to act in the same way. Yet the problem is that the damages that can be very important are not a threat to the land owner in the immediate future” (p. 18)

We can observe here that he considered the legislation that should be used in Chile, namely, the Swedish legislation, and then identified the problem for the adoption of that legislation, in this case the landownership and the subjectivity of the land owners. The book was published during the same period as Pablo Agren’s work with the pine plantations in Chile took place.

These two examples show that at the very material level there was already in 1947 an important and fundamental exchange of knowledge and technology in order to develop pine plantations and legislation in Chile. Here Swedish legislation and forestry knowledge were taken for use in the Chilean context. Still these two aspects of forestry and forestry-thinking in Chile were linked to another process that was part of the relations between Chile and Sweden during the 1950s. During this time, the pulp sector was not developed in Chile so the country needed to import pulp and this was mainly imported from Sweden and Finland (Lima-Toivanen, 2012: 248). On the other hand, the raw materials being used for paper production at that time in Chile were wheat residues, since wheat growing was a main farming activity in Chile at that time. That relation was eventually absolutely transformed in the country when the predominant role of tree plantation in the production of pulp and paper and the rise of Chile as an exporter of forest products meant that at one point, Chile even exported forest products to Sweden. This happened for example in the middle of the 1980s when a nematode in wood pulp made from conifers and exported from the USA to Sweden was found. Thus, Sweden imported conifers wood chips from Chile which first took place in 1986 through the Finnish company Thomesto (Bluth, 2002, p. 85).

As we noted above, Bianchi was operating in the context of FAO’s work on forestry and actually his book was reviewed in *Unasylva* during the time of its publication. At that time, *Unasylva* was reporting on Chile and Sweden and important mentions of Chile’s increasing role in world forestry are found. In 1954, for example, *Unasylva* highlighted the pine plantations in Chile. In *Unasylva*’s terms:

“The famous *Pinus radiata* has been grown successfully in New Zealand, Australia, Africa, and South America, notably Chile, to create new forests on

formerly non-producing land and yield important quantities of pulpwood and saw timber” Unayslva (1954, Vol. 8, No. 3).

Here we can connect this assessment of Unayslva in 1954 and the work of Pablo Agren in 1947 and observe that this assessment is made within the context of reporting on the International Poplar Commission. Chile was the only South American country participating in the meetings of that commission at that time, and Sweden was also part of that commission. In the report of FAO, the experience with radiata pines is also already linked to the introduction of eucalypts. In this case, Unayslva reported that at that time the introduction of eucalypts had been successful in North Africa and South America, but the efforts of FAO at that time were not only based on the question of eucalypts. FAO was also working on how to make forestry sectors sufficiently modern in order to use such forest resources. Thus, the report in this case notes that the connection between machines and planting of trees had reduced the costs of establishing plantations, noting that:

“In this connection machine-planting of trees, under favorable circumstances, has markedly reduced the cost of plantation establishment, particularly where scarcity of man-power leads to high labor costs. It has at the same time greatly speeded up the rate at which planting can be accomplished, as compared with hand-labor methods. The same applies to the use of mechanical equipment in forest nurseries. It is true that such mechanized operations are not suitable for all locations, but the savings are so marked that careful trials are justified to determine, under any given set of circumstances, whether or not such methods should be adopted” (ibid).

The important point here is that the mechanization of the relation between planting of trees and production was needed in some circumstances. If FAO at that time highlighted the issue of radiata pines becoming an important resource in South America and, as we noted before most notably in Chile, at the same time Unayslva was becoming more and more concerned with the question of different rotation periods.:

“Standing volume and growth per hectare in the northern parts of the U.S.S.R. are but a fraction of those in, for example, Chile; there are, in fact, very great contrasts even between northern and southern Sweden.” (Ibid.)

This example shows that the role of Chile in this case is very much highlighted in terms of the rotation period. Thus, in relation to the pine plantations and the mechanization that this needed according to FAO in order to use the trees in

the best way possible, there was a concern with the question that eventually became fundamental in the development of the forestry sector in Chile.

During the same period of time there was an FAO mission working in Chile and one of its most important representatives was the Finnish professional Lars Hartman, who produced different reports for the forestry directorate in Chile. Such reports were aimed at assessing the potential of the forestry sector in Chile. In one case, in 1956, he reported under the title *The Forestry Industry and its Possibilities in the Development and Exploitation of the Chilean Natural Forests* (Hartman, 1956). Then, in 1959, Hartman focused on the sawmill sector and the pine plantations. When assessing Chile in the report from 1956, Hartman used and referred extensively to forestry development in Europe and he in particular dealt with Scandinavian countries and their progress in forestry and compared this with the situation in Chile. For example, at some point in his report from 1959, Hartman noticed that technical knowledge, or workers with technical knowledge, were very much needed in Chile in order to keep sawmills working in good ways (Hartman, 1959, p.44). In this regard, Hartman sustained that it was necessary to organize courses with the workers to specialize them and for this, vocational schools were important. He used as an example the centre for research in Llanicura.

In 1955 what was named a “modern sawmill at Llanicura” in a forestry research centre in southern Chile was inaugurated and according to FAO this was “*the most ambitious FAO forestry project in Chile*” (Unasyuva - Vol. 9, No. 2, 1955). Unasyuva noted that among the most important equipment contributed to this sawmill there were:

- “15-meter sorting table with powered 3-chain conveyor and trim saws (from Sweden);
- 6. cross chain conveyor from circular saw to band saw (from Sweden);
- 7. roller conveyor from band saw to sorting table (from Sweden)” (Unasyuva - Vol. 9, No. 2, 1955)

This contribution from FAO and countries like Sweden was one among the many other projects of forestry development in southern Chile. We have here again an important connection between what in the words of an FAO expert was the need to have the appropriate knowledge within the forestry workforce and the technology needed for this in relation to machinery produced in Sweden. Hartman’s report also made an assessment of how Chile could become an important exporter of wood. In this case he used the example of Sweden to show that it was necessary that the products coming from Chile should have a mark indicating that the wood came from Chile to the international markets (Hartman, 1956, p.61). Hartman used as an example for

Chile how the mark was done in Sweden and the report reproduced the different marks that were used in the wood and timber that was exported from Sweden (Hartman, 1956, p. 63).



FIG. 83.-

**Algunas marcas de las maderas
que exporta Suecia.**

Figure 17. Swedish marks on timber for export used as example for Chile. Source: Hartman, 1956 p. 63.

Another technological development that he covered in the report had to do with kilns and he introduced and discussed different technologies and state of the art kilns to produce charcoal. Here again one of his examples was the Swedish kiln, which for him was a very important technological development in terms of producing charcoal. He referred to the Swedish clay kiln by giving a short history of this kiln and stated that it was invented in 1933 by the Swedish engineer Karl Lindman and he gave all the details for the fabrication of this kiln in Chile. Hartman's report covered almost all aspects of forestry production and he also dealt with the possibilities of producing pulp and paper in the country. He noted that in Chile, the economic resources were limited and therefore it was necessary to use all the potential and possibilities offered by the plantations. Because he was arguing that there was an important value in the native forest as material for pulp production, he conceived the paper industry to be based on native forests too. Yet he also emphasized that the

potential of plantation should be used for this. He noted that at that time Chile did not have the possibilities of producing the pulp and paper needed in the country itself and therefore he highlighted the potential of the Chilean industry to produce pulp and paper based on its pines. For him these pines were very much to be favoured for that purpose. He thought that it would be good for Chile to become independent from imports and in such a way the country could evolve into becoming self-sufficient in terms of pulp and paper. However, in closing his report he assessed the international markets and noted how the international situation was changing in ways that created different movements in international markets in relation to how the main exporters were operating at that time. Here he identified opportunities for Chile too. In addition he continued showing the potential of Swedish technology but noting that a system of credits and loans was important in order to allow the development of the forest industry in Chile.

In another report produced by Hartman in 1959 and this time focused on the sawmill industry and pine plantations, he detailed how a new study focused on sawmilling had been produced in Sweden in 1956 (p. 30) Hartman highlighted that the report was reviewed by the *Unasylva* journal in 1956 and it was reproduced by the Chilean journal *Chile Maderero* in the same year. Hartman also noted that the report was also used in the review *Forestry*, an English language journal, in the same year. The report for him was very important because it compared different ways of sawmilling and it showed the potential with different technologies and also the relation between technology and tree species. What is relevant to be highlighted here is that he showed how a study published in 1956 in Sweden was reproduced in Spanish in Chile and in English all in the same year. This shows that already at that time there was a direct process of knowledge circulation concerning the latest studies for forestry development. In the whole report to illustrate the potential of sawmill production, he gave detailed information about other studies in Sweden and the possibilities, including pros and cons, for Chile to use these technologies and machinery. He also recognized that in many cases for Chile it was more appropriate to follow the experience of South Africa or New Zealand. New Zealand is important here because it was also increasingly using radiata pines in the development of its forestry sector.

6.3 World markets and political interactions in forestry

The moments of forestry development and connections between Chile and Sweden from the 1950s reconstructed above show in specific terms how Chile was becoming in different ways part of the new era in forestry development

that took place after the Second World War. Here the presence of New Zealand, Chile and South Africa was becoming more and more relevant. Yet at that time, as FAO noted,

“Wood pulp production is heavily concentrated in a few countries. The United States and Canada (with a 1961 combined production of 34.8 million metric tons) account for more than half of the world production. Finland, Sweden and Japan add another 20 percent of the world total. The developed regions of Europe, the U.S.S.R., North America and Japan as a whole account for more than 95 percent of total production”(Unasylyva , 1966, No. 80-81)

Within this context, FAO’s interest in Chile continued and it was noted that

“The additional supplies of pulp and paper likely to be required by 1975 are therefore expected to come very largely from Canada, northern Europe and the United States. But this is not to overlook the contribution of other, smaller exporters. The U.S.S.R. southern Africa, New Zealand and Chile are all producers that are likely to expand their exports in the years ahead. However, their impact is likely to be still small in the period to 1975.” (Unasylyva , 1966, No. 80-81)

Later in the report there was speculation about these changes in the world forestry sector and the role that these new countries would play in it. Here for example Unasylyva stated

“With yields commonly five to ten times those averaged in the north temperate forests, and giving a homogeneous product which can be " tailored " to suit the raw material and locational requirements of the user industries, delivered costs for wood from such plantations in parts of Africa, Latin America, the Mediterranean basin and Asia have usually proved to be substantially lower than those achieved in the north temperate countries. These other parts of the world, therefore, also offer an important potential for producing large additional quantities of low-cost wood, including logs for sawing and peeling, as well as for pulping.” (Unasylyva , 1966, No. 80-81)

The important point to make here is that there was consciousness of the emergency of these new forest sectors in relation to “*large additional quantities of low-cost wood*” and this was becoming an increasingly prominent aspect in the understanding of forestry in Unasylyva. We saw above that the understanding of the situation with wood pulp in 1966 was very much based on still having the bulk of production in the northern hemisphere. What did happen eventually was that the countries in the South, particularly Chile, were

able to develop important plantations and also production capacity along the lines expected by FAO.

An event that we have to consider here is that along with the development of forestry in the main producing countries in the North, the labour question also followed very specific patterns. As we saw above, in Sweden for example, the largest strike in 1975 was very much a matter of a demonstration against the control of working conditions by the companies through the introduction of the saw machine as a new technology. Interestingly in this case, and in making the political statement of the political situation of the strike, we read in a pamphlet that workers mentioned the Pinochet dictatorship in Chile and they said that it seemed that Pinochet was heard by the employers and the leadership of the forest companies with regard to how to arrange a democratic election. They ironized that not even he thought the people of Chile would follow this method to consider a democratic procedure. In this regard, and in the context of political mobilization in the context of a workers' and peasants' takeover of the Panguipulli forestry complex during Allende's government in Chile, we can highlight the case of the Swede Kristian Lund. Lund went to Chile as a forestry worker in 1973 and his aim was to bring his knowledge to the service of forestry development in Chile. In his observations about his experience in Chile he highlighted that one of the main differences he observed between the two countries was that in Chile labour was cheap and machinery was expensive. In Sweden, he observed, the contrary was the case. His political convictions led him to engage in the struggle of workers and peasants of the Panguipulli Forestry Complex which ended violently with the coup d'état in 1973. After being arrested and tortured, Lund had to leave the country (Lund, 1975).

As we saw above, one of the important economic decisions taken by the dictatorship was to pass a decree law to foment tree planting in the country. The decree law obtained a number and it is well known in the world of international forestry as decree law 701 (DL 701). The text of the DL 701 sets the basis from which to definitely convert Chile into a forest country and this was done on the back of years of planning for Chile to become a forestry country with an important role in international markets. In the discussion carried out by the military junta's legislative organ, the language of forestry comes together with the language of the future for the country. Thus the terms of the discussion were very much based on trees being planted to consolidate the future of the forest sector and the economy of the country. A document from CORMA, the Wood Producers Association, submitted to the junta in 1974 and attached to the legislative records of the discussion to formulate the decree law, put things in terms of

”Our association has constantly insisted to all the governments, and in different ways, that it is urgent to have a plan of intensive reforestation. However, and though we have been heard many times and representatives from those governments expressed agreement with us and announced plans in this regard, the fact is that unfortunately everything remains as only plans and projects, and never it has been decided to take the necessary measures.

I am sure that our current government will not frustrate these legitimate expectations and will not sentence Chile to mediocrity as a forestry power in Latin America, as country that has being a leader in this regarding forestry. We are the continent’s largest exporters of newsprint and woodpulp and in the short term other countries will win us because they have been wise and have put in practice the measures we have formulated and presented both here and abroad. As they have applied such ideas in a visionary way, they have increased and created wealth through larger and larger plantations and in this way they have moved capitals towards the forests. This, by nature goes in the benefit of the future generations and the future of the companies of the country, which life (of the companies) is not limited, as the life of the human beings. It is the time that in this new Chile, where we all have justified expectations, this bad situation is radically changed“(Junta Militar, DL 701, legislative history, pp. 96-97)

Thinking the forest through the lens of the future was also a perspective present in Sweden in 1973 where a decision to specifically investigate issues concerning forests for the future was established. During the 1980s, the dominance of the Northern European countries, as well as Canada and the United States, in international markets was being challenged and new exporters were becoming more and more important in, as for example, markets in the Near East:

“While European suppliers have dominated Near Eastern wood markets in recent years, newer countries, particularly Chile and New Zealand, have begun to make inroads. There is now an opportunity, the ITC feels, for Asian countries to make some progress as well”. (Unasyuva, 1983, Vol. 35 No. 139)

It is here where the case of Chile along with New Zealand becomes very influential, as the two countries were showing how the production location of forest products was taking place. This assessment gave origins to what in the Swedish context was labelled “*Sedjo’s prophecy*” meaning here that “*forestry will go south*” (Reidar, 2009). The wider context for this was the process of tree planting in the South, which during the discussion at the Seventh World Forestry Congress in 1972 implied still open questions. Yet, in 1983, Resources for The Future Inc. published Roger Sedjo’s influential book *The*

Comparative Economics of Plantation Forestry. A global assessment. In Sedjo's terms:

“One might view the current net trade flows going to northern markets from New Zealand and Chile as the fledgling stage of what may well become substantial flows by the early part of the twenty-first century” (1983, p. 83).

6.4 Corporations, pulp production and labour issues

A closer analysis of the interrelation between producers, markets and the specific role of Chile and Sweden here means that one should look at how companies were operating during this period. Here we can reconstruct that an important event took place in Chile in 1989 when the Chilean company Arauco and the Swedish company Stora announced a partnership. The announcement of this partnership was much covered by the journal *Chile Forestal* in 1989. One of the things we can highlight here is that for both companies this was an important event and important representatives from both companies were present in one of the venues of the municipal theatre of Santiago to announce this partnership. During the event, representatives from Stora said for example that

“we are sure that the Chilean forest sector has a great potential for the future and it has the advantages of its forest which are a guarantee of its competitiveness in the international markets” (Chile Forestal, 1989, p. 6)

The representatives from Stora also said that the company was in a situation that was defined in terms of the serious problem in the future in Sweden. They sustained that Swedish companies would not be sufficiently competitive. This, they added, was because of the high costs of their wood and the fact that powerful countries such as Chile were part of the sector today.

One representative from Stora added that Stora was planning to *One representative from Stora added that Stora was planning to “allocate part of its capacity in pulp market in Sweden to produce absorbent products for the hygienic market and the rest to be integrated in paper”* (Ibid.). And he noted that “*after we have done that, we will not continue participating from Sweden in the pulp market for paper*” (Ibid.). In order to give a meaning to this important event, the Chilean company emphasized strongly that this was a great opportunity because Stora was the oldest company in the world and a leading forestry producer. The representatives of the Swedish company were very clear in saying that they considered that the pulp industry in Chile would

become a leader in global terms. They added that this agreement between Arauco and Stora was an important new basis for Stora's forest activities.

The agreement between Arauco and Stora subscribed in 1989 motivated an article in the same journal *Chile Forestal* in 1990. The article, under the title *Pulp and Paper in Sweden*, emphasized that the arrival of Stora to Chile was an important event that would have consequences in Chile. The article argued that production of pulp and paper in Sweden had connotations for the Chilean forest sector and it praised the pulp sector in Sweden. In connecting this with the situation in Chile, the article closed by stating that

“the Swedish industry of pulp and paper shows that with initiative and determination, which it has shown until now, the problems of contamination will tend to disappear, and this will allow to keep and excellent reputation in view of its integral contribution they give to the country “ (Gysling, 1990, p.27) .

Here we have an important issue since the agreement between Stora and Arauco was an agreement based on the new pulp mill plant project in the Valdivia area. It was planned to start operation of the pulp mill in 1997. Eventually, this was the same pulp mill that caused the environmental disaster in the Río Cruces in Valdivia to which we referred previously in chapter 4.

Interesting to note, is that in the same magazine an advertisement of a reseller of the Swedish saw machine maker Husqvarna in the area of Bío-Bío can also be found.



Figure 18. Advertisement for Swedish forestry technology in Chile. Source: Chile Forestal, 1989, N 168, p. 8.

However, this partnership between Stora and Arauco ended in 1994 when Stora was faced with important economic problems. However, in 2007 the Chilean media reported that a new agreement between Arauco and Stora (by

that time Stora Enso) had been reached (Ibarra, 2007). They referred to this agreement in relation to the investment that the two companies were planning in Brazil. The media noted that the previous partnership ended in 1994 when Stora ended the participation in the *Forestal Pedro de Valdivia* because a financial crisis forced the company to sell its stocks in the company. However it was also mentioned that the company continued helping the owners of Arauco, the Angelini family, on different occasions and for example in the middle of the crisis caused by the disaster in Valdivia. Here it was noted that in the middle of the crisis, representatives from Stora visited the area and they gave support to Arauco and its projects in Valdivia and in Nueva Aldea. The reconstruction of this is important since it shows how the presence of Swedish interests in Chile during this period of time is part of a long trajectory of interrelations between Chile and Sweden through forestry development.

As referred to above, a main factor in the dynamic of tree planting in Ñuble province in Chile is the establishment of a new pulp mill and the chain of forestry development organized around this. Implicit in the previous narrative and analysis is that forestry and the pulp mill are already established in the area as such. However, we need to analyse what the pulp mill and forestry is here. In this regard we can first observe that the pulp mill is built to an important degree with Swedish technology. Second, one can observe that pulp produced in the area competes with Swedish pulp in international markets. Third, we can observe that there is a long history of knowledge and technology transfer from Sweden to Chile in order to foster forestry development in the country. Fourth, we can observe that the Swedish example is frequently invoked to make sense of the path of development of the Chilean forestry sector. Fifth, we can observe that cooperation between Chilean and Swedish companies has a long history. Here we can further reconstruct two moments that will allow us to understand what happened later in time. First, as we saw above, during the 1980s the Stora company was operating in the country. Second, in January 2007 two representatives from Stora Enso (formed by a merger between Stora and a Finnish company) and Södra visited the pulp mill. The local media reported the visit by stating that they were representatives of the two most important pulp producers in the world. The news added that these two companies were competing with Chile in the global markets. The media quoted one of them saying:

“this is a work of industrial art, it is the most impressive I have seen in my professional career” (Lignum, 2007, n. p.)

It was noted that the other Swedish representative of a forestry company manifested that

“it is difficult to understand the criticisms against this industry in Chile. In the past there were problems, as in Europe, but seeing this project, it has no problems environmentally” (ibid.).

As we saw earlier in Chapter 4, 2007 was a year of growing criticism against pulp production in Chile and that was the time when a counter-discourse by Arauco was being produced. However, this was the time prior to the announcement, in September of 2007, of an agreement between Arauco and Stora Enso to initiate joint operations in Brazil. That agreement was announced and made public after the representative of Stora Enso visited the area to give support to their then rival company in international markets. However, visits of representatives of Swedish forestry companies to support Nueva Aldea are not the only way through which Sweden is present in Chile. We can observe that this presence is manifested in the following ways: (a) At least two Swedish companies have provided important machinery and equipment for the pulp mill in Nueva Aldea. This machinery accounts for some of the most expensive machinery and technology operating in the pulp mill. This also creates a situation of dependency on Swedish professionals who continually travel to the area to work in the pulp mill, (b) Sweden is constantly referred to as a model for pulp production for Chile, and (c) other experts from Sweden have expressed the view in the area that in fact Swedish pulp making created important problems in Sweden also. The latter is the case of a representative from the Swedish environmental protection agency who visited southern Chile and attended a seminar where according to an activist in the area who published a letter to the editor in the local newspaper *Diario Austral* in 2009, the Swedish EPA representative was clear in saying the effect of pulp mills in the Baltic region had not resolved the main problems with pulp production. She is quoting as saying, “*one thing was to dissolve and another is to resolve*” (Wichelhaus, 2009). Thus, the activist made the point that actually it was not possible to argue that the Mehuín project was not going to cause environmental problems and here the participation of the Swedish EPA representative at a local seminar was used in order to give an argument for opposition to the pulp mill’s pipeline discharging sewage off the coast at Mehuín.

We have above different moments in the trajectory of forestry relations between Chile and Sweden. Some represent the institutional relation of FAO cooperating with the Chilean state and other cases show large companies cooperating in different historical periods, namely, during the period of state-

led forestry development in Chile and the capitalist neoliberal period of corporate control over forestry development.

These relations have also been followed by other kinds of exchange. Here for example we can note that in 1993 a new challenge faced by the forest sector in Chile was linked to the question of implementing what was seen in terms of more rational organization of the forestry labour process. Thus, in Unasylva we can source a report that says that at that time, there was a need to reorganize the teamwork for clear-cutting and they noted that some forest enterprises in Chile contracted the services of a Swedish organization which sent trainers to Chile to introduce a new method of forestry work (Apud and Valdés, 1993). Under the new system, two power saw workers fell the branches of the forest while a third worker cuts the logs in the yard and another four workers do the reaming work. This system reduced the crew to just seven workers. In comparison with the previous teams composed of ten members, the workforce required was now reduced to seven as a result of knowledge and methods brought from Sweden. Therefore, the question of labour and the possibilities of Chilean companies possessing this knowledge and implementing it on the ground within its forestry activities shows a new dimension of the interrelations between Chile and Sweden through forestry.

Ten years later, we can observe that the shift toward externalization of labour was noticed in a working paper from the International Labour Organization published in 2003 and entitled *How We Work and Live: Forest Workers talk about Themselves - A Global Account of Working and Living Conditions in the Forestry Sector* (ILO, 2003). The analysis of what the three workers representing Sweden expressed in this regard shows that for two workers the reality of being a contractor was an issue to be raised. For the other, it was important to recognize that “In the old days work and life were a lot harder” (ILO, 2003, pp. 8-13). We can compare this to what the Chilean forestry workers considered in the study expressed to be their important messages. In the case of Chilean workers, we observe that in one case externalization was also an issue, as the worker was a forestry entrepreneur too and he expressed that his biggest problem was “to ensure employment for men and machines”. In another case the worker expressed that a “chainsaw operator was fatally injured when felling a eucalyptus tree” and poverty was a main point for the third worker included in the report (ILO, 2003, pp. 78-83).

The feelings of the Chilean workers asked in 2003 already reflected what was in the making during the years prior to 2007, the year when the large forestry workers’ strike took place in Chile. A major characteristic of the strike was a radical innovation in the way of conceiving the strike. This time, and instead of demanding better working conditions and better salaries from the

sub-contracting companies, the forestry workers, as other workers did during that period in Chile, directed their demands directly to the contracting company, namely, Celco-Arauco. In addition, the strike unified workers from different trade unions and within different tasks in the production chain. Crucial to the social power gained by the workers during those days was the participation of the truck drivers. Having affected the circulation of the forest raw materials, their bargaining position rose. The company rejected the petitions the first time and gave legal reasons for this. The company argued that the petitions, according to the law, should have been directed towards the sub-contractors and not towards the company. The strikers, organized under the premises of not recognizing the legitimacy of such legislation, continued the strike. The confrontation increased until a forestry worker was shot dead by police forces outside a pulp mill. The police forces killed him when he took a forestry machine and drove it towards the police cars. Amidst this tragedy, the company finally accepted important petitions of the workers and an agreement was reached. The strike was organized as an attempt to question the system of sub-contracting and to change the salary system based on production bonuses. As production bonuses were in fact the substantial component of the monthly wage of the workers, this meant that first the minimum wage was not respected and that the monthly wage depended on increasing pressure to produce. What the workers demanded was a fixed and better salary and a clear system of bonuses. As mentioned earlier, this strike took place in 2007 and after the strike a parliamentary session was devoted to dealing with the overall problems of forestry in the country. The session in the parliament became a public document expressing not only the great inequalities implied by forestry development in the country but it also linked these inequalities to the massive devastation of forestry development lands. What is interesting to note here are the similarities between the strikes that took place in Sweden in 1975 and in Chile in 2007.

In 2009, in the context of the Copenhagen Climate Change Conference, and as happened in the World Forest Congress the same year, representatives from trade unions were also participating in discussions about forestry and climate change. Within this context a representative for the trade unions in Chile came to Sweden and visited the trade unions for forestry workers where one issue in the discussion was the importance of integrating forestry workers into the new environmental discussion (GS, 2009). In this case what became an important point of the discussion was the issue of forest certifications, and a representative of a Swedish trade union argued that it was important to get the forest companies to certificate, as it was an important tool for the environment and also for the workers who, in his opinion, could obtain the rights to organize

and make collective agreements in this context. On the other hand, the representative from Chile was quoted as saying that it was important for the trade unions in South America to cooperate and they were worried about what was going on in Brazil and Uruguay. Then the Chilean representative said that it was important to highlight that even European companies were abusing the countries in the South that had weak trade unions and a cheap work force. This view contrasts with the view of the Chilean sector reproduced in 2010 by a Swedish think tank called the International Secretariat for Forestry. At that time Chile was presented as a successful case of forestry development where opportunities for Sweden were being offered and the country, in terms of forestry, was presented as a country of forestry opportunities (Ulloa, 2010).

Earlier in this chapter I showed a connection between legislation and forestry linking Chile and Sweden. The connection can be observed again in 1999 when in the context of discussions of new environmental legislation in the country, the department of studies of the Chilean Congress produced a report that aimed to support the legislative discussion in 1999. The report focused on the recuperation of native forest and forest promotion in comparative law. The cases referred to are Argentina, Spain, Chile, France, Mexico and Sweden. Here Swedish legislation attains an important place in the report as the author praises the Swedish system. His analysis was based on knowledge provided by the Swedish Forest Agency, a report on the Swedish forestry sector published in French and another report translated to Spanish by the Swedish Institute (Arrau, 1999). The author considered that the case of Sweden was in terms of preservation of biodiversity an important example for Chile. This, the whole report ended with the case of Sweden and an important point here was to highlight that the Swedish Government and the Swedish EPA continued asking for an evaluation of the effects on biodiversity of the new forestry legislation in the country. The study stated that in Sweden it was concluded that there was no reason to make radical changes, at least within the next four years. The conclusion of this study was that from a social perspective it should be highlighted that the Swedish legislation differs from other legislations such as the Argentinean because the Argentinean legislation restricts the possibility of using the forest while in Sweden, and because of the right to public access (*allemansrätt*), everyone can use it including the owners of the forest or the Sámi people, according to the study. An important point in this study is that it argues that *“it is part of the collective imaginary that there is a distinction between tree plantations and a native forest, which is contradictory”* (p. 40), says the study. Yet, he added, *“in the European legislation, especially in France and Sweden, one notes greater integration between plantations and native forest”* (p.41). Here the legal study highlights

that in the European legislation there is more integration, as happens in the case of Swedish and French legislations. The integration in the legislation, it is argued in the study, does not eliminate the contradictions facing any application of forest policy. Thus one of the main conclusions of the study is that taking the Swedish point of view, legislation in itself cannot solve the contradiction and therefore it should be constantly revised, understanding that the different expectations are often opposed in relation to forest resources. This, it is added, is a challenge to the imagination at the moment of applying forest policy in order to obtain integration and balance among the different functions of the forest. This, in this case one can note again the role of Swedish forestry legislation in Chile. Similarly, as shown in chapter 4, this estimation of the Swedish legislation has also been regarded as an example for the Chilean association for native forests. Therefore, we have identified three different moments in which the case of Swedish forestry legislation as an example for Chile has been brought into the Chilean discussion on forestry.

6.5 New and old contexts for forestry

It can be noticed that the whole issue of world forestry and international markets for forest resources was in 2007 the object of a new assessment in the Swedish context. Here the question was put in terms of the possibilities of a global forest sector relocating from the South to the North (Nilsson, 2007). We can note here that by taking into account energy and land use change in addition to climate change, the author makes a number of conclusions. One of these is that *“the climate change process is affecting the South negatively and North probably positively”* (p.34). He found certain reasons to think that because among other factors bioenergy production could be dominated by lignin-cellulosic materials, there were reasons to expect a flattening of the forest product prices globally. Thus he speculated about the possibilities of Sweden and the North in retaking a certain role in international markets for forest products. Therefore, the question of climate change and other challenges of land use was becoming in 2007 an important aspect of new discussions on forestry in Sweden. Within the same context, Unayslva published in 2009 an article in which we find a new connection between Sweden and Chile. This time this is put in terms of possible changes in patterns of forestry and land use. Here, and when assessing the issue of climate change and linking it to the bioenergy question, it was noted that

“Competition for land may provide strong incentives to increase productivity on the existing land base. The comparative advantage in wood production is

already shifting back to regions where land is abundant or relatively unattractive for other uses, such as large South American countries (e.g. Chile) and northern boreal forest regions.”

This is similar to the argument put forward by Nilsson in 2007 which indicates that in the discursive relation at the global level there was a new way of thinking about where the forestry sector was going with Chile and Sweden in focus. In 2009 in Chile, and in the context of an interview with the representative of the Chilean Wood Producers Association (CORMA), at three moments Sweden became an important issue (INT-C-33). First, the interviewee said that it was something given by nature, namely, the climate and the soil, allowing a very fast growth of forest in Chile. He noted that this was a difference between Chilean forests and with forests in other hemispheres, like in Sweden. In fact, she said, the same people from the northern hemisphere are coming to plant trees in the southern hemisphere because we can show here that our growth is about 20-25 cubic metres per hectare per year versus the 5 cubic metres per hectare per year in the northern hemisphere. This is a great advantage, she said, but naturally, she added, we have to deal with the transport possibilities because we are very far away from the markets and that is something we have to worry about. However, in relation to the question of Chilean companies moving to other countries in South America, she commented that this is something that happens because it is part of the forest industry, like every other industry and, in her view, we have seen this with Sweden too and other countries coming to Uruguay. Within this context, Uruguay is becoming the focus of interest in terms of where forest companies are moving today in South America. When it comes to climate change, she made the point that

“We see it as a great opportunity for the country. It has been seen like this in Sweden and in other forestry countries because if you manage the forest and you create a larger capture of CO₂ and if you plant taking into account the activities that are more appropriate for the capture of CO₂, this is something that again shows that the forestry sector is reacting in a very positive way in order to take the issue of climate change.” (INT-C-33)

This reflects how climate change is conceived as a part of what can be considered an important reason for a new context of forestry. We can note here that in the context of discussions on global land use and forestry in Sweden, it is becoming a relevant issue to know more about forestry in South America and in particular in Chile. This is represented in for example two texts linked to work of The Royal Swedish Academy of Agriculture and Forestry (Henceforth

KSLA) in 2013. In 2013, for example, KSLA arranged an international symposium in the context of its 200th anniversary. The theme of the seminar was defined in terms of a global outlook. The report that emerged from the seminar was named *Global outlook: future competition for land and water*. One of the presentations addressed the theme of the seminar by looking at *tenure and land use in industrial forestry – South America and the Nordic countries*. After highlighting negative and positive aspects of Nordic forestry, the intervention was closed by affirming:

“Chile has a multifaceted industry, like the Nordic countries, and people accept forestry. Chile should just continue as up to now, and not allow large industry to take over too much[.]” (Nylund, 2013, p. 58).

On 15 January 2009, I conducted an interview at one of the research centres that has historically given important guides and articulated development projects for the forest sector in Chile. The interviewee was an expert on forests and climate change who had been in Sweden to obtain a specialization in certification of sustainable forest management. At the end of the interview, she expressed:

“Here it is different to what happens in Sweden. In Sweden people identify the country as a forestry country and it is like they love their forests. Here in Chile it is like there is not much affection/love for the forests, it is like there is not much pride in having forests” (INT-C-36).

The forests she is implying here could be what people in Chile call native forests or it could be tree plantations.

As we saw above, one of the most important meetings on forestry taking place in the area of Jämtland-Västernorrland was framed in terms of a meeting of the forest sector. An important issue in the discussion was the sector’s responsibility. In another case, we noted that in the view of a pulp mill manager, the problems facing forest companies in Sweden are in part explained by competition in the international markets, which has been a view widely reproduced in different reports and literature in Sweden (see for example Brännlund *et al*, 2010, p.75; Royal Swedish Academy of Engineering Sciences Report, 1993). At the centre of this view we have a discursive definition of the forestry industry in Sweden. The forest sector in the area can be seen today as an interlinked process of subjects operating in the extractive-productive-consumption processes of forest raw materials and dealing with the challenges of both internal political processes and global forces shaping forestry in Sweden. Yet one must consider that at some points, forestry activities in the

area are also based on forest raw materials imported from other Baltic areas. However, there is another dimension of this that can be analyzed by showing how companies from Sweden or of Swedish capital have been a condition of the possibility of forestry and pulp production in Chile. We have already presented the case of a consultant cooperating with one forestry complex in Chile and who brings his skills to make possible the operations of a pulp mill there. As we saw earlier, the Nueva Aldea forestry complex in Chile, which is one of the world's largest pulp mills and started operations in 2006, is in fact a pulp mill possessing important Swedish technology. What is important to explain here is that such technology and machinery for this mill is a factor in making pulp production a problem in Sweden today. Even if Chile does not export pulp to Sweden, the prices in the global markets are affected by this company's operations. What is more, as I have observed above, there are signs pointing at the global forestry sector running towards a new overcapacity crisis and in Chile this is already an issue of concern. We can also observe here that Metso, and at that time Kværner pulping, are part of the forestry sector in Sweden and contribute to the development of forestry in Sweden too. In addition, as we noted above, the connections between Chilean and Swedish forest sectors have also implied political support to companies in Chile as happened when two Swedish forestry companies supported the owner of Nueva Aldea in its struggle to create legitimacy and acceptance for its project at the local level. In doing so there is a clear indication of a transnational capitalist class that struggles to define terms of forestry and also gives meaning to the forest sector. Thus the meaning of the Swedish forest sector here is a fundamental political issue with a number of policy implications. What cannot be overlooked here is that in parallel to the feeling and effects of the crisis concerning forestry in Sweden, there is an intensive process to counteract that situation. A key in this is to find new products for the forest raw materials. Thus rethinking forestry here does not mean a change in the pursuit of continuing to use forest resources and even expanding the use of forest resources for more products, but this happens along with the existence of contradictions between use value and exchange value. Thus, we can affirm that as happens in Chile, to look at that contradiction helps to explain forest conflicts in Sweden.

As we reconstructed above, competition with countries in the South is seen as a source of problems for pulp making in Sweden. However, analysing the case of Chile, one of the countries often mentioned as competing with Sweden, some empirical observations are important. As we noted above, the Nueva Aldea pulp mill, which began operations in 2006, became one of the world's largest pulp mills. To build the mill, technology and machinery were mainly

provided by foreign suppliers. Among the important suppliers we find Kværner Pulping in Karlstad, Sweden, and Metso. Later Kværner Pulping became Metso Fiber Karlstad. Metso, which is widely considered a Finnish company, had from 2005 as one of its owners the Swedish international investment firm Cevian. In addition, as we observed above, there is a partnership between this company and the Chilean company analysed above and both export pulp from Brazil and Uruguay. Thus exports of pulp from Chile, Brazil and Uruguay, which are seen as problems for the forest industry in Sweden, are in fact sources of profit for Swedish companies too.

There are three other aspects in this that are important to consider. First, the supplier of machinery and technology from Sweden to Chile in this regard means technological dependence and so Chilean companies need to continually have services provided by Swedish companies. Second, the Swedish state has expressly fomented investments of Swedish companies in the Chilean forest sector. In a report from 2008, the Swedish Trade & Invest Council summarized the business possibilities for Swedish companies in *The Forestry Market* and the *The Pulp & Paper Sector in Chile*. The council noted the great possibilities of investment in a country “with an economy in constant and stable growth” and “an open economy for doing business in”. In addition, the report highlighted that “*more than 30 Swedish companies are registered in Chile and many more are there as sub suppliers or via distributors*” (Swedish Trade & Invest Council, 2008). During October 2014, the council together with the Swedish Pulp and Paper Technology Group (PPT) organized the visit of a pulp and paper delegation from Brazil and Chile to Sweden. The main objective of the visit was

“...to introduce Swedish companies possible clients and important decision makers and also give them the possibilities of development of their business in the Brazilian and Chilean market” (Swedish Trade & Invest Council, October, 13, 2014).

The activity consisted of meetings between companies’ representatives and also visits to industries offering technological developments in the country. Within this context, another company connection is given by the presence of the Swedish company SCA in the PISA project. In the language of the company in 2012:

“SCA strengthens its presence in South America. SCA acquires the remaining 50 percent in the Chilean hygiene company PISA (Papeles Industriales S.A.), and will after the transaction own 100 percent of the company. The purchase price is approximately 520 MSEK.” (SCA, 2014)

This process of exchange and investments creates a situation where exports of technology to Chile help the pulp and forestry sector grow in Chile, which happens in the middle of social-ecological contradictions in Chile. On the other hand, pulp exported from Chile to international markets contributes to problems of pulp production in Sweden, which motivates the search for new products based on the same forest raw materials previously used for pulp production in the country. For the case of Chile, the constant services that Swedish, and other companies, provide to Chilean pulp mills account for one of the expensive aspects of pulp milling in Chile. To obtain this machinery and technology, the monetary surplus must be produced in Chile, which according to what we have seen above is based on comparatively lower salaries for workers, fast growing tree species and increasing land use change for tree plantations. An important point here is to question what the forest sector in Sweden is about, which also reveals the interrelations between development discourses in the two countries. It is also important because the overall question about the position of Sweden in international markets is a recurrent issue in how the future of forestry is understood in the local areas where forestry and pulp production have been dominating economic activities. We can observe too that recently and because of the experience of Chilean forestry, the case of Chile has been an object of interest in Sweden and in some cases, certain Chilean experts within forestry industries have been invited to Sweden to present aspects of this experience. In one case, a researcher within the Chilean forestry sector obtained an honorary doctorate from the Swedish University of Agricultural Sciences in 2013. This was given to him because of his contribution to the development of forestry and planning theory and forest management models due to his being part of many networks in the field of forestry research (SLU, 2013).

Bearing in mind the interrelations between forestry in Chile and in Sweden previously analysed, I will now continue this exploration of what I have above observed concerning land use and forest use in Chile and Sweden. We will do this by focusing on a selection of moments where issues of forestry in Chile and Sweden have been treated at the same time in *Unasylva*, namely, FAO's journal of forestry and forest industries. To illustrate the main points I want to make here I need to quote at length. First we will focus on *Unasylva* Nr. 25, which was dedicated to the Seventh World Forestry Congress that took place in Buenos Aires in 1972. In one of the sections, *Unasylva* reports about the work of the Commission VII during the Congress, a commission labelled 'the industrialists'. Within this context, *Unasylva* reports that it was noted that:

“The growing role of man-made forests as a source of industrial wood raw material is reflected in several papers presented to Commission v” [sic]. Zañartu, Ortiz and Yudelevich in their paper deal with this subject in relation to Chile." The success of Chile in the creation of an important raw material source in *Pinus radiata* plantations, in establishing a vigorous forest industry on that basis, and in timing this accomplishment with the diminishing resource and increasing inaccessibility of the native forest is a textbook example of well thought out synchronizing of the action by the private enterprise, the incentives by the Government and the know-how of foresters”(Unasylyva -1971, Volume 25 – Number 104).

Then Unasylyva considers a report from Sweden where it was highlighted that:

“But many interesting questions remain, especially for a developing country where wood may not be as scarce in relation to established industry capacity as in Sweden. In trying to claim the surplus which Nylander defines, what are the relative market and bargaining strengths of the forest owner, the mill owner, the banker, and the worker? What is a due allowance for a reasonable profit? How important is the payment for timber in relation to the overall economic effects of the industry? Might there be cases in developing countries where a zero or negative payment would be sound on overall socioeconomic grounds?” (ibid.)

What we can see here is that the difference between a country like Sweden and a country like Chile is in this context understood as a difference essentially concerning industry capacity and in the case of Chile we observe already how the country was becoming a forestry “*textbook*” example. In 1975 Chile and Sweden are again occupying space in Unasylyva side by side. This time, in number 105 of the journal, it was noted that “...*In coming years, fertilization of woodlands is likely to increase, for instance in Sweden, where trials are under way,..*”. On the other hand, in an article to discuss *Pinus radiata* planting in Ecuador, the example of Chile was used to illustrate one of the countries where “*Pinus radiata has been planted extensively*”. The two processes are part of a global process where on the one hand tree plantations were becoming a major force reshaping the global trade of wood resources and different alternatives were being explored in countries in the North to obtain faster production times. In 1975 also, Unasylyva reported that in Sweden,

“Plantings will be increased in 1975-79. A major innovation in the Service's silvicultural programme will be the planting of *Pinus contorta*, a hardy North American pine, in 10% of its forest cultivation area in central and northern Sweden. Tests have shown that this pine gives a good yield after only 40-60 years, growing twice as fast as indigenous pine” (Unasylyva , 1975, No. 108).

In the same year, 1975, and referring to, among others, a study conducted for Chile, an article in *Unasylva* stated that

“[t]he governments of developing nations are, of course, aware of the favourable raw material supply situation which exists in their countries. They are also conscious of the far-reaching effects which the establishment of pulp and paper mills can have on their economic development. Accordingly, they have had studies prepared on the feasibility of producing pulp and paper in their countries, sometimes with the object of utilizing mixed tropical hardwoods, sometimes utilizing plantation-grown hardwoods or softwoods“ (*Unasylva* , 1975, N 109).

These two processes in Chile and Sweden can be seen here as forming the whole of world forestry which has been noticeable in Middle Sweden and Ñuble Province in Chile. *Pinus contorta*, for example, was introduced in the area of Middle Sweden by one large company with the aim of essentially providing raw materials for pulp mills. Forest owners interviewed in Sweden said they had planted lodgepole pine, *pinus contorta*, partly motivated by the example of large forestry companies having lodgepole pine plantations close to their lands. A similar process takes place in Chile today where we observed that an important motivation for landowners to grow pines and eucalypts is the fact that large plantations are located in the areas close to their lands.

We can again look at *Unasylva* with the purpose of seeing how *Unasylva* presented Chile and Sweden at the same time in 1993. In this case we observe that in 1993, number 175 of *Unasylva* was a sort of special issue on forest policy and legislation. For Chile it was noted among other things that “*[t]he dramatic growth of the forest industry in Chile is an oddity in the context of Latin America and, in the eyes of some countries, a model to replicate*”. Yet, the article also noted that

“[e]nvironmental groups have systematically countered the impressive exports obtained through this incentive system with criticism of the resulting environmental costs” (*Unasylva*, 1993/1994, N 175).

1993 was the year when the forestry act was reformed in Sweden and the principle of freedom under responsibility was established. Though the article in *Unasylva* quoted below does not deal with this, the policy recommendation it contains expresses a similar rationale:

“It is therefore arguable that greater flexibility should be introduced into the Forestry Act. Although the Forestry Act needs to maintain clear requirements for minimum forest management, relaxing regulations and making more options

available to non-industrial private forest owners would have several advantages. Administration and supervision costs would decrease. A likely consequence of less rigid regulation would be a wider variety of forest conditions on individual holdings. This variety would not only be an advantage from a biological viewpoint but also in terms of potential for meeting the demands, as yet unknown, that future generations will place on forests” (Unasylva, 1993/1994, N 175).

These moments when Unasylva gave space to the case of Chile and Sweden in connected ways illustrate how at this level of world forestry the two countries have been discursively linked. Yet the terms at that time were often the terms of a developed and a developing country.

In 2011, memoranda of understanding on sustainable forest management had been subscribed between Chile and Sweden while the former prime minister of Sweden visited Chile. Within this context, the Memorandum of Understanding on Cooperation on Sustainable Forest Management subscribed between the two countries in 2011 can be seen as a new moment of a deep connection:

“This agreement promotes the cooperation in the field of sustainable forest management, encouraging technological cooperation aimed at the sustainable management of forests of native species and plantation forests” (Chile/Sweden, 2011, n.p)

The agreement can be seen in relation to a workshop organized in 2008 in Sweden and on the theme: “*exchange of Chilean and Swedish experiences on cold native forest species’ sustainable management*”(Embassy of Chile in Sweden, 2008, n.p). There, the terms of the possible cooperation are established in terms of “*Considering Sweden’s experience in this area, the workshop intends to establish a working plan in order to enhance and encourage cooperation between both countries*” (Ibid).

We can analyse this in terms of an environmental communication practice. Within this context, we can see how technological cooperation and experience are presented as what can contribute to the sustainable management of two kinds of forests: forests of native species and plantation forests. In making the difference between forests, this environmental communication act tries at the same time to articulate in one single project a discourse on sustainability. Yet, from what has been seen above, we can state here that the terms of the *Memorandum of Understanding on Cooperation on Sustainable Forest Management* between Chile and Sweden should be seen in the context of a contradictory structuring of political ecology relations in both countries. Thus

the conflict about what forests are today and the conflict on different sustainability projects becomes a constitutive part of this Understanding on Cooperation. In further analysing this and linking the analysis with our elaborations above, one can say that this project of cooperation concerning forestry takes place in moments when forestry in Chile and Sweden is the object of important criticism. In addition, in looking at some moments in the genealogy of the relations between Chile and Sweden through forestry, one can see that this has often taken place with the background of international trade of forest products and forestry technologies as main drivers for this exchange. Also, we have seen that in Sweden a main point of contestation is the working of forestry legislation in the country. As observed above, the critique of this by one NGO is essentially based on the fact that the recent attempts of forest governance based on, for example, certifications have been contrasted with what really happens when the legislation is applied. Thus, one can observe here that the terms of forest governance in Sweden are being deconstructed from the perspective of an alternative normativity concerning forests. One can see this normativity in terms of an alternative imaginary concerning the future of forests in Sweden. Thus, the meaning of sustainable forest management in the memorandum of understanding on cooperation referred to above can be deconstructed. In doing so, one can take the perspective of a situation where environmental goals are not being reached and there are serious problems of compliance with forestry legislation in Sweden. On the other hand, as the terms of the agreement included both forests of native species and plantation forests, one can speculate about the possibility that the experience of tree plantations in Chile becomes an experience to be replicated in Sweden now. In that case, the empirical construction concerning forestry in Chile offered above shows how the Chilean tree plantation system is a conflictive and contradictory system.

Within the context of forestry exchanges between Chile and Sweden, a group of forest owners from Chile visited Sweden in 2010 with the objective of learning about the situation with small forest owners in the country. One purpose of the visit was to explore a model that could strengthen them and to develop sustainable forestry and increase their incomes. Within the context of this visit, a Swedish participant noted that:

“Those who own those forests are often poor and own small lands. This program contributes and helps to create a better forestry consideration. A difference between Sweden and Chile is that private forestry in Chile is not mechanized” (skogsaktuellt, 2011).

One month prior to the visit reported above, another local newspaper in Sweden informed about a Chilean delegation of forest owners visiting Sweden

to learn about forestry and construction techniques with low energy consumption. In this case, a Chilean representative stated that concerning forestry in Chile,

“We have a great concentration in the market and two large forestry companies own 70% of the tree plantations. In contrast, the native forest is owned by a thousand people. We will see how we can obtain value in the native forest so that the large forestry companies do not take control of everything” (Kristianstadsbladet, 2011).

On the other hand, as we saw above, a delegation from Chile and Brazil visited Sweden with the aim of exploring trade relations between Brazilian and Chilean companies and Swedish companies in 2014. The activities of the delegation included visits to both forestry and technological companies in Sweden. In the delegation, the two largest Chilean forestry companies were represented. This is another case showing the making of forestry connections between Chile and Sweden. However, what a simple look at such visits and agreements does not allow to be seen is that in both Chile and Sweden, there are important conflicts rooted in the very development of forestry and pulp production.

6.6 Conclusions

The cases of Chile and Sweden presented above show that the communicative and material practices of forestry development have linked the two countries. This has operated through very material and specific forms of communication and labour. It has implied, to a fundamental degree, labour processes and labour organizations. The materiality of the documents I have referred to and the interviews I have used can be seen in terms of political ecology and environmental communication processes. We have reconstructed the places and times of that production of materiality and meaning for forestry. We can also observe that different instances of communication and material construction imply a view on the forestry sector as it is and a view of how it should be, which is in our terminology and imaginary. Thus, the qualification here is that this is environmental communication and this is labour in action and the two processes are producing forestry. This is forestry but this is a forestry that obtains qualifications and this is at one point world forestry and at another point Chilean and Swedish forestry as capitalist forestry. However, the case also shows that there are contestations and efforts to either participate in the formation of the meaning of forestry or to contest forestry in the way it is

being practised. The materiality and symbolism of the Nueva Aldea pulp mill shows for example that connections between Chile and Sweden are multifaceted as there is here a technological basis coming from Sweden and then at the institutional level Sweden is part of the discussion playing the role of sourcing information for and against the pulp mills in Chile, including active political support to pulp mills in Chile by representatives of Swedish companies.

Having reconstructed forestry connections between Chile and Sweden we can now analyse this from the point of view of political ecology and environmental communication. Here we bring into this theorizing the main points emphasized in the presentation of the framework for theorizing.

7 Analysis and discussion

7.1 Introduction

In this chapter I will further analyse the empirical material and discuss the research outcomes and findings of the study. This will be carried out to give grounds for the answers to the research questions. The analysis also aims to offer a deeper integration between the concepts presented in the framework for theorizing and the empirical reconstructions presented in chapters 4, 5 and 6. The first research question has been a question of conflicts concerning forestry in Chile and Sweden and of conflicts in relation to the use of forests and land for tree plantations. In addition, questions concerning climate change and forestry and alternatives and resistance concerning forestry were formulated. Theoretically, the study developed some concepts and theoretical insights to explore the cases of Chile and Sweden. This was followed by an empirical reconstruction of forestry relations in the two countries as well as their interconnections in terms of forming and being formed by world forestry. This chapter begins by presenting key findings of the research process. This is followed by an analysis and discussion of the research's outcomes.

7.2 Key findings of the study

The empirical material presented and analysed previously showed and described: (a) salient forestry processes in two areas of Chile and Sweden and their wider context. Within this context, forestry and wood use constitute a main economic activity and are at the centre of material struggles for resources and struggles over meanings of forest use and land use. This shows how the areas are today territories of a number of problematic relations, namely, relations between development projects and preservation of native forests and livelihood expectations, and problematic relations between pulp production and

its current relation to global markets. From those generalizations we can observe country-level differences. In Chile, for example, wood pulp production is a source of major and open environmental conflicts within forestry whereas in Sweden major conflicts are often to do with the tension between production goals and the demands of biodiversity conservation within forestry., (b) Relevant processes of discourse production and counter-discourses, and the subjects contributing to them, have been identified, (c) Contestation and struggles regarding the very process of forestry and the meaning of forest and wood and land use and change have been identified. Here, the role of the state, and the characteristics of neoliberal governance concerning the relation of production for forestry and wood use in the two areas and countries have been shown. (d) Different ways through which climate change is translated in the two areas have been described, and (f) The specific dimensions of world forestry have been described and analysed, by looking at how Swedish forestry is strongly connected to Chilean forestry and vice versa.

The existence of contradictions associated with forestry and forest use and land use in Chile and Sweden was a starting point for this research. In addition, the study placed climate change at the centre of a wide transformation of both the materiality and the meaning of forestry today. The thesis moved through the notions of political ecology and environmental communication to articulate the research process. In doing so, the fields of political ecology and environmental communication were brought as fields of study. Incorporating comparison articulated the comparative nature of the study and critical discourse analysis orientated the presentation and analysis of texts and discourses in the research. The key findings of the study are presented below and they will give the grounds to elaborate answers to the research questions.

A first finding of this thesis is the deep interconnections between forestry in Chile and forestry in Sweden. The study shows that forestry development in Chile influences the overall situation of forestry in Sweden and it shows that forestry development in Sweden influences forestry development in Chile. In this regard, forestry in the two countries has been shown as forming and being formed through the historical development of world forestry. At the theoretical level, showing this interconnectedness allows explanation of forestry in the two countries in more complete ways. Also, the explanatory role of such interconnectedness allows conflicts of forestry in both countries to be explained by placing such conflicts in a contradictory world system of forestry. In relation to this, the study has also found that similar logics of capitalist forestry, and pulp production, create similar social dynamics in Chile and Sweden, for example the power of forest companies within the two areas and

communicative struggles concerning forestry in the two countries, such as for example within politics and policy process.

A second finding is that climate change has transformed discursive practices of forestry in the two countries but in ways that reflect interests of particular subjects in relation to forestry and its contestation. Here, it can be noted that there are shared discourses about climate change across subjects in the two countries, for example, a similar understanding of climate change within forestry companies in the two countries.

A third finding is that in both countries the development of capitalist forestry has created and creates to this day important labour questions. Within this context, political ecology and environmental communication relations in forestry are importantly linked to labour.

A fourth finding is that there has been important recent movement of resistance against forestry development in the two countries. Though such movements differ there are still some commonalities, such as for example the practice of showing different land use.

A fifth finding is the existence of specific discourses articulating forestry development in the two countries. The ways through which such discourses are formed involve materialization of ideologies and environmental communication practices. Within this context, the hegemony of forestry and pulp production in the two study areas can be seen as a process that also implies contestation of this hegemony.

In this thesis, analysing forestry in Chile and Sweden through a combination of political ecology and environmental communication meant looking at how the combined process of labour in relation to value and power and environmental communication in relation to ideology, discourse, hegemony and counter-hegemony are fundamental processes in the articulation of forestry relations.

7.3 Analysis and discussion

On 22 January 2015, the Chilean government announced a council to discuss a new forestry model for the country. As we saw earlier, the Minister of Agriculture conceived this as being aimed at dealing with inequalities, but the point he added has to do with *inequalities of opportunities*. We can observe how the terms are put in the discussion and here equality is qualified and the problem concerns equality of opportunities. What I want to highlight here is that in that discursive act, there is in many ways recognition of a failure of the forestry model. As the minister said, a cycle of the forestry sector is over.

Something similar has been taking place in Sweden. The discussions we have looked at are a representation of a wide problematique with forestry in Sweden. Why did it happen that in the same period of time a *forestry question* was raised in Chile and Sweden again?

I present below two pictures that show the two meetings, one in Chile and one in Sweden, with a mix of experts and land owners I presented and analysed earlier. In these two cases we have a mix of forest owners, land owners, and peasants who are meeting experts who are in turn informing them of possibilities for forest use and about their possible participation therein. In one case, there is a new form of technological development based on forest raw materials and in the other case a carbon trade scheme, which in many ways can be seen as a kind of technological development implying communicative and material aspects of capitalism and commodity fetishism. Here carbon trade is communicated and commodity fetishism is produced in the middle of the climate change crisis. Thus, in the case of Chile and Sweden we have two similar processes taking place in similar periods of time. Therefore, the recognition of problems in two forestry sectors goes in parallel with the development of new ways to create value associated with forests and land and labour. This moves me into an analytical moment in which I attempt to link some concepts and also to raise some issues and to start preparing some grounds for answering the research questions in this thesis.



Figure 19. Meetings held for presenting new prospects for forestry in Sweden left (2013) and Chile right (2009). Photo: Cristián Alarcón Ferrari.

In these two cases we have a mix of forest owners, land owners, and peasants who are meeting experts who are in turn informing them of possibilities for forest use and about their possible participation therein. In one case, there is a new form of technological development based on forest raw materials and in the other case a carbon trade scheme, which in many ways can be seen as a kind of technological development implying communicative and material aspects of capitalism and commodity fetishism. Here carbon trade is

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A first issue has to do with the relation between forestry and time. I think that it is quite evident that in both Chile and Sweden, capitalist forestry is essentially a process concerning the administration and definition of time. Questions of time concerning forestry, as shown in the cases of Chile and Sweden, have different dimensions and different aspects certainly. Yet, we can take here what Marx tried to develop when recognising production time in nature, working period connected to labour and circulation time in relation to capitalist markets as being common to the two countries. What we have to understand today when we analyse forestry is that many of the important changes in this regard are very much oriented and articulated through time relations. With faster production and faster circulation, capitalist forestry companies expect to make more profit and accumulate capital, and that implies contradictions of forestry since this moves new technological changes, which on one hand undermine labour and on the other create conditions for increasing use of land and forest resources with the objective of having exchange value. Thus this time dimension of forestry in Chile and Sweden interplays in the problems we observe with forestry in the two countries. One problem here is the question of tree plantations in Chile, where the crucial factor of time makes such plantations what they are today and links them with the conflictivity of forestry. Within this context we have the question of value. In the case of Sweden, with the whole discussion of value concerning forests, such as for example discussion on forests' social value and the forest kingdom and other initiatives, we have a situation in which what is essentially being discussed are questions of use value and exchange value; and this is connected to questions of power. When I identified different dimensions of power, as social power in relation to labour and also in relation to what movements and people can do in order to change what in this case we can put in terms of social-ecological relations, I tried to open such a view on social power to look at different dimensions of power concerning forestry. Here we can see that power is conceptualised and operates at scales. Forestry agencies, for example, have a kind of power, which depends on state-legal institutional arrangements. Thus this power becomes contested in terms of how it is used to deal with forestry.

Here movements or organisations contesting forestry engage in a process of constituting a form of social power. In many ways an important point here is that forestry, and the relation between forestry and land, is very much related to the question of sources of power. The sources of power of forest owners and forestry companies are very much a question of owning a transforming land and biomass. This power to take decisions on forests and land is a power that goes far beyond the border of forests and plantations when including the case of climate change.

Today, the question of climate change raises all these questions of how social power concerning forest and land use interplays and the question of who has the power to decide in this regard today becomes a radical question. Within this context, environmental communication practices create and are created by the development of struggles for meanings for forestry and values in forests and land. Here the term I tried to put forward, namely, ‘spaces of communicative struggle’, can serve to help understand certain cases we saw above. For example, in the process concerning the production of visions for forestry in Sweden, the process became a space of communicative struggle implying first the state of the forest and second what to do with forests. In the case of Chile, the production of spaces of communicative struggle can be seen in relation to the agro-ecological movement and also in participation in EIAs. In this latter case, such an institutional mechanism becomes a space of communicative struggle where people try to contest pulp production and forestry in Chile, and this also implies questioning the very EIA system. Thus the mechanism to deal with the conflict is a catalyser for struggles.

The last point in this regard concerns the question of memory, which is in many cases crucial to understanding environmental communication practices where memory becomes a fundamental articulating moment. One example is when in Sweden the Norrland question becomes a way to frame problems with forests and land in Sweden today. In Chile the question of memory is related to the very clear point that is made concerning the forestry model having its origins in the DL 701. From that point of view some people contesting forestry relate until today the forestry model as being something produced by the military and capitalist dictatorship.

Forestry in the two countries takes place in different ways and it is not possible to say that there is a monolithic way of doing forestry and thus we can see how that difference is to an important degree produced by labour and how people understand labour and use their own labour. In the case of Sweden we have forest owners managing their own land and forests by using their own labour therein. In doing so they develop and give meaning to forestry and at the same time they give meaning to their labour. Labour is in fact what allows the

production of forestry. At the same time, the labour process becomes immersed in the process of technological development and it changes the ways in which forestry is conceived in relation to labour. By bringing a comparative aspect here, we can think that this difference is given by the fact that these independent workers, namely, farmers in Sweden and peasants and farmers in Chile, differ to an important degree in the role of technological means in the process of doing forestry, and this is something directly related to the way they conceive the relation between forestry and labour. Here the process of environmental communication becomes interconnected with the process of political ecology relations because in the way they signify their labour processes, they engage in giving a meaning to the environment and the overall discussion concerning the environment.

Therefore, the environmental double aspect of communication that I have highlighted in the framework for theorizing is visible here. It is environmental communication operating at the level of their everyday labour and activities, but it is also environmental communication operating in the way in which they try to put their everyday activities into the wider context of a current debate or discussion of environmental terms. In doing so, they engage in discourses to both counteract those discourses and also to reaffirm other discourses, and ideology is a clear process within this. In Sweden for example, the ideological dimensions of the forest owners movement are produced and reproduced by an extended network of newspapers and journals. This can be different in Chile where the work of some farmers and peasants interviewed during the research is at some points isolated and the ideological questions concerning forestry are less explicit. However, in cases where farmers are a part of movements, ideological terms can also be identified. In terms of hegemony, what is one of the crucial issues here is whether we can see a hegemonic process and contra-hegemonic processes. In this regard, one can say that the way in which the local political ecology is organized in the two study areas is definitely one in which forestry as a capitalist enterprise has become a hegemonic activity in the sense of a process that implies the reproduction of one way of doing forestry and how it is done and thought. There is a material-symbolic connection which is a very basic aspect of the notion of hegemony, but at the same time, when it comes to the case of Sweden there is still some contestation within the hegemonic discourse of forestry. This has to do with the differences between large companies and smaller forest owners, differences among the staff at the forest agency and ideas about alternative forestry.

At the same time, what happens in Chile is that the different instances where forestry development is being contested today take very much a discursive form in which a counter-discourse has been created and also, new

discourses are produced in the new ideological struggles in Chile. That is the case of the agro-ecological movement that tries today to reach out to farmers and engage them in the materiality and practice implied in the agro-ecological discourse. Here, to understand the discourse connected with farmers and peasants is a matter of conceiving politics and the structuration of political ecology relations, so in these two cases we can see environmental communication operating at the local level.

If we wish to analyse the connections between Chile and Sweden that we have identified above, we can take the terms of a world forestry discourse which is today very much related to the ideology of capitalism represented in neoliberal terms by free trade and exchange of resources on a global scale. Such ideological structure and its different specific discourses are today conspicuous in the two countries and the areas analysed above. There we have a very clear relation between environmental communication, discourse and ideology, through which the whole question of forestry is formed today. Under these circumstances climate change as an issue, and also as a material force, has created new conditions in terms of communicative and material dimensions for the development of forestry. Here the relations between forestry in Chile and Sweden can be seen as the structuration of political ecology and environmental communication relations, where the relation between political ecology and environmental communication is one such that they cannot be separated. Thus within political ecology relations, there are environmental communication relations, and also within environmental communication relations there are important political ecology relations. Here the intensive process of communicating climate change operates today as an important driver of the re-formulation of terms for forestry and land use in Chile and Sweden. We cannot explain the impact of climate change in the way forestry is conceived today without considering that for those different actors engaging in making sense of climate change and forestry today, climate change arrived at their own subjectivity or institutions from outside and is being reproduced today as a moment of a new political ecology configuration where environmental communication produces different understandings of the situation.

It is there where conflicts through the means of environmental communication reach the centre of the political ecology of forestry in the two countries. Thus, what we have seen too is that though there are important differences between the two countries, there are at certain points similar patterns today. There are important processes today that are rooted in the transformation of forest and land use in the two countries. One such transformation in Sweden has to do with the impact of the global markets in

the forestry sector and in Chile we have a transformation concerning the position of small owners in forestry development. As an example of this are the intentions declared by the delegation of small landowners that visited Sweden and argued that they wanted to know how to organize forest owners in Chile and so strengthen their positions within the context of forestry in Chile and in another cases to challenge the power of large forestry companies.

Within this context, we see in the two countries, and for different reasons, how individual forest owners are approached to obtain their contribution to the new development path in terms of forestry. We can see this in terms of environmental communication. Here we see a process that operates at the very basic level of symbolically constituting the political ecology relations of forestry and of attributing meaning to those political ecology relations. This is similar in the two countries, but living standards are very different. The other point where the similarities can be noticed today is in how climate change is a process where similar discussions concerning forestry and similar appropriations of climate change take place in the two countries. Therefore, discussing the issue of climate change implies the appropriation of climate change science to attribute a meaning to forestry use and land use, and finally to discuss it in terms of forestry, and is a similar process in both countries.

Within this context the new questions raised by the forest fires we have observed and reconstructed earlier obtain an important symbolic and material place. It has been in those extreme moments where we have seen the instability of certain discourses on the relation between climate change and forests, and it is there that we see new processes of environmental communication practices being developed, and in the two cases we see how the meanings for climate change are altered. Thus conflicts in this regard are very much a question of articulating a meaning for forestry and giving normativity to forestry and at the same time, when there is resistance to that process, we see deconstruction of the forestry discourse. In this regard we see how in the two countries, and especially during recent years, important moments of critique concerning forestry have been developed. In the two cases we see how local actors deconstruct the discourse and ideology behind forestry development while at the same time highlighting an alternative view on forestry.

As we reconstructed above, the question of pulp production in Sweden and therefore the consequences of the crisis of pulp production in the country was identified as an important issue by actors interviewed and in documents. Here a very broad understanding of the problems with pulp production in Sweden sees the rise of producers in the South and in particular in countries such as New Zealand, Brazil and Chile as a threat to the pulp sector in Sweden. However, this has also been discursively conceived as a matter of opportunities and a

closer analysis of his shows that production, competition and trade threats have been partly created by Swedish forestry companies.

The empirical reconstruction of forestry in Chile and Sweden showed that there are similarities and differences in the way that political ecology and environmental communication relations are played out in the two countries. We have said in the analytical framework that the political ecology analysis used in this research started by asking questions about labour and how labour is a social process that creates the interaction between humans and ecosystems. Theoretically we have also placed labour as one of the fundamental processes within social interaction and in the constitution of social-ecological relations. However, we have added the insight that along with labour, communication is the other fundamental social interaction that allows humans to materially define how to use resources, for example land and forest, in political terms. Here communication is the process through which humans contest the multiple possibilities to use resources and put forward their own views on how to use resources. These two basic points allow the relation of political ecology and environmental communication in such a way that the analysis of one moment in the social-ecological can illuminate the other and vice versa. In doing so, I have gone beyond my first and preliminary theoretical idea of having political ecology as the wider context of environmental communication and so provide tools to explain what environmental communication practices are and why they should be so. In looking at local political ecology relations and how forestry has been formed there, we actually enter into the logics of world forestry involving material and communicative dimensions. This means that in the long history of relationships between Chile and Sweden through forestry, we have had a dialectical process in which the local and global dynamics interact and in some particular cases the forces originating in a world forestry discourse have arrived in local areas, changing terms of forestry and bringing about changes in the concrete forestry management practices. Thus it is here that analysing environmental communication processes can allow us to explain the changes in the political ecology of a local area.

As I have shown in the case of Chile and Sweden, we can go further into the analysis of how labour interacted and is actually produced in the middle of value struggles. Our analytical terminology here says that the production of use value and exchange value are fundamental processes in capitalism and there is a specific way to organize the relation between use value and exchange value in capital, which implies a contradiction. That is the process of commodity production implying commodity fetishism. I have stated that commodity fetishism is a concept that implies a material reality, namely the use value and exchange value relation and a symbolic and semiotic process, as commodity

fetishism means that the commodity in itself becomes an object of communication. This is a result of human labour. Thus the commodities become communicative instances to create consumption possibilities for commodity consumption. This relation between labour and values through the interaction of commodity fetishism is fundamental for the development of capitalist forestry both in Chile and in Sweden. Under these circumstances, the environmental communication dimensions of this imply a conflictive relation. It is here where the insight I put forward, concerning environmental communication as being in our contemporary world an expression of conflicts, obtains a specific dimension. People produce environmental communication to put forward ideas about how social-ecological relations are organized but also environmental communication is produced as a means to contest hegemonic ways to understand this relation or also to produce different approaches to deal with environmental issues. As enunciated in the framework for theorizing, environmental communication is a process that operates at the level of the symbolic and semiotic, making possible discursive and ideological struggles and hegemonic processes. This is a process operating in producing social-ecological relations. It is here that labour and communication, and in more specific terms, wage labour and environmental communication interplay today in the very basic process of producing environmental or social-ecological relations. For example, forestry farmers and peasants interviewed in both Chile and Sweden have knowledge about what to do with their labour when it comes to the concrete management of forests and trees. That knowledge is created at different spheres and circulates in local areas. This is knowledge that takes the form of environmental communication and in the process of being adapted to a concrete reality, farmers and peasants brings environmental communication practices into their labour practices.

We have here a dialectical process where the relations between forestry and social relations are produced. Within that dynamic the production of discourse concerning the environment and the multiple discourses it allows can be produced and so forestry can be seen as a political process. I stated that the relation between ideology and discourse cannot be defined in a priori terms since in many cases we have to be open to see how this takes the form of a dialectical relation, and here the meaning of dialectics I gave in the framework emphasized that we are looking at processes and interrelations between structure and agency within a whole or a totality. Empirically I can sustain now that forestry development in Chile and Sweden creates a totality of relations in which the symbolic and the material are interrelated. Yet this is never a closed process because resistance to the different forms of developing forestry also exists. In addition, the integration and participation of different actors, namely,

peasants and farmers into the process of doing forestry marks a difference between how companies operate and how these small-scale producers operate within this totality of relations where forestry relations are contradictory. This is an evolving process both at the local and world level. It is here that the notion of incorporated comparison has allowed this research to identify how Sweden and Chile are both a part of world forestry processes and also how they make this process possible. We can say that today world forestry is very much a process where forestry in Chile and forestry in Sweden have leading positions in the material and in the communicative configuration thereof.

Analytically then we can have the two cases as examples showing the conflictive nature of environmental communication relations and political ecology relations. Here forestry becomes both a material process through labour and technological development, for example in the material process of creating a forest or creating plantations, and also it becomes the communicative process whereby people try to produce meaning for the process of managing forests and also establishing tree plantations. Therefore forestry is often qualified today, for example social forestry, modern forestry and also today some people talk about post-modern forestry. This means that forestry becomes both an abstract and concrete process at the same time.

We can still continue bringing more elements to this analysis. One important element is to say that today new processes of forestry in Chile and Sweden are formed through a very specific relation between ideology and discourses. This reconfiguration of forestry operates through the material and communicative processes of climate change. Within this context, we have a capitalist ideology which is essentially an ideology affirming capital as the only way to organize society and to provide wellbeing to people in societies. Thus, even in the case of climate change, this ideology aims to reaffirm capital as the only way to be productive and create the satisfaction of human needs. This ideology operates within forestry companies which aim today at articulating climate change in their discourses and ideology. Climate change is here signified and becomes an object of discourse. In this way, the scientific discourse of climate change becomes a political discourse in the context of forestry. For forest companies in Chile and Sweden, climate change becomes a discourse that aims to link the historical fact that companies own and manage forest resources with scientific knowledge, giving forests and forest dynamics a certain and specific role in the political context of climate change. Thus this very basic knowledge is converted into a discursive claim. Here companies re-signify forestry in the context of climate change. Yet a counter-view to this is one that also takes scientific knowledge to sustain that the use of forest and land resources should be politically re-assessed in the face of climate change.

In doing so, the communicative production of discourse implies a different ideological connection and in the final analysis it creates the possibility for a political contestation in the plane of ecological relations. This configures a struggle to give meaning to forestry and to forest use and land use.

An important point here is that we can make sense of the connection between Chile and Sweden through forestry relations by establishing that at some levels of world forestry there are important class relations that operate in a way that allows the power of corporations and large forest companies to maintain their roles in world forestry. On the other hand we have the case of the agro-ecological movement in Chile, which at some point used knowledge of climate change to challenge the hegemonic discourse on forestry and climate change in the area of study in Chile. Yet as we reconstructed above, that takes place amidst tension within the movement because of the issue of tree plantations. The question of climate change means a historical conjuncture for forests and land use and this conjuncture is being struggled and produced today. It is a matter of seeing how, in the constant process of production of knowledge on forestry and climate change, new questions are raised and added to the discussion. For example, the overall question about carbon neutrality and the real and definitive role of trees in the carbon cycle and the possibilities of using forests for climate change policy is becoming contested not on one, but on several different fronts. Within science there is today an ongoing struggle to set and finally define and attribute a meaning to the relation between forestry and climate change, and these two processes are very much represented in Chile and Sweden.

8 Conclusions

In this chapter I give answers to the research questions I posed at the beginning of this thesis and I summarize the main conclusions of the thesis. In addition, I reflect on both the methodological and theoretical contributions of the study along with its political implications.

Why and how does forest use and land use imply conflicts in Chile and Sweden?

Forest and land use related conflicts in Sweden and Chile can be explained by retaking two of the theoretical insights developed in this thesis: (a) in capitalism and capitalist forestry the aim to produce commodities, accumulate capital and continue growing is based on producing value in order to exchange value in the markets and, (b) in doing so the relation between use value and exchange value is contradictory. Linked to this there is a communicative process through which there is attribution of use value to certain materials and processes within ecosystems. Therefore when there is differential attribution of use value concerning forests and land and there are interests to produce exchange value with forests and land, conflicts can potentially emerge. Although within a capitalist system there are political mechanisms that regulate such relations, such as for example environmental policy or laws, there are situations where those different expectations about what to do with forests and land lead to conflicts.

Under these circumstances, use value and exchange value contradictions lead to different conflicts which can be seen as moments of a political ecology of forestry. Though the political ecology of forestry differs from one country to another, in both Chile and Sweden the existence of use value and exchange value contradictions characterizes forestry development today. Within this context, exchange value production is followed by ideology, discourses and at some points capitalist forestry becomes a local hegemony. That is the situation

in the two study areas researched in this thesis, but neither ideology, nor discourses nor hegemony can be formed without the operation of one of the most basic social links, namely, human communication and inter-communication. In the context of conflicts of forestry, human communication becomes environmental communication. This is because forest use is essentially a social-ecological relation. Thus, environmental communication practices are a defining characteristic of forest conflicts. In the case of Chile there are conflicts related to native forests where forestry is not the main driver of the use value and exchange value contradiction. There it is the wider process of capitalist development that brings about conflicts to local areas. In Sweden the main conflict concerning forestry today is very often framed in terms of a conflict between production and biodiversity. Yet, a structural conflict is more hidden, namely, a conflict between labour and industrial forestry. In these two cases, forestry's technological development means that the development of capitalist forestry conflicts with labour and ecosystem processes. Within this context, today's conflicts and contradictions concerning forest use and land use in Chile and Sweden are very much related to the historical development of forestry as an industrial activity in both countries. As an activity which, when it is developed as capitalist forestry, it has the need to constantly grow and also the need to constantly use and appropriate forest resources. In the more specific case of Chile, this contradiction is also expressed in the need to incorporate more land for the purposes of tree plantations into the industrial production of wood-based commodities. It is because of such patterns of forestry that today in Sweden the establishment of environmental objectives and the need to see how forestry can fit into environmental consideration and objectives becomes a conflictive situation. Within this context, both actors within the forest sector and outside the forest sector try to define the terms of the meaning of environmental forest planning in the country. A rather different situation can be observed in Chile where the use of tree plantations, as a way to provide the raw materials for the industrial forestry sector, is mainly considered as an activity that does not actually concern necessary environmental planning. This is because plantations are essentially considered as the industrial way to obtain raw materials. However, this creates a conflict concerning land use and pulp production.

In a context where different actors try to preserve their positions within forestry development and therefore try to either resist changes in forestry development patterns or try to accommodate the terms of the discussions to their own interests, there are conflicts in the areas of political ecology and environmental communication. Such conflicts are very much developed in temporal and spatial terms. Here, assessments about the use of forest are

necessarily linked to time frames and also spatial considerations. For example when in Sweden people discuss forestry development and biodiversity, there is a very clear issue concerning where to preserve biodiversity and where to develop industrial forestry. Thus, this is also a process to define baselines and time frames to reach such environmental objectives. Therefore in Sweden there has been a constant conflict of interests and also of understandings about whether or not environmental objectives for forestry are being attained. When the objectives have not been reached, questioning emerges about the basic understandings of the meaning of the official environmental objectives. This is a struggle on meanings which is essentially produced in terms of environmental communication.

In the case of Chile, the situation with tree plantations is one characterized by the already established number of plantations. This in itself creates local conflicts between the objective of development through agriculture and land use change for forestry. Also, and because the monoculture systems mean that plantations are today essentially plantations of pines and eucalypts, conflicts between biodiversity and plantations occur. Yet, in this case the meaning of that conflict is only produced from a practice of resistance, since in the official discourse about forestry, such a situation is not a problem.

In both countries there are powerful actors struggling to preserve capitalist forestry and here this is presented as a development need. Thus, the conflict persists in many ways because there is an ideology in which industrial and capitalist forestry is constructed as a development project. Discursively this develops through the opposition of forestry as a development alternative and the views considering this an unsustainable pattern of development. Whereas in the discussion in Chile this is thematised in terms of a conflict of land use, in Sweden it concerns forest use and preservation.

The current situation in the two countries shows signs of an intensification of the processes of arguing, discussing, and contesting views on forestry, and here, communication and labour have a crucial role. Environmental communication in this case obtains a very concrete meaning. It is the process through which discourses and imaginaries about forests, land and forestry are brought into the discussion. Here both public and private spheres and subjective and intersubjective processes interplay. That dimension of environmental communication has become a crucial and fundamental moment in the development of forest and tree plantation conflicts and also in the way that discourses are produced through those conflicts. The constant role of communication, as the social process of actually making possible the existence of forestry as such, is also a process that makes possible the critique of forestry. Thus, this double role of communication is fundamental. Something

similar happens with labour, as labour becomes one of the articulating discursive points concerning forestry in the two countries.

Within this context, labour becomes an object of critique, such as for example in the case of the critique about labour in plantations in Chile, and it is also a conceptual device to communicatively create alternative meanings for land use and forest use in the country. Again, as happened with communication, the concept of labour, or the idea of labour, is articulated at the material level but also at the symbolic level, so there is a double position of the conceptuality of labour here. Labour is important in the two countries because it is still the reason that is constantly used to intervene in the definition of the terms 'forest' and 'land use'. In more specific terms labour motivates many of the concrete ways to participate in the debate on forestry in the two countries. In the specific case of Sweden we have labour as what actually mobilizes an important part of the farmers' movement which sees the connection between forestry and labour as what defines their particular group. For the farmers this is what should be preserved in terms of the possibility for farmers that are forest owners to participate in development and to maintain a livelihood in the local area. In the case of policies, there is still the aim to balance or rebalance the relation between forestry and labour, and so labour and communication become two fundamental processes implied in forestry conflictivity. A major feature of capitalist forestry is that this is essentially a process of using land and biomass to produce value and commodities to be exchanged. Yet, in the case analysed above, not all conflicts concerning land use and forest use are directly linked to forestry. As we saw in the case of Chile, planned and already carried out felling of native forest to allow hydropower projects led to conflicts between companies and local inhabitants and created conflicts between local inhabitants with different sources of livelihood. However, this example can also be explained by processes interlinked to wider capitalist development in the area.

The conflicts we observed concerning forestry in Chile and Sweden are rooted in the constant contradiction between the environmental meaning of wood biomass and the different material objectives of subjects attempting to give value to wood biomass and land. Yet environmental meaning has different sources in this context. In the case of Sweden, for example, important meanings about what the environment concerning forestry should be are produced by formal political agreements and scientific knowledge. However, in local areas the very meaning of the environment and the role of forest use therein is contested.

Today we can see how in the two countries the role of private land and forest owners is still very important for the development of forestry. In Chile,

the current understanding of limits in terms of land ownership by companies is linked to a process whereby companies aim to incorporate more land owners in their production system. In Sweden, and because of problems with pulp production that can partly be explained by the role of the global market, the needs of the forest sector in order to generate new products create a considerable focus on those forest owners that can deliver those forest materials to the forest sector. Within this context, the notion of conflicting objectives for forestry gains a new dimension and can be understood as a conflictive process of re-structuring of the political ecology relations and environmental communication practices concerning forestry in the two countries.

Conflicts of forestry in Chile and Sweden are connected to important changes in the structures of political ecology and economy in Chile and Sweden, which concerning forestry development have been: (a) the process of neo-liberalization of forestry in both countries, (b) the dependency of forestry on international trade dynamics, (c) the growing criticism against forestry and its consequences which have been mainly articulated by NGOs, (d) the permanence of the labour question within forestry in both countries, and (e) recent discursive and material changes linked to climate change which are defining new dimensions of forestry in both countries. Within this context, one can note that the period coincides with a growing awareness of the problematic relation between forestry development and forest ecosystem changes. As environmental communication concerning forestry in the two countries is deeply associated with the struggle to define a meaning for forestry and is ideologically linked to the reproduction of the capitalist mode of production, a number of discourses have been produced to articulate capitalist forestry as a development project. Thus the material changes at the level of forestry and pulp production interplay with ideologies, discourses and environmental communication practices along with the process of constituting and contesting hegemony.

In Chile, a crucial change in the political ecology of forestry started 40 years ago when Chile's forestry sector entered into a very expansive development path fostered by the DL 701 and the overall neoliberalisation of the country. This re-signified forestry development in the country. The DL 701 in itself implied a communication practice aimed at promoting the sector's development and the incorporation of landowners into tree planting. Not much active resistance to this could take place on the ground because of the dictatorship's repression. Within the recent period of parliamentary democracy and elected presidents, which coincided with a new phase of establishment of pulp mills and an increase in production capacity of pulp mills along with new

environmental disasters caused by pulp mills, a period of growing criticism against pulp mills and forestry development began. Before that, the main open forest conflicts were based on the extraction of native forests and conflicts associated therewith. Within this context, new processes of communicative practices associated with forestry development have been: a) from the side of forestry companies, the use of CSR and sustainability reports have become main mechanisms to defend their positions, b) The EIA's consultation process has become an arena of important criticism against pulp mills and forestry development, c) the increasing use of new media and on the ground reporting about the damaging effects of forestry development and pulp milling in the country along with the elaboration of alternatives by NGOs and activist groups. In Sweden, the process of neoliberalisation of forestry development is also a main feature of current forestry development. The de-regulation from 1993 created the basis for a new discourse that has had overarching consequences in the way that forestry development is discussed in the country today. Different waves of criticism against forestry development have mainly been based on environmental reasons concerning bio-diversity, changes of the ecosystem dynamics of forests and preservations of old-growth forests. While in Sweden pollution from pulp production ceased to be a major cause of conflict during the period, this was not the case in Chile where several ecological disasters were caused by pulp mills. In the case of Sweden, this contributed to the overall environmental communication practices representing pulp production as an ecologically friendly activity.

Within this context, one can state that the reconstruction of the wider context of environmental communication, which in this thesis has been understood in terms of placing environmental communication practices in relation to political ecology relations, allows the explaining and understanding of how environmental communication practices are expressions of and contribute to the conflictivity of forestry development in a capitalist form. Within this context, the use value and exchange value contradiction to which we have referred earlier is co-produced and reproduced through environmental communication practices in both countries.

What are the relations between Chile and Sweden concerning forestry in the two countries?

This study has found that there are important and deep connections between forestry in Chile and Sweden. The analysis of such connections allows in fact a more profound explanation of the situation concerning forestry in Chile and in Sweden. One of these relations is essentially formed by the important export of machinery to Chile by companies from Sweden. This in some cases lies at the

basis of local forestry development in Chile. In more concrete terms, such technology plays an important role in the development of forestry and pulp production in the study area on which this thesis has focused. However, this use of technology developed in Sweden goes beyond the study area and it is important for companies operating in other areas of Chile as well. Thus, machinery developed in Sweden and used in Chile is one aspect of the materiality of the relations between Swedish and Chilean forestry. Within this context, another important relation connecting Sweden and Chile concerning forestry involves partnerships between companies. In one case this actually meant that one company owning pulp mills in Sweden, Brazil and Uruguay put those mills into competition among themselves in the international markets.

Concerning the role of the state, the Swedish and Chilean states both favour this exchange. This has been a common approach of recent governments in the two countries. The relevance of exports of highly developed technology from Sweden is actively supported by the state apparatuses, as is illustrated by recent visits of representatives from Chilean and Brazilian forestry companies to Sweden. The visits were organized in order to make Swedish forestry technologies better known to those managers aiming at future acquisitions of such technologies. This shows that forestry relations between the two countries are economic and political. Here an important relation is given by the meaning of forestry in the two countries where Sweden is often presented in Chile as an example of sustainable forestry development. Recently, the meaning of forestry in Chile has also been taken in Sweden as an example. In the case of Chile, the country has been presented as being a successful example of forestry, which also creates the idea that there is a sustainable system of forestry in Chile. The nature of this relation can be put in terms of political-economic relations and also symbolic relations.

Within this context, the flow of communication, and the process of giving meaning to forestry, is commonly articulated in the two countries through reinforcing the idea of forestry development. Here, instead of taking for granted the relations between the two countries at the level of the global markets, this study has shown that the global market is only one moment in the articulation of the relations between the two countries in terms of forestry. Here the study shows that the influence of the two countries operates at very local areas in Sweden and Chile. The fact that this is not thematised as such is a result of the process of externalization of the source of problems by discursive processes. This means that the problem is put at the global market level instead of being located at the more specific level of the process of constituting those global markets. Thus, it is here that Chile and Sweden can be seen as constituting world forestry and also as being constituted by world forestry. In

this process we can also observe how there is a process through which both countries become closer to one another in terms of forestry development today, and this is because forestry development in these terms tends to be homogenized. The tendency to have homogeneous forestry development is observed when the model of pulp production, which is dominant in these two countries, becomes a global process. Here the establishment of pulp mills in historical terms and then the development of pulp mill technology meant that countries being incorporated later into pulp mill production had the possibility of using such technologies in their pulp producing processes, which created similar forestry dynamics in very different countries.

The previous answer to the research question on the relations between forestry in Chile and Sweden can help to better understand and also clarify some usual claims in forestry discussion today in Sweden and Chile. One of those claims is that Chile as such competes with Sweden in forest product markets and it is a factor in the problems of pulp production in Sweden. Yet the evidence presented in this thesis shows that Swedish interests and Swedish companies are and have been at the basis of the growing forest sector and pulp production in Chile. Thus, re-constructing and making visible the network of interactions between Chile and Sweden as part of world forestry allows us to explain the wider sources of the problems of forestry in Sweden today. The recent evaluation of environmental goals in Sweden, the need to elaborate a new strategy for sustainable land use and the crisis of legitimacy of the principle of freedom under responsibility are all proof of a forest sector in need of change and new measures concerning sustainable forestry. For the case of Chile, this shows how forestry and the Swedish forest model are not an example as is being commonly taken for granted in Chile. Here we can note that there is an important differentiation in the way forest and land are used within the two study areas. As noted in the empirical chapters, a basic differentiation is given by forestry relations concerning farmers and peasants and forestry relations concerning forest companies.

In addition, we have observed that important articulations of environmental communication practices in both countries operate by direct or indirect reference to the other country. Thus, the phenomenon of world forestry and the interrelations of Chile and Sweden within world forestry show that to fully explain what happens with forestry development in Chile we need to know what happens with forestry development in Sweden and vice versa. The multiple examples where this connection has been observed and reconstructed in the thesis gives sufficient empirical grounds for this. To conclude, one can sustain that the world forestry dimensions of forestry in Chile and Sweden are

characterized by important relations where conflicts and problems of forestry are interconnected.

Why and how does resistance and alternatives concerning forestry emerge in Chile and Sweden?

First, one needs to state that the forms of resistance identified in this study are varied. As was analysed in the previous chapters, the relational character of resistance implies that different actors resist different processes and they resist by using different means. At the communicative level, resistance to forestry and resistance to resistance to forestry imply an important focus on showing what all this is about. Alternatives to forestry in Chile and Sweden have emerged as a response to both the social-ecological transformations of forestry. Alternatives in this context are discursive alternatives and in some cases, material alternatives exemplified in concrete ways to manage lands and forests as a contra-distinction to industrial forests and today, hegemonic industrial forestry.

As the question about resistance and alternatives in this study was linked to a relational concept of resistance, in the two countries we can observe processes of resistance going in different directions. It happens in varied ways and one dimension of this is the reproduction of discourses for and against large-scale and capitalist forestry. Here, environmental concerns become important reasons to organise some practices of resistance. The meaning of the environment or the social-ecological relations is what is at stake here. In Chile, the need to articulate alternatives is one way to articulate labour and livelihoods concerning the use of land or the use of forest resources. In Sweden, the situation is very much one in which environmental organizations have a lead in discussing forestry whereas in Chile it is still very much an issue of different actors, in several cases, not making the distinction between an environmental organization or a social organization in terms of those resisting forestry and producing alternatives. Alternatives in Sweden are more limited because they are very much related to the question of preserving forests and findings new ways of doing forestry practices. In Chile, alternatives are still very much based on the goal of providing different places for labour and the need for alternatives is often argued by rejecting tree plantations in the concept of forest. Thus, resistance against forestry development is very much about land use and land ownership. What creates the differential here is actually the question of technological and machinery development and also the question of mechanization. In Sweden, where forestry is very much a question of high technological development, the overarching role of technology has actually put labour into second place. Yet, as we saw above, at crucial points labour

resurges as a crucial aspect of forestry development. Also, as noticed in the empirical chapter, the persistence of forest conflicts in terms of labour conflicts has been a critical moment in forestry development in Sweden and Chile, and through that conflictivity, important changes in forestry have taken place.

A particular situation concerning Chile has to do with the sort of limit in terms of land acquisition by companies and the new effort of companies in order to convert or incorporate small peasants and farmers into forestry activities. In the case of alternatives, the case of Chile shows that alternatives are very much related to the need to keep subsistence practices by peasants and farmers in some cases and also by different people that conceive agriculture as the main source of livelihood. In Sweden alternatives are still very much thought within the framework of forestry as such, as agriculture is not really a matter that is always connected to forestry. In this regard, this is an important difference between the two countries.

Why and how does the crisis of climate change transform the meaning and materiality of forestry?

In the empirical chapters, the thesis has shown how climate change became a fundamental concept in the understanding of forestry in Chile and Sweden. Yet a wider international divide among countries implied that the terms of the relations between climate change politics and forestry are at certain points crucially different in the two countries. In Chile, a concrete way for climate change to enter the discussion and produce the relations between climate change and forestry has been the use of wood biomass in CDM projects and in REDD projects. In Sweden there are intensive campaigns to position forestry as a remedy to climate change aimed at re-developing and discursively representing forestry in the light of climate change. Because wood biomass has a specific and crucial role in the carbon cycle and this has been translated into the terms of a discourse on the carbon neutrality of forests, the meaning of forestry has recently been substantially transformed.

In material terms, the already noticeable changes in forest biomass and other processes in forest ecosystems is today more often associated with changes in climate and weather conditions. In terms of climate change and forestry we can say that based on knowledge about the role of forestry and biomass in the carbon cycle, forestry actors very soon realized that there was a possibility to rethink the terms of forestry within this context. Here, the material and communicative transformations of forests and land under climate change is already a noticeable feature of forestry in both countries, which has to an important extent transformed the meaning and materiality of forestry in the two countries. Yet, one can also notice that though there existed a growing

literature on the link between climate change and forestry at the time of the study visits and interviews in Chile and Sweden, neither in Chile nor in Sweden had major changes considering climate change in forestry practices been adopted at ground level. On the other hand, the two recent large forest fires in both Chile and Sweden have opened a space for discussion on forestry and climate change but in the case of Chile, this was only in 2014, and 2 years after the mega forest fire in southern Chile, when authorities took measures to allocate more resources to forest fire combat in Chile. In turn, and in the context of discussing the relation between forestry operations and the forest fire in Sweden during 2014, the findings of this research show that the concrete measures to deal with forestry and climate change in specific terms have not been part of the recent development of forestry in Sweden. In more concrete terms, the possibility of forest fires was not actually a matter of direct concern for a number of actors in the forestry sector in Sweden. In addition, the overall meaning of climate change as a problem implying possibilities and gains for the forest sector was identified as an overall discursive and communicative element in Sweden and Chile. Yet, in this incorporation of climate change into forestry, a gap between scientific knowledge about the damaging consequences of climate change and forestry practice measures on the ground remains an unclear issue. Within this context, climate change politics concerning forestry take place and contribute to the conflictive nature of forestry, which can be observed today in both Chile and Sweden.

8.1 Theoretical and empirical contributions of the thesis and political implications of the study

One contribution of this thesis is the combination of environmental communication and political ecology. Thus the theoretical framework guiding the research was linked to political ecology and environmental communication in order to carry out a comparative study of forestry in Chile and Sweden and by doing so, this was connected to wider theorizing and conceptual developments in theorizing within critical theory, historical materialism, and world systems theory. Political ecology and environmental communication were linked in a conceptually productive way. In linking this conceptual work to the question of forestry, and in more specific terms to the question of climate change and forestry in Chile and Sweden, the thesis combined theoretical development and empirical work which contribute to both political ecology and environmental communication research. This is because this combination allowed a fuller understanding of local processes and global interactions as combined processes. Here the combination between incorporated comparison

as a methodological orientation along with dialectics allowed an appropriate relation between theory and methodology in the thesis. In terms of world systems theory, the thesis contributes to the effort to overcome the gap between the study of local dynamics and the analysis of global forces implied in those dynamics. The focus on labour and communication also serves to counterpose what could be defined as a capital-centric view on the social-ecological question. Here the thesis shows how processes of communication and labour can be conceptually articulated not only in normative terms but also as analytical tools. In this thesis this has allowed an unpacking of the constitution of materiality and communicative processes interplaying in the constitution of social-ecological relations as a single process where certain analytical distinctions can be made.

The thesis has theoretically conceptualized interconnections between forestry in Chile and Sweden, and explained important processes linked to forestry and climate change politics in the two countries. Studying the areas of Ñuble province in Chile and Jämtland-Västernorrland in Sweden along with the wider national and world dimensions of forestry, this study has identified that a crucial dynamic of forest and land use in the wider context of world forestry is the current contradiction between use and exchange value associated with forests, land, and woody biomass. This makes forestry today an inherently conflictive activity. Finally, the thesis contributes to the empirical research on the contradictions and conflicts of capitalist forestry, and in particular the contradiction between use value and exchange value concerning land and forests.

Methodically, drawing from critical discourse analysis and incorporating comparison allowed a dialectical research process. Thus two equally important concerns, namely, the materiality of conflicts and contradictions of forestry and the communicative processes therein were researched. Thus, the point here is that by moving between such different spheres one can obtain a more integral understanding and explanation of processes and can work with a critical view on those processes. Within this context, to have an immanent transcendental perspective meant thinking and re-constructing alternatives and analysing them in the context of the contradictory social-ecological reality of forestry in Chile and Sweden.

There are two important political implications of this study. One has to do with the contemporary politics of research and the other has to do with the politics of forestry development in times of social-ecological and climate change crises. In the first case, the thesis shows that a critical starting point that recognizes conflicts and contradictions as internal processes of capitalism and capitalist forestry is a necessary starting point for research today. Concerning

the second point, the critique of capitalist forestry offered in this thesis contributes to a political discussion on forestry and therefore an engagement with the future of forests and land in the two countries studied and beyond.

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Appendix I

Capital Accumulation, Climate Change, and Crises in Chile and Sweden, appeared as Chapter 16 in *Ecology and Power. Struggles over Land and Material Resources in the Past, Present and Future*, edited by Alf Hornborg, Brett Clark and Kenneth Hermele, Routledge, 2012. This article is reproduced with the permission of the publishers.

16 Forests

Capital accumulation, climate change and crises in Chile and Sweden

Cristian Alarcon Ferrari

On 20 December 2006, the General Assembly of the United Nations (UN) declared that 2011 would be the International Year of Forests. It stated that 'concerted efforts should focus on raising awareness at all levels to strengthen the sustainable management, conservation and sustainable development of all types of forests for the benefit of current and future generations.' The background for such a statement is the recognition that forests are threatened worldwide. In spite of such discursive claims of 'concerted efforts' at the level of international organizations, enormous socio-environmental struggles and conflicts around forests, trees and forestlands will persist. Though conflicts and struggles over forest resources are not new phenomena, there are two unique components today. First, tree biomass and the biophysical processes of forests play a critical role within the emerging climate change regime. Second, an energy transition away from fossil fuels involves increasing extraction of energy from forest biomass. Forest companies, shaped by the capital accumulation process and finance, largely influence the appropriation of forests. As a consequence, highly industrialized and mechanized forest sectors pursue constant increases in productivity and use of forest resources. Thus, forest crises are at the center of social-environmental conflicts.

The question of how to define the sustainable yield basis for forest harvest, as well as the regulation of the production and consumption of forest resources, is shaped by the logic of endless capital accumulation within a world-system of uneven development. The World Commission on Forests and Sustainable Development, in the report 'Our Forests, Our Future' indicates that 'the less visible underlying or root causes' of the forest crisis are forces 'embedded in how we organize our economic and political systems, and in governance structures that emphasize private gain over the public interest' (WCFSD 1999). Yet the main proposals of the commission for governing forests operate within the logic of capital.

Forests have long been tied to accumulation cycles, including the primitive accumulation process. However, today capital accumulation contributes to forest contradictions in new ways. First, there is an increasing contradiction between production and biodiversity. Second, there is a crisis rooted in the loss of native forests and expansion of industrial tree plantations. Within this context, global

trade of natural products creates the conditions in which national patterns of consumption take place far away from the point of production and extraction of natural resources, a process implying environmental load displacement (Hornborg 2008).

Global climate change is also linked to the forest crisis. 'Forestry, including deforestation, represented 17.4% of GHG emissions (CO₂-eq.) in 2005' (Intergovernmental Panel on Climate Change (IPCC) 2007). Forests and trees can be both sources and sinks of greenhouse gases (Dixon *et al.* 1994; Ogden and Innes 2007). Climate change affects forest health and forest ecosystem dynamics.¹ Thus, the various objectives for forest use and management may conflict with policies that address climate change. The IPCC's report from 2007 stated: 'In the long term, a sustainable forest management strategy aimed at maintaining or increasing forest carbon stocks, while producing an annual yield of timber, fibre, or energy from the forest, will generate the largest sustained mitigation benefit' (IPCC 2007: 543). However, the report states that: 'The longer-term mitigation prospects (beyond 2030) within the forestry sector will be influenced by the interrelationship of a complex set of environmental, socio-economic and political factors' (*ibid.*: 577).

In the case of industrial forest sectors, it is important to consider that the forest carbon cycle 'is comprised of a biological cycle (i.e. forest ecosystem) and an industrial cycle (i.e. forest products)' (Gower 2003). Thus the net capacity of forests and tree biomass to sequester greenhouse gases has reshaped the global forest agenda. An example of this shift includes the proposals of Reducing Emissions from Deforestation and Forest Degradation (REDD) schemes. These schemes allow groups to generate carbon credits that can be sold on the global market. As a result, forest companies now claim that they are part of the solution to climate change. Furthermore, bio-energy is seen as a techno-fix where woody biomass can be used as part of an energy transition. Capitalists propose to use forests to address climate change and to maintain extraction of forest biomass, to meet production needs, such as for the production of paper. In this regard, climate change implies an aggravation of the global forest crisis that is taken as a new possibility for capital accumulation vis-a-vis forest resources.² Capitalism has a specific way of organizing social-ecological relations; at the same time, capital, as a social relation, develops in response to various challenges. Capital accumulation shapes and reshapes the various structures of political ecology within the capitalist world-system. Under this set of social relations, global forests, as well as their role in a global ecology and a global carbon cycle, are the historical material of the current global political ecology of capitalism.

Forestry developments and socio-ecological crises

The global forest crisis, along with the reshaping effects of climate change in the global forest sector, can be observed in geographically distant countries such as Chile and Sweden. In 2005, Sweden's total forested area was 27,528,000 ha and it had 667,000 ha of forest plantations (FAO 2007). In the same year, Chile's

total forested area was 16,121,000 ha and it had 2,661,000 ha of forest plantations (FAO, 2007: 114). In 2009 both countries were classified as among the world's five largest exporters of wood pulp and are major players in the global forest sector (*Swedish Statistical Yearbook of Forestry - Loman 2009*).

Silviculture was introduced in Sweden in the beginning of the 1800s (Eliassen 2002), and based on the large naturally forested areas covering extended parts of the territory, market-oriented exploitation of forests began in northern Sweden during the first decades of the nineteenth century (Östlund 1993). The utilization of Swedish forests has been the subject of several past conflicts and struggles, such as those between the state and the peasantry. The state was interested in exploiting forests to use oak timber for the navy. The peasantry and other groups recognized that forested land is also useful for food production (Eliasson and Nilsson 2002). The intensive extraction of forest resources in which 'Virgin lands of endless forests in the northern parts of Sweden were exploited' contributed to the formation of a 'new entrepreneurial and business class ("the tree barons")' (Södersten 1991). The uncontrolled use of the forests led to the Forestry Act of 1903, which required forest owners to replant trees after logging.

In 1993, the Forestry Act in Sweden was reformed. It expressly stated that forest management should ensure sustainability and preserve biodiversity. The Swedish forest sector has developed highly technological ways of pulp and paper production. It is one of the leading forestry industries in the world. Swedish companies are important exporters of forestry machinery and technologies for production of forest products (Larsson and Malmberg 1999). Since the 1920s, the standing volume of Swedish forests, and therefore the carbon storage, has increased. Many small forest owners are part of this industry. Productivity in the sector has increased dramatically because of the employment of modern technology and machinery, which has also displaced skilled labor. However, at the same time, thousands of temporary, immigrant and ill-paid workers from poorer areas of Europe have been used to work on-the-ground forest activities (Norberg 2009). The Swedish balance of exports and imports of forest resources is striking. According to Nilsson (2004), 'During the last five years an import of forest raw materials of over 10 million m³ has been necessary to satisfy the domestic demands of some 95 million m³.' The national forest statistics indicate that in 2007 Sweden's export of forest raw material reached 4,672,000 m³, while imports were 9,952,000 m³ (Skogsstyrelsen 2008: 258). The following data concerning trade of roundwood illustrates this point: According to data from 2008, imports of roundwood into Sweden reached 6.8 million cubic meters of solid volume, excluding bark; exports of roundwood from Sweden reached 2.5 million cubic meters of solid volume, excluding bark (Skogsstyrelsen 2009: 318). Within this context, total roundwood production in Sweden was 69.0 million cubic meters of solid, excluding bark (Skogsstyrelsen 2010: 357, data from 2008). This means that about 73.3 million cubic meters of solid volume excluding bark of roundwood were consumed in the country during 2008 (own calculation).

In the case of Chile, there are some key factors that explain the rapid pattern of capitalist growth of the forestry sector post-1973. First, a long-term national

project of forestry development can be traced to the period before the dictatorship that began in 1973 (Clapp 1995; Camus 2006; Miller 2006). Prior to the coup, there was a state-oriented project to convert Chile into a forestry nation through the active and strong participation of the state, its agencies and state-owned companies. Even in the 1950s there were tree plantations and an incipient but increasing forestry sector, on which the state plan attempted to build. Second, a new legal regulation contained in the Decree Law 701 (DL 701), passed during the dictatorship, created a system of subsidies and tax breaks that favored private forestry companies. The DL 701 created incentives that benefitted specific land-owners to encourage forest production. Tree plantations also received incentives. A classification of land areas was introduced to define regions that were specifically suitable for tree planting. According to the DL 701, owners of plantations were entitled to receive economic subsidies and finance that would span the necessary time to start growing the trees. Furthermore, they would also have professional consultancy in the process of managing the plantations. Thus, the role of the DL 701 was conceived to accelerate the development of the forest sector that was initiated under earlier state-oriented policies. But now the private sector was to be the main beneficiary, which followed the neoliberal reforms in Chile. To expand the role of private companies within the sector, the policies of the dictatorship encouraged privatization of previously state-run operations and deregulation of the labor market within the forestry sector. Other related economic activities, such as those carried out in maritime ports, were also privatized and transformed to satisfy the needs of the forestry companies. It is important to note that the private sector in forestry was originally formed for national and foreign industries, but today this sector is controlled by a national capitalist class with strong international connections. Third, certain natural conditions favor fast-growing trees, mainly eucalyptus and pines (Clapp 1995). Exotic trees were introduced in the country for different reasons, such as to replace native forest used within mining activities and to stop desertification. Fourth, pro-capitalist labor regulations have allowed forest companies to lower production costs, in part through a low-paid workforce. In addition, this sector uses an extended system of subcontractors and employment flexibility, which creates difficulties when attempting to organize workers and unions.

Both the Swedish and Chilean forestry sectors are often presented as successful examples of sustainable forest development. Yet a closer examination reveals social and ecological contradictions. The loss of biodiversity, which is intimately associated with forestry activities, remains an important issue in both countries. Sweden has one of the most managed and intervened-in forested areas in the world, causing a significant loss of biodiversity. According to a study - based on information on 1,487 red-listed species by Berg *et al.* (1995: 1629-1630), 'Forestry is ... the main threat factor to most (94,8%) of the species.'

Recently, a group of university professors and researchers (Jonsson *et al.* 2008) opened a public debate about the issue. They published a letter in a nationwide newspaper under the title 'Forest policy threatens biodiversity' (my translation). They linked the loss of biodiversity within Swedish forests with the

production of forest products. The article criticizes both the environmental policies in the county and the role of the forestry sector. For example, in 1998 the Bill on Environmental Quality Goals was passed in Sweden, indicating establishing 'sustainable forests' as one of the goals. However, in 2008, a national evaluation of that environmental goal indicated that: 'the objective Sustainable Forests will be very difficult or not possible to achieve by 2020, even if further action is taken' (Swedish Environmental Objectives Council 2008).

In the case of Chile, several studies have highlighted the loss of forest biodiversity as a consequence of industrial forestry activities. One study indicates that:

A considerable amount of Chile's native forest has been converted to plantations, most of which are dominated by exotic species, primarily Monterey pine (*Pinus radiata*) and several species of eucalyptus (*Eucalyptus spp.*). Most of the country's timber production comes from these fast-growing plantations, which in large part have been established by clearing native forests.

(Neira 2002: 8)

The loss of native forests is directly associated with the increase in exotic-species plantations (Echeverria *et al.* 2006). It has been estimated that between 1960 and the end of the twentieth century, native forests had decreased by approximately seven million hectares (Camus 2006). It has also been estimated that '20% to 30% of the current plantation area has been illegally converted from native forest, contributing to biodiversity losses' (Giljum 2004: 255). Between 1996 and 2010, it was estimated that Chile's production of pulp would increase from 2,123,000 tons to 4,056,000 tons, while consumption would increase from 479,000 tons to 514,000 tons (FAO 1999: 37). To increase pulp production and be competitive, the Chilean forestry sector needs to increase the use of machinery, the employment of cheap labor and the availability of raw forest material, which means expanding tree plantations. However, given the global economy, a doubling of pulp production is not associated with a doubling of national consumption. Poverty in the main areas of forest development is among the highest in the country, and a number of socio-environmental conflicts have taken place during the last years.

Wood biomass, climate change and political ecologies of capitalism's growth imperative

The recent intensification of the development of the forest sectors in Chile and Sweden is related to the competitive dynamics of free trade and the promotion of exchange of commodities world-wide. Global competition has increased the mechanization of production in the forest industries. It has also forced national forestry companies to seek out other geographical areas for production. In Chile, these economic factors have propelled forestry companies to increase industrial

tree plantations, which displace native forests. Tree plantations allow companies to shorten the rotation periods, which increases the rate of the circuit of capital and therefore profit. In Sweden, forest companies have increased the use of fertilizers and have planted high-yielding species and have heavily invested in research on tree biotechnology to achieve the same goal.

The conflict between production and biodiversity is a major part of the forest crisis in Sweden, yet it has received little attention. Plus, there is considerable confusion when assessing this situation. Sweden imports a considerable amount of forest resources. In 2008, for example, it imported 4.7 million cubic meters of roundwood, 1.5 million cubic meters of chips and particles and 0.9 million cubic meters of pellets (in all the cases quantities mean cubic meters of solid volume excluding bark) (Skogsstyrelsen 2010: 308). These imports take the form of forestry raw materials or wood in furniture. Forestry companies have employed new strategies to maintain the pace of capital accumulation, including invoking climate change reasons for competition purposes. The Swedish Forest Industries Federation launched an active media campaign to highlight both its commitment to address and solve climate change. Through short videos available from its website and YouTube this federation states that forestry companies are part of the solution to climate change, that forests are the best natural remedy to climate change, and that wood-based products are better alternatives as construction materials. These communicative efforts stem from reports that were used to promote this sector's participation in the climate change discussion. One of the forestry industry's reports is titled 'Tackle Climate Change: Use Wood' (Swedish Forest Industries Federation 2006). It offers a number of antecedents and data suggesting that the use of wood as a material for construction is better in terms of climate change mitigation than the use of concrete. This campaign attempts to instill in consumers an environmentally friendly attitude toward the use of wood. The concrete business association then attempted to counter the claims of the forestry industry. On its website, it presents reports that note that cement production reduces the use of fossil fuels. This industry produced a report that attempts to demonstrate how concrete can be used to stop climate change. The cement business organization also published an interview with Ronny Andersson, Professor at the Faculty of Engineering at Lund University, titled 'Concrete vs. wood' in its official magazine (Tysbo 2009).

The main point here is that the forestry sector is attempting to present itself as part of the 'green economy,' thereby addressing social and environmental concerns with global climate change through the further expansion of its operations. The forestry sector claims that forest activities such as clear cutting and replacement of old trees with new plants are ways of confronting climate change. In their videos, they emphasize the role of trees as carbon sinks in Sweden and the fact that forests are not going to run out in the country. While scientific reports also note that forests are also sources of carbon dioxide, this information is never part of the industry's advertisements. The fact that Sweden is importing significant quantities of forest resources, as mentioned earlier, is never presented as a relevant issue when explaining the balance between the use of forest and the

growing of new trees in the country. The conflict between production and biodiversity is finally lost in this public discussion, which is tragic given that it is central to the evaluation of progress in achieving the national environmental quality objectives.

In addition, the use of biomass as a source of energy in the industrial production of forest products is primarily a matter of lowering costs and remaining competitive. But the use of biomass is generally presented as a way to address climate change concerns. An energy transition that involves more use of wood for bioenergy purposes has increased prices of forest raw material. This trend has produced a struggle over forest resources between the pulp sector and the bioenergy sector, since the forest owners can sell the raw material in whichever market is paying the best price for the wood. For forest owners this development means better revenues prospects. The important point that must be emphasized here is that the struggles and conflicts that surround forests are complex and complicated, and that capital responds to social and ecological challenges in ways that ultimately maintain its interests.

In Chile, forestry companies have also strategically incorporated climate change in their strategies. CELCO/ARAUCO is a firm that was formerly state-owned, but it was sold to private interests during Pinochet's dictatorship. The company is infamous in Chile and world-wide because of recent incidents in its pulp mill plants. The firm uses a system of subcontracting in its production chain. Much labor unrest has emerged. In May 2007, trade unions within the company's subcontractors went on strike. Police forces shot dead a subcontracted worker outside a pulp mill during the strike against the company. Additionally, the company is involved in a conflict with indigenous Mapuche communities of fishermen at the Mehuin Bay. This conflict originated with CELCO's plans to build a pipeline to discharge sewage from the pulp mill into Mehuin Bay, from where Mapuche communities extract and manage marine resources as a part of their livelihoods. Furthermore, there are several cases in which the company has developed tree plantations on lands reclaimed by Mapuche communities.

In terms of environmental records, CELCO/ARAUCO'S pulp mills have caused at least three serious environmental problems. The sewage dumped from one of its pulp plants caused an ecological disaster and the massive death of black-necked swans in a nature reserve in 2004 (Mulsow and Grandjean 2006; Jaramillo *et al.* 2007). Moreover, in 2007, another of the company's pulp mill plants twice dumped toxic sewage in a river, causing massive fish death. Despite these disasters, the company is seen as a green business. The firm uses new technologies to produce its electricity through burning biomass. As a result, it has registered these projects with the Clean Development Mechanism (CDM) established within the Kyoto protocol and makes additional profits through selling carbon credits. The largest part of the electricity produced from biomass is consumed in the production of pulp and wood panels. CELCO/ARAUCO then sells the surplus energy that is not consumed within its operations. This electricity is considered carbon neutral.

The biomass utilized in generating electricity in CELCO/ARAUCO's power plants comes from industrial tree plantations of pine and eucalyptus. The company is one of the two largest forestry companies operating in Chile. Its activities create the ecological contradictions that surround biodiversity and industrial tree plantations in the country. Yet the firm is seen as a successful model of 'sustainable development' given that it receives carbon credits for its CDM projects. The same pulp mills that generate carbon credits in Chile today exploit local forests and cause local social and ecological crises. At the same time, these CDM projects must use expensive, advanced technology from abroad (Toland 2006). As a result, operations in Chilean pulp mills exploit cheap labor at home while purchasing expensive machinery and technology from Sweden and Finland (ARAUCO 2004).

The contacts between capitalists in Chile and Sweden go beyond mere commercial activities. In the context of increasing mobilization against environmental damage caused by CELCO/ARAUCO's pulp production, representatives of Swedish forestry companies visited the area and supported the Chilean company in the national media. Some months later, Stora-Enso and ARAUCO announced a new partnership in order to start forestry projects in Brazil. The accumulation of capital in Chile has led to the internationalization of Chilean forestry companies, as operations have expanded to Argentina, Uruguay and Brazil. This reallocation of pulp production in the South is linked to the closing of pulp mills in countries like Sweden.³ Nevertheless, capital continues to reconfigure itself. There are plans for a Chilean-Swedish-Finnish partnership to construct a large pulp mill in Uruguay. At the same time, a major Swedish forestry company (Svenska Cellulosa Aktiebolaget, SCA) has announced plans to increase pulp production capacity in Sweden. The new wave of investments in pulp production is predicated upon the dramatic rise of over 65 percent of wood pulp prices between June 2009 and June 2010 (Tapper 2010). Here, again, the logic of endless accumulation of capital continues in the midst of the global forest crisis, as if the biophysical world does not exist.

Today's social appropriation of forest ecologies, as in the cases of Chile and Sweden, is linked to historical and contingent crises, configurations of social power and the logic of capital accumulation, which shape the exploitation of forests and the conflicts that surround them. These factors and how they play out will influence both forest ecosystems and the political ecology not only of Chile and Sweden, but of the whole planet. A political ecology assessment requires an understanding of how the capitalist world-system shapes the relationships between labor processes, capital, social power and ecologies.

Notes

1. For example, an immense area of the boreal forest in Canada has been infested by the mountain pine beetle, an outbreak that was caused by the disappearance of a natural barrier because of climate change. These changes have led to the loss of forest resources. One effect of the infestation is that Canada will not be able to fulfill its Kyoto protocol compromises since its national emissions have not reached the expected

compensation through the national forests' net greenhouse gas sequestration (Kurz *et al.* 2008a, 2008b). Even more recently, a study focused on the Amazon has shown that: 'The two recent Amazon droughts demonstrate a mechanism by which remaining intact tropical forests of South America can shift from buffering the increase in atmospheric carbon dioxide to accelerating it.' The study adds that 'If drought events continue, the era of intact Amazon forests buffering the increase in atmospheric carbon dioxide may have passed' (Lewis *et al.* 2011).

2. Corporate power has put the issue in the following terms: 'Climate change has become the great environmental challenge for the 21st century. The global debate on climate change is focusing on energy and forests' (PriceWaterhouseCoopers 2008).
3. Redistribution of pulp-producing processes has been seen as a threat to the forestry sector in Sweden, and this motivates defense due to the 'national interest' involved in the matter. A report from 1992 states:

The division of tasks traditionally characterizing the international forest industry is in a state of change. The role of the Swedish forest industry as a major supplier of pulp, newsprint and kraft liner is threatened by increased exports from the United States, Brazil and Chile, and by investment in facilities for processing recycled and virgin fiber in close proximity to the main West European markets.

(Ingenjörsvetenskapsakademien 1992/1993)

Yet in the case of Chile, the historical analysis of corporate communication shows that: (1) Stora, then a Swedish forestry company, was operating in Chile between 1989 and 1994. Stora had a partnership with a Chilean forestry holding, CELCO/ARAUCO, and was developing forestry activities mainly for the international markets; (2) the Swedish company ÅF-IPK provided technological expertise to another Chilean forestry holding in the construction of a pulp mill, which started operations in 1992. In other words, Chile as a threat to the Swedish forest industry is a myth.

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Appendix II

Forest research from a critical perspective – How can it contribute to new knowledge? Co-authored with Hans Peter Hansen and published in the *Scandinavian Journal of Forest Research*, Vol. 27:2, pp 108-119 (2012). This article is reproduced with the permission of the publisher.

ORIGINAL ARTICLE

Forest research from a critical perspective – How can it contribute to new knowledge?

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Abstract

This paper develops insights from critical social theory with the aim of laying some foundations for critical forest research (CFR). The authors argue that such an approach could create needed knowledge about contemporary forest issues. In doing so, the paper first delves into the distinction between forest policy and politics of forests which is identified as a conceptually relevant issue within the context of CFR. Second, it uses the outcomes of the workshop *Forest research from a critical perspective – How can it contribute to new knowledge?* that was convened by the authors at the first Nordic Conference on Forest Policy Science held in Uppsala October 2010 to build on the conceptualisation of politics and policy within forest research. The combined findings of both a literature review on the issue of politics of forest and forest policy and the aforementioned workshop show that the conceptual difference between policy and politics is a key theoretical issue in relation to future prospects for CFR. In addition the results of the workshop clearly identified the epistemological, normative, social change dimensions and awareness of structural barriers as being at the core of attempts to develop theoretically grounded CFR. It is argued that a clarification of the concept “critique” is important within this context.

Keywords: *Politics of forest, forest policy, critical forest research.*

Introduction

The interfaces of scientific research on forests, social dimensions of forestry and policy-making processes aimed at forest resources have been highlighted in major recent reports focused on forestry issues (FAO, 2009, FAO, 2010; Nabuurs et al., 2007; Seppälä et al., 2009). Today much is said about the need for forest research processes that go beyond disciplinary boundaries and integrate the social drivers and social structures in the analysis and understanding of contemporary forest policies. Yet, any research process addressing those issues implies contested theoretical and political research approaches. Within this context a key question is what we understand by using the word “critical” in forest research, research that in many ways exceed disciplinary and theoretical boundaries. To address that question, this paper develops insights from critical social theory with the aim of laying some foundations for critical forest research (CFR). To give grounds for such foundations we use two different procedures. One is to approach what “critical” may mean in forest research

by reviewing literature and looking at how the concepts of politics and policy are used, or neglected, within forest research (WFR). The other is to systematise and reflect on the meanings and judgments about CFR expressed by researchers in the field. In this regard, and to address such issues, we convened the workshop *Forest research from a critical perspective – How can it contribute to new knowledge?* at the first Nordic Conference on Forest Policy Science held in Uppsala October 2010. The results of this workshop are presented in this paper. Within this paper we use *forest* research and *forestry* research as interchangeable concepts. However, we are aware that the differences can be important.

The paper is divided into three parts. The first part looks at literature addressing forestry issues and dealing with policy and politics. The second part presents some outcomes from the aforementioned workshop and the authors’ own reflections on those outcomes. In the discussion the article brings together the results of the previous sections and offers a number of reflections aimed at developing a

concrete meaning of “critique” and “critical” regarding forest policy research. In addition this part engages with a more socio-theoretical and reconstructive discussion on the nature of politics and policy and their interrelations. In doing so we link the concept of politics and policy to the political, referring so to issues of power, ideology and hegemony to be addressed by the kind of CFR we are arguing for. We conclude with some remarks about the importance of reflecting on the difference between policy and politics WFR and its theoretical relevance.

On the distinction between politics and policy and the implication for forest research

Interpretations, assessments and discussions about forest policy often lead to the identification of a broader context of forest policies, their different shapes and also failures. Already in 1947 Howards Gron’s article *The Economic Foundations of Forest Politics*, published in *Unasylya*, FAO’s international journal of forestry, motivated an interesting editorial comment that well illustrates some of our points to be developed below. Gron opens the article by stating:

THE (sic) term “forest politics” is intended to mean the sum of measures taken by the state or the municipality to safeguard public interest in regard to forests and forestry. There may be considerable disparity between private and public interests in forestry. This is due to the fact that a forest may present one group of utilities to the individual owner but a different group to the community at large.

In addition to the article the editor of the journal added the following note: “In view of special features of the thesis presented by the author, he has preferred the broad term ‘forest politics’ to the more commonly used English term ‘forest policies’”. The title and quotation from the article contain the proposition of thinking forest issues in terms of forest politics. Equally interesting is the editorial explanation about the author’s justification of the use of the term politics and the fact that the editor of *Unasylya* at that time had to give an explanation of why the journal accepted the author’s use of the word politics in his analysis of forest issues. The conceptual question and the answer of the editor to such a requirement, namely that politics and policy could be exchangeable words, is however oblivious to a very important conceptual distinction in the English language and in other languages. While this is a distinction that does not exist in other languages

there seems to be relevant to address the conceptual implications of the difference when it comes to forest research from a critical perspective [In relation to the issue of languages and the distinction between policy and politics see for example Heidenheimer (1986) and Therborn (2001)]. This is still a more pressing question because there is today a process that can easily be indentified as globalising forest research, which has far-reaching effects at both the conceptual and practical level. Within this context, the topic of climate change and forests is paradigmatic.

That the term forest policy has gained widespread use in environmental studies in general and in forestry studies in particular can be exemplified in FAO’s recent *Global Forest Resources Assessment 2010*. The report dedicates its whole Chapter 8 to the issue of legal, policy and institutional framework (FAO, 2010) and that chapter opens with the following words:

The national legal, policy and institutional framework related to forests constitutes the fundamental basis for sustainable forest management. National forest programmes provide an internationally agreed framework which many countries use for the development and implementation of national forest-related policies and international commitments. The effective development and implementation of forest policy depends on the institutional capacity of national and subnational forest agencies. (2010, p. 149)

The general observation to be made here is that the chapter never refers to politics or political processes that make a difference between the number of implementation measures for sustainable forest management and the sphere of decisions and conflicts regarding those measures. When dealing with legislation, the approach is rooted in similar assumptions: the report attributes a number of objectives to forest legislation in a way that overlooks the processes of law making, which are by nature political processes. Though it also does not deal with politics, IUFRO Occasional paper titled *Working Effectively at the Interface of Forest Science and Forest Policy* (Guldin et al., 2005) recognises the broader context and also the conflicts affecting the production of forests policies. In some cases such broader context is identified as caused by either “public values changes” or “forest conditions changes” (Guldin et al., 2005, p. 9). Yet the approach to policy offered in this report risks reproducing an apolitical view of policy. A similar situation can be observed in the very recent study by McDermott et al. (2010) *Global Environmental Forest Policies. An International Comparison*. As the study announced from its title

the focus is on forest policies. The authors, quoting and agreeing with a number of other authors, refer to forest policy as “[...] an articulation of a society’s values for its forests and of its intent as to how those values should be realized” (McDermott et al., 2010, p. 12). For the authors their approach is based on the aim of developing “[...] a taxonomy that identifies six levels of policy located within a three by two matrix” (McDermott et al., 2010, p. 7). The overall aims and conclusions within the book pivot around the concept of policy learning (McDermott et al., 2010, p. 556). The authors recognise that they draw the idea of policy learning from the work of Hall (1993). Yet, and taking into account Hall’s study, it is rather problematic to deal with policy learning without addressing the question of politics. In fact Hall concludes by calling for a “more refined appreciation of the role of ideas in politics and by studies of the dynamics whereby policies change over time”. What become apparent in his approach are the links between politics and policy. To be then coherent with Hall, the emphasis on the need of “future research *explaining* policy patterns” made by McDermott et al. (2010, p. 355, Italics in the original), should precisely delve into the issue of politics. However, the whole interpretative framework offered by the authors to understand forest policies lacks such a political view on forest policy, and this treatment of policy is also close to interpretations of forest policies that overlook important political dynamics regarding forestry and forest developments.

Also in assessing forest policies, other studies have either recognised the question of politics when dealing with policy or they have directly framed forest issues in terms of politics of forests. Examples of the first type are two studies about forest-policy in USA and Brazil (Banerjee et al., 2009; Cubbage & Newman, 2006). What is common in these two studies is that they show by passing that policies are finally the results of changes and dynamics at the political level. For example, when approaching the effects of forests certification within the USA’s forest sector, Cubbage and Newman state:

One outcome of this competitive activity is the increasing convergence of the two main certifying organizations in the U.S. The SFI has become greener over time, as environmental groups who serve on its advisory board aggressively pursue more strict environmental standards or threaten that they will have to resign to protect their image. At the same time, FSC has become more pragmatic in their operations, especially in implementation, if not on paper. FSC has certified many forests planted on cutover natural forest stands

that regenerated on old fields, despite their written proscriptions against converting natural forests to plantations. This race for market recognition and share has made *the politics of forestry* and environmental protection vastly different, and is the core factor making private forest practice guidelines and private forest policy crucial, rather than just public or government policy. (2006, p. 266, emphasis added)

Banerjee et al. (2009) highlight that:

The military government’s strategy for Amazonian development was arguably effective in generating economic growth although inequitable from a distributional perspective. *The politic for the forest* [sic] sector was aligned with the regime’s emphasis on industrialization and as such concentrated on the promotion of forest plantations. With the lion’s share of public resources devoted to industrialization, resources for promoting the sustainable use of forests were scarce. Institutions charged with forest protection were weak and underfunded, and the protectionist stage of Brazilian forest policy lived out primarily on paper. (p. 134, emphasis added)

In these two cases, the authors use notions as “*the politic for the forest* [sic]” and “*the politics of forestry*” when the contexts determining the concrete shape of forest policies need to be mentioned and identified. This represents a logical consequence of the nature of policies as results of both decisions and struggles operating at the political level. In fact, the notion of politics of forests has explicitly been used in different contexts to approach forestry questions both locally and regionally along with their global dimensions. Miller (2006) uses the concept politics of forests when interpreting forestry questions in Chile between 1880 and 1940. He emphasises among other things in the contradiction between state-directed forestry and peasants politics, the conflicts for control of land and the efforts to rationalise rural property and labour relations in a process that signified new ways of forest exploitation and the transformation of native rain forest into monocultural tree plantations (Miller, 2006, pp. 539–569). Other authors (Lehtinen et al., 2004) have approached the politics of forests in the context of northern forest-industrial regimes in the age of globalisation. For them, politics of forests is related to the “socioenvironmental turn” in forest industrial research and it signifies a focus on among other things transformations in forest industries, their responses to socioenvironmental demands and globalisation of forest companies as a process of

expansion or financial attractiveness together with their uses of resources coming from peripheral regions and “local-global interfaces and socio-environmental co-dependencies in forest-industrial change, both influenced by the continuous re-emergence of new linkages between material and symbolic value formations” (Lehtinen et al., 2004, p. 23). Humphreys (2009) has stressed the link between international forest politics and the neoliberal discourse. For him neoliberal political discourse has had deep effects on forest politics and his examples are how marketisation, an enhanced role for the private sector and deregulation and voluntarism have been traduced into forest policies (Humphreys, 2009, p. 3). When outlining a framework to deal with the links between forest law, markets, environmental communication and forest governance in the understanding of climate change and politics of forests in Chile and Sweden, the first author of this paper has suggested that: “Politics of forests is something broader than forest policy and it aims at encompassing the underlying social forces determining certain forest policies, considering a broader context to understand different normative settings regulating the use of forest biomass” (Alarcón, 2009). Within this context, one claim is that “politics of forests refers clearly to the power relations shaping forest sectors” (Alarcón, 2009). Recently, a chapter contained in a major report from IUFRO (Arts et al., 2010) dealt with the place of forest politics within a broader international context. Here, we also see how forest politics operates in relation to other major ideological shifts within late capitalism. As Arts et al. (2010) note:

The role of the Bretton Woods institutions in global environmental and forest politics has also become more prominent and they have been active in the development of policies that fit the neo-liberalism and ecological modernisation discourses well. However, the current hegemonic discourses tend to exclude specific types of actors, such as those NGOs with more radical perspectives and political critiques. They are increasingly being replaced by (more) moderate NGOs, whose strategies better match the current discourses on sustainable development and global governance. (p. 69)

This focus on forest politics, which also gets space in other parts of the volume, can however be contrasted with the overall treatment of forest policies within the volume, a treatment in which there is not a specific concern with the larger questions posed by the politics of forests both at the international and national level.

As we have seen earlier, the analysis of a number of studies and reports dealing with forest issues shows how the conceptual options for forest policy and politics of forests or forest politics become an important theoretical issue within forestry research. This question becomes especially significant within research that aims at addressing the broader issue of social, collective and individual decisions regarding the access and use of forest resources. This is in fact a very good example of how the analyses of social and political relations vis-à-vis forest resources bring some conceptual complexities. Some of such complexities can be rooted in the process of translation and others in the nature of the problem addressed. Yet, the previous examples also show the tendency within some forest literature to disconnect the understanding of forest policy from the understanding of politics of forest. But such a disconnection also implies that the role and scope of critique is reduced or neglected. In fact, one can argue that the analysis and scrutiny of politics can be observed as a factor that can shed light on the specificities of forest policy and its historical formation. Also, the focus on politics can, in many cases, reveal conflictive and power dimensions of policy processes vis-à-vis forests resources.

Qualitative judgments on forest research from a critical perspective

The role of politics WFR is deeply linked to the question of how we conceive critical perspectives in the research processes focused on forest resources. During the first Nordic Conference on Forest Policy Science held in Uppsala October 2010 we convened a workshop on *Forest research from a critical perspective – How can it contribute to new knowledge?* The workshop aimed at reflecting on issues that can be seen of importance for generating a critical perspective within, and of, forest research. The workshop was motivated by the recognition that any attempt to explain and make sense of forest policies needs to rest on and combine interpretations of theories of both social and ecological processes. In other words, CFR can be understood as a specific way of research that combines both social theory and natural science to understand forest ecosystems—society relations. The 15 participants in the workshop included some of the most established forest policy researchers within four Nordic countries, namely Sweden, Norway, Finland and Denmark. One of the participants came from the Netherlands. Facilitation of the workshop was through combining the Future Creation Workshop model (Nielsen & Nielsen, 2006) with in-depth conversations. Participants were asked to express their own individual understandings and

judgments of “critical forest policy research” and the “societal role” of this type of research. The participants’ judgments on these issues were expressed in a focused plenary brainstorm session and documented with keywords. The workshop continued with an in-depth plenary discussion of concerns raised by the participants related to the emergent list of keywords and the intersection of forest policy research and society. All keywords were documented on wall-paper and the in-depth discussion was partly digitally recorded and partly documented in notes. Keywords proposed by the participants for the discussion were for example: questioning believes and “facts”, questions the underlying assumptions, history matters, inequalities of society, bringing new ideas, not taking for granted, being aware of different theories and methods, etc. (The complete list of keywords is offered in Table I). A thematic synthesis of the keywords and discussions was presented for all conference participants the second conference day. For that purpose we grouped the keywords that emerged from the workshop in five different categories and we introduced the term “Critical Forest Research” as the overall term under which such aspects of research about forest–society relations could be understood. The categories proposed were “The normative aspects of CFR”, “The epistemological aspects of CFR”, “The general research objectives of CFR” and “The changing role of CFR”. A fifth category represents a miscellany number of keywords that can be related to the four previous categories. Table I lists keywords associated with CFR emerging from the workshop and the categories proposed for them. Those four categories also represent different levels regarding the development of CFR.

For the purpose of elaborating Table I, we conceived the keywords and their meanings as qualitative judgments about CFR. In addition to the judgments presented in Table I, we received other opinions concerning the overall aim of contributing with new knowledge WFR. In this regard, expressed judgments were: create changes, being more critical to the forest sector, “penetrating” funding structures and institutions’ changing the role of universities, dare to “challenge” and “be strong”, inter-disciplinary, need of better communication, for society, learn from history and new knowledge for action. One important point of agreement during the two sessions and also an issue emerging from the in-depth discussion is the question of the structural barriers for CFR. In this regard, an important perspective emerging from the workshop is that research on forest issues cannot compromise the creation of new knowledge to the interests and powers oriented to the industrial development of forest sectors. A theoretical focus on power relations, in this regard, is a question that implies choosing different theoretical frameworks and theories to make sense of and explain social processes vis-à-vis forest resources. A critical theoretical perspective would emphasise the social nature of power and therefore its inherent contingency and contested formation. Epistemologically the argument for the need of a forest research that is developed through reflexive research, in which values are important and recognised, becomes very relevant. This implies that existence of competing theories that can lead to competing explanations of the role of forests resources in relation to the social and economical structures of society are made clear. Within this context, the relationship between science

Table I. List of keywords about critical forest research (CFR).

Categories and levels of CFR	Keywords associated with CFR
Normative	Inequalities of society, better society
Epistemology	Reflexive research, history matters [within forest research (henceforth WFR)], More than one “school” [WFR], The heritage from the “Frankfurt school” [WFR], Being aware of different theories and methods [WFR]
General research objectives	Questioning the underlying assumptions [WFR], Questioning believes and “facts” [WFR], Identifying structures [WFR], Not taking for granted [ideas and concepts [WFR], Reflecting the relationship between science and society, Thinking outside “the box”, Being open minded, Make normative/common assumptions obvious
Creation of changes	Bringing new ideas to [WFR], Experimenting with methods [WFR], Create resonance in the results of [WFR], Action research [WFR], Using “data” produced by “people” [WFR]

Notes: We have added the expression “within forest research” after reproducing some of the keywords obtained at the workshop. Because those judgments were made at the workshop the context made unnecessary to mention forest research every time a judgment was made. This is rooted in the methodology used during the workshop and explained earlier. Yet we considered necessary to clarify it to the reader that lacks the context in which the keywords were produced. To avoid repetition henceforth we just will use the acronym [WFR] to clarify that the whole meaning is related to forest research. In some cases, we consider that to add that acronym is not needed and the reader can easily make sense of the keywords.

and society and the taken for granted concepts and ideas structuring such relationships should become a central concern WFR. Though we clearly see the importance and necessity of relating natural sciences to social theory in the process of understanding relations between society and forest ecosystems, an important argument to be made here is that to produce such relations we face a rather problematic research process. This is partly based on the fact that social theories and ecological theories can differ notably. One crucial aspect that makes an important difference is the way in which we analyse power relations and communication systems. Although researchers within both paradigms sometimes use the same words, the use of the words may have different implications and therefore should be kept analytically separated. This means to emphasise that the processes through which social relations tie social and ecosystems are historical formations and represent specific socio-ecological relations. On the other hand, this implies political-theoretical interpretations from which normative assumptions of competing theories about society-forest ecosystems relations can be analysed and their taken for granted ideas scrutinised. Social changes can be seen as the possible outcome of bringing new ideas, methods and research results that challenge the current state of knowledge WFR. Besides the possibility of opening avenues for changes this implies that critical stances towards structures and institutions producing the current mediation between societies and forest resources could be taken. Under this circumstance, the changing role of universities to address the need of CFR becomes apparent. An important aspect of such changes should be the effort to rethink the position of communication practices and to counter the view that today sees communication mainly in an instrumental way.

Discussion

We started this article by identifying the distinction between politics and policy as a main issue to be dealt with in the process of doing CFR. In the second section, and by bringing the outcomes of a workshop during the first Nordic Conference on Forest Policy Science in Uppsala in 2010, we identified some views of researchers within Scandinavian and other neighbouring countries about what may forest research from a critical point of view mean.

This discussion part attempts to lay some foundations for critical forestry research. Such foundations insist on the need for more coherent theoretical explanations about the links between politics and policy regarding forest research. This is for us a

minimum requirement towards the production of theoretical frameworks which are able to offer future prospects for CFR. This insight is also based on the qualitative judgments of the workshop about forest research from a critical perspective and the issue of structural barriers to CFR can be linked to the question of politics of forest and forest policy. Yet this is a socio-theoretical issue that exceeds the scope of traditional forest research and therefore, answers should be explored at the level of political and social theory. In fact, a crucial dimension of contemporary comparative political theory has been the discussion about the traditional and modern view of politics in relation to policy. Generally speaking that view conceives politics as constituting policy. Göran Therborn (2001), for whom the distinction between politics and policy is one fundamental distinction of political science, emphasises the question of some languages having both words in use and others not. For Therborn (2001), the basic understanding of the differences between politics and policy is given by the different dimensions of the reality that both concepts try to apprehend and explain: "Politics, briefly and grossly summarized, is about deciding the game to be played and about settling the goals and the rules of it. Policy is about how to score in a given game with given rules. Politics, then, precedes and wraps up policy" (p. 19). In contrast to that view, there have been theoretical proposals to change the traditional and modern relation between policy and politics through conceiving policy as constituting politics instead of politics constituting policy. Such a view can be observed in the work of Theodore Lowi, who in 1972 proposed basically an inverse relation between politics and policy and specifically thinking in terms of "... what a policy taxonomy might do for the study of politics" regarding the action of governments. For Lowi (1972): "The perspective of the entire approach is the very opposite of the typical perspective in political science, for it begins with the assumption that *policies determine politics*" (p. 299, Italics in the original). Similarly, but focusing on the analysis of states, Skocpol and Amenta (1986) look at the dynamics of policy and politics formations and their interlinks and conclude that:

The effects of states can also be examined in a more fine grained and inherently dynamic way by tracing the political consequences of already instituted policies or sets of policies. For not only does politics create social policies; social policies also create politics. That is, once policies are enacted and implemented, they change the public agendas and the patterns of group conflict through which subsequent policy changes occur. (p. 149)

The term these two authors propose to understand such relationships is “policy feedbacks” and, something we want to emphasise here, for them such feedbacks have been “analyzed in a number of ways, depending upon the investigator’s underlying model of the political process”. Echoing such insights about the understanding of the relation between politics and policy Maarten Hajer (2003) argues that this new view on the link between politics and policy would also be a matter of questioning a modern understanding of such relation. He argues that “conventionally, policymaking is conceived of as the result of politics” (Hajer, 2003, p. 88). For him that previous convention is a classical-modernist political institutional view and from that statement he moves to rhetorically asking the following question: “could policy making be constitutive of politics”? His response goes in the following line of argumentation:

policy discourse can be constitutive of political identities. In effect this reverses the accepted conceptual relationship between politics and policy. It is not political communities that seek political representation in order to influence policymaking. Here it is policymaking that provides the practices in which people start to deliberate and become politically active. (Hajer, 2003, p. 89)

As stated earlier in this article, the question of the political understanding of policies remains as basic theoretical tasks within any interpretative framework of the relations between politics and policy. Without such a framework the analysis of policy lacks analysis of not only the political dimensions but also the social process producing the unification of politics and policy within a national-state system. Also, it is within such a framework where forest policy research can situate the state and the government and their roles in the production of politics–policy relations. In this regard, an historical approach is useful. Arnold Heidenheimer (1986) has reconstructed the historical development of the distinction between policy and politics in the English language. He compares such evolution with other languages and their links to political thought. By doing so Heidenheimer traces the historical origins of policy regarding not only politics but also concerning policy and the role of the state is a key one in it. His study shows that it is through the function of the state and its transformations that those different concepts have obtained concrete historical marks and meanings. Such a historical perspective contributes to the conceptual deconstruction as well as the socio-historical construction of the social processes that interconnect

policy and politics. For example, the inversion of the constitutive functions of politics and politics proposed by Hajer, which takes place against the background of environmental studies, can also be seen against the historical and contingent transformation of the role of states and governments and the new relation between politics and policy. However, it seems also to be the case that social theorisations of environmental issues are the place where important current manifestations of the need of producing the difference between politics and policy can be found. In fact, when focusing on other cases of environmental studies, the distinction between politics and policy is clear and it appears in what according to Hajer would be a modern fashion. Two recent attempts to discuss environmental issues as questions of politics are Giddens’s *Politics of Climate Change* (2009) and Meadowcroft and Langhelle’s (2009) *Caching the Carbon. The Politics and Policy of Carbon Capture and Storage*. As argued by the editors of the latter book, technologies linked to energy and climate change “are enmeshed in a dense web or political and policy arguments that have irreducible normative connotations” (Meadowcroft & Langhelle, 2009, p. 11). Within this context, Meadowcroft and Langhelle’s analytical and interpretative strategy is to link dimensions of the relation between politics and policies in different states and so to look at the evolution of both politics and policy regarding climate change and carbon capture and storage (Meadowcroft & Langhelle, 2009, p. 19). What is interesting in both cases is how policies are understood as concrete responses originating from the political process and the politics of a certain environmental issue. In other words, the presence of politics when dealing with policies is inevitable. Yet the goal of addressing links between policy and politics within environmental studies has been realised in different ways. One way of doing this is to think in terms of politics of policy, for example, using the concept of politics of environmental policy (Blaikie & Muldavin, 2004). From a broader point of view such strategy can be understood in the terms through which Sabatier reflected in 1991 about different types of policy research carried out by political scientists during the 20 years previous to his reflection, namely, between about 1971 and 1991. He distinguished (1) substantive area research, (2) evaluation and impact studies, (3) policy process and (4) policy design. For our argument the first type, namely substantive area research, is relevant. Sabatier (1991) describes it as follows: “This seeks to understand the politics of a specific policy area, such as health, education, transportation, natural resources, or foreign policy”. The research of the politics of specific policy areas can

give the proper background to explain the other three dimensions of policy-processes. This brings into the discussion the conceptualisation of the political, as something different, but inseparably associated with, politics and policy. Mouffe (1999) elaborates on the differences between the political and politics by referring the political to “the dimension of antagonism that is inherent in human relations, antagonism that can take many forms and emerge in different type of social relations” whereas politics “indicates the ensemble of practices, discourses and institutions which seek to establish a certain order and organize human coexistence in conditions that are always potentially conflictual because they are affected by the dimension of ‘the political’” (p. 754). Underlying such definitional standpoints there is a view that society is produced through conflicts. This is an assumption social theorists debate. This reflects the fact that political theoretical reflection of politics puts us before a number of concepts that during the last years have been highly debated and contested. Some of these concepts are power, hegemony and ideology. Yet this calls for a conceptual and theoretical enrichment in the explanation of forest issues and in the specific case of forest policies. In fact, forest policies are the object of different theories and this implies divergent views about forest policies too (Arts, 2011).

A view of the issue of politics and policy both WFR and within political theory and social theory in more general terms has to do with the different levels at which CFR must be developed, namely, addressing normative and epistemological dimensions and aiming at changes and specific research objectives. It is clear for us that the use of forest politics or of politics of forests can be noticed as a logical step in addressing the broader context of forest policies. It is very evident that such a situation is rooted in the need to make a difference between policy and politics. The modern definition of politics within political thought is still brought into the analysis when identifying the political processes and discourses aimed at socially defining what to do and how to regulate the forest resources in a certain territory or a national state as politics of forests. Also, state intervention in such matters should be understood as politics of forests. On the other hand, forest policy could be seen as a more concrete and more explicitly normative manifestation of such political question about forest resources. In this regard, we could say that the political processes implying a politics of forests produces concrete normative regulations and shape forest policies. This in any case disregards the possibility of policies constituting politics. Yet the question for us has empirical dimensions when focusing our research and concern

about structural barriers for CFR in Nordic countries. The established tradition of looking at forests as political domains and objects also implies hegemonic views regarding the political definition of forest research. Within this context, the distinction between forest policy and politics of forests is important both in analytical and explanatory terms. It is clear that politics of forests and the claims of different actors regarding such politics are long-standing historical components of the very constitution of not only forest policies but also of forest conflicts and contested claims on forests within Nordic countries. All this discussion is also important to make sense of forest legislation, for example, forest acts and forest laws. If we recognise a set of interrelations between the political, politics and policy regarding forest resources, then the space through which both the politics of forests and the forest policies are socially institutionalised is in the legal regulations. At the same time, we must make sense of other regulations such as forest certifications. Yet a narrow focus on those specific regulations aimed at forest issues and resources that do not take into account both the dimensions of the political and the politics of forest can miss one important point: that a large number of other regulations and norms are at the base of the social definition of the use of forests. The case of property rights is the best example to illustrate such a point. In fact legally recognised property rights over land and specifically over forest land are a main element to be addressed when analysing forest conflicts and forest uses. Yet such property rights are rooted in norms and legislations that hardly have a focus on the forest alone. The fact that multiple attempts to implement forest policies must deal with and face property rights clearly shows the political role of property rights. And property rights under capitalist systems are basically a social relation of a very political nature. It is only after dealing with property rights that we can rightly start placing forest policy as a way to mediate in the process of the political constitution of the different uses for forest biomass. As such that is a question of power at the national level.

Our overall argument is that, to make sense of the interconnections between the political, politics and policy regarding forests and so to address the broader contexts in which those are developed and shaped we need a more general framework. In contrast to such a view, a number of views of forest research tend to avoid questions of power and therefore depoliticise the understanding and interpretation of forest policies. Also, this can be seen as a sign of the recent times, times in which the basic issue of power and its political constituencies is frequently avoided

(Arts & Tatenhove, 2004). However, “there is no escaping that politics is about power” (Freeden, 2005) and it is here where critical theory represents a source of theoretical development that can offer important gains in the understanding of forest–society relations. To develop our argument, we briefly present some aspects of the type of critical theory we argue for.

To start with, one should note that there are multiple meanings for critical theory. Yet the expression has been specifically and widely associated with the Frankfurt circle or school. Though within the theoretical production of so-called Frankfurt school critical theory, there are different periods and transformations and several concepts that are object of debate, from the beginning Frankfurt school theorists had some common interests and research orientations:

Whatever their differences, they all shared a fundamentally historical approach to questions of the state, law, politics, and economics. They did not accord ontological status to these dimensions of modern social life, but regarded political, legal, economic, and cultural forms to be intrinsically related, and sought to delineate their historical transformation with the supersession of nineteenth-century liberal capitalism by a new bureaucratized form of capitalism in the twentieth century. (Postone, 2004)

Though the previous characterisation refers to authors linked to the original Frankfurt school circle, there are common issues in the following developments of critical theory that we want to highlight here. First, the reception and elaboration around the work of Marx and other authors that developed and discussed his theoretical analysis of societies has a key role in the process of producing social critical theory about social reality and capitalism. Second, there is a focus on reflecting on the social condition of the production of knowledge and the premises of it. In this regard, critical theory is self-reflexive and historically specific. In other words, and in addition to the analyses and theorisation of social reality and the relation between society and nature it also aims at reflecting on the social position of critical theory. Third, there is a focus on the interrelation of different spheres of social reality and the way they are connected and transformed and how there is always potential for new configurations of social reality. Fourth, there is the attempt, reflected in Max Horkheimer’s seminal essay (1972 [1937]) on the differences between traditional and critical theory, of reflecting on the relations between empirical data and philosophical and sociological analysis of society

and also on the relations between natural sciences and social theory. Fifth, this type of critical theory engages with an immanent critique that explores the contradiction in the production and reproduction of social relations and in this regard it questions taken for granted facts, concepts and beliefs. Finally, this kind of critical theory engages with dialectics and the negative aspects of thought and reality. In Adorno’s thinking dialectics appears as “the consistent sense of nonidentity” (Adorno, 2007, p. 5 [1966]. An alternative translation puts this sentence in terms of “the consistent consciousness of non-identity”). In relation to the previous points, critical theory must be understood in relation to other theories of paradigms in social research. Here, the contrast with, for example, positivism is important and critical theory develops through the critique of positivism. Such a critique is aimed towards both positivism’s ontological, methodological and epistemological assumptions and premises.

One aspect of bringing critical theory to the research of forest issues has to do with the issue of explicitly bringing, as a result of the critique, normative aspects into forest research. Such normative character is rooted in the acknowledgement of the existence of inequalities and ecological crises, which develop within and between societies. Such inequalities and ecological crises must be understood as social constructions and therefore a view of forest research based on critical theory rejects any idea of a natural source of inequalities and inevitability of ecological crises and their reproduction. From such an assumption about the social construction of inequalities and ecological crises, we draw the goal of a better society as a normative question. Within this context, we argue for a forest research that is aimed at the goal of a better society. In this sense we qualify the question of a better society with a strong content in social and environmental justice. The argument we have put forward can be seen in relation to and dialogue with an increasing body of research highlighting the need for important changes in the way that we look at society–ecosystems relations and also in the way that we research such relations. Within this context, the role of critique we are envisioning within the research of forest issues can contribute to a true convergence of alternative social knowledge aimed at social actions and that such social actions can be linked to paths towards sustainable relations between society and forest resources and aiming also at the goal of environmental justice.

The question of structural barriers for CFR identified at the workshop is linked to constraints characterising contemporary forest policy research, which was one of the common concerns manifested at the

workshop. For this reason foundations for CFR should take into consideration the levels of the normative and epistemological aspects of CFR to formulate general research objectives and orient research towards the creation of changes. Our reflections, in this regard, start by taking the issue of history matters within CFR. History is not only important regarding the way we understand and interpret the past. In fact some of the main questions identified within contemporary societies in terms of relations to forest resources have been identified decades ago (See for example William (2003) for a historical account with a focus on deforestation). The recurrent phenomena in forest–society relations have been conflicts between forest legislation based on social interests and the political defence of property rights based on individual interests (Linebaugh, 2008; Sieferle, 2001). In other words, and to understand the social drivers of forest policies, it is relevant to put them into a historical perspective. History also matters when it comes to the core of forest research; the knowledge production itself. Knowledge that is being produced today in relation to forest and forest policy is to a large extent based on historical knowledge produced within a certain historical context (Romm, 2005). Currently an important part of the forest research arena operates in relation to industrial forest sector and its interactions with society at large. Yet research interests developed within the forest sector must be seen as historical outcomes and therefore as contingent ones. The general expectations from the forest sector play a significant role today and are embedded within various normative and analytical discourses on the overall role of forest research. One could even argue the existence of a clear hegemonic discourse regarding forest research, a discourse that is based on the economic interests of forest companies. Within this context, forests are seen as sources of commodities or raw material for commodity production (Humphreys, 2009) which constitutes material bases of hegemonic discourses on forestry. The recognition of such hegemonies implies also to identify of how power relations form such hegemonies.

The previous reflections give us important grounds to identify some foundations of what a CFR may in practice mean and how it could articulate normative and epistemological levels that can in turn be connected to general research objectives of CFR and the creation of changes identified as necessary within research process and research results. Within this context, and linked to the above presentation of critical theory, a clarification of the meaning we are giving to the word critique is important. For us to be critical has to do with both the analysis and critique and also the elaboration of judgments about reality. Judgments in this regard can be both positive, for

example, when evaluating a social dynamic that is considered as desirable and justifiable in contrast to other social dynamics and negative, for example, when critically evaluating social injustice. Both dimensions of critique can be regarded as political acts because they call “some aspects of our current world into question and thereby it implies a set of future preferable arrangements” (Castree et al., 2004, XVI). One aspect of our brief description of what critique mean for us deserves more explanation: there is a central recognition here about the value-laden nature of theory and the impossibility of neutrality in the research process. We argue that this does not mean any a-priori closure in the analytical and interpretative process of approaching social phenomena and on the contrary this implies even deeper understandings of those phenomena. Yet, and from a critical theoretical point of view one should consciously analyse underlying assumptions within current societies and address questions of inequality and social change within the research process. Not least important is the identification of social structures making possible the hegemonic role of certain discourses to deal with forest resources. Taking the issue of hegemony within our view on critical theory and forest research, we can highlight the productive combination of Gramsci’s approach to hegemony and the specific issue of forest discourses and the material reality in which they are based on. Gramsci’s concept of hegemony, though a discussed concept (see for example Anderson, 1976; Laclau & Mouffe, 1985) serves to explore the way in which hegemony is historically produced by unions of groups formed as a bloc and how hegemony is contested. The concept has been used as a theoretical tool to explain relations between states, business sectors, NGOs, professionals and the interplay of “economic, organizational, and ideological forces that coordinate the interests of the members of the bloc” (Levy & Newell, 2002). For the purposes of our general arguments, the incorporation of notions as hegemony means to clearly identify how politics interplay within both the process of forest research and the objects of forest research. From the sample of opinions regarding forest research presented in Table I and from our reflection on some of those judgments the relations between politics and forests become crucial. In fact we can identify judgments as for example questioning underlying assumptions, research for social change, questioning beliefs and facts, reflection on the relation between science and society and concerns for inequalities of societies as matters of political understanding of the different dimensions of forest research. This calls for stronger theoretical and analytical frameworks in which the relationships between politics and forests are

analysed to interpret the dynamics of policy formation. The contributions from the workshop described earlier, the conference plenary session demonstrating the need of looking at the political side of policy and an analysis of how the difference between politics and policy can be seen in forest research shows that a framework to place politics and policy within current forest research is needed. In this context, our main argument is that frameworks to make sense of current issues WFR at the policy level and judgments about forest policy research similar to the ones obtained at the workshop are frameworks that need to be elaborated in light of the important distinction between politics and policy.

Concluding remarks

Drawing from a view on the issue of policy and politics WFR and the outcomes of an academic workshop on forest research from a critical perspective we have offered some insights and propositions about prospects for CFR. The foundations of such a research programme have to do with normative and epistemological aspects as well as the recognition of research objectives aimed at social change. This implies a theoretical approach that we have linked to critical theory and its potential when focused on the interpretation of forest–society relations. Within this context, the recognition of the importance and still valid difference between politics and policy processes regarding forest resources is for us a constitutive element of frameworks dealing with forest–society relations from a critical point of view. We propose such a distinction as a minimum requirement for fruitful theoretical disputes and debates about researching forest policy and we insist on the need of addressing both normative and epistemological aspects of forest research, independently of the particular theoretical approach used in researching forest issues. By doing so a more theoretically grounded exchange of interpretations and more coherent discussions could be fostered.

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Appendix III

This appendix gives a detailed view of the empirical material.

A note on quotations and layout: the thesis is presented by following the instructions for Doctoral Thesis presentations within the Swedish University of Agricultural Sciences. Quotes are sometimes inserted in the body text and other times they are presented in separate paragraphs. When interviews and observations are referred to, the following system is used: (a) for interviews, these are coded as INT-COUNTRY-NUMBER (Chile and Sweden are indicated as C and S) and the number refers to the list of interviews below, (b) for observations, those are coded as OBS-COUNTRY-NUMBER (Chile and Sweden are indicated as C and S) and the number refers to the list of observations provided below.

The empirical material produced and collected in Chile and used in this thesis consists of (interviewees are anonymized):

Interviews

1. INT-CHILE-1: Peasant/Sharecropper
2. INT-CHILE-2: Land owner, wheat mill owner
3. INT-CHILE-3: Peasant/sharecropper
4. INT-CHILE-4: Peasant/Sharecropper
5. INT-CHILE-5: Sharecropper
6. INT-CHILE-6: Forest owner, San Fabián
7. INT-CHILE-7: Land/forest owner, San Fabián
8. INT-CHILE-8: Land/forest owner, San Fabián
9. INT-CHILE-9: Land/plantation owner, Quirihue
10. INT-CHILE-10: Land/ plantation owner, Quirihue
11. INT-CHILE-11: Land/ plantation owner, Quirihue

12. INT-CHILE-12: Land/ plantation owner, Portezuelo
13. INT-CHILE-13: Land/ plantation owner, Portezuelo
14. INT-CHILE-14: Land/ plantation owner, Cobquecura
15. INT-CHILE-15: Land/ plantation owner, Cobquecura
16. INT-CHILE-16: Land owner, Ninhue
17. INT-CHILE-17: Small tree nursery owner
18. INT-CHILE-18: Forestry service staff, Santiago
19. INT-CHILE-19: Forestry service staff, Chillán
20. INT-CHILE-20: Municipality Cobquecura
21. INT-CHILE-21: Municipality San Nicolás
22. INT-CHILE-22: Municipality San Fabián
23. INT-CHILE-23: Municipality Coihueco
24. INT-CHILE-24: Municipality Ninhue
25. INT-CHILE-25: Agronomist in the study area
26. INT-CHILE-26: Environmental activist study area
27. INT-CHILE-27: NGO representative Santiago
28. INT-CHILE-28: Forestry company manager
29. INT-CHILE-29: Forestry company manager
30. INT-CHILE-30: Forestry company manager
31. INT-CHILE-31: Forestry company manager
32. INT-CHILE-32: Forestry company manager
33. INT-CHILE- 33: CORMA (Chilean Wood Corporation)
34. INT-CHILE-34: Environmental Authority Staff Chile, Santiago
35. INT-CHILE-35: Environmental Authority Staff, Concepción
36. INT-CHILE-36: Fundación Chile
37. INT-CHILE-37: Representative coalition against tree plantations
38. INT-CHILE-38: Observatorio Ciudadano
39. INT-CHILE-39: Native forest management consultant
40. INT-CHILE-40: Trade union leader
41. INT-CHILE-41: Trade union leader
42. INT-CHILE-42: Trade union leaders (group interview)
43. INT-CHILE-43: representative ONG working with agro-ecology

Code: INT-CHILE- NUMBER INTERVIEW

Observations:

1. OBS-CHILE-1: Observations accompanying forestry workers in a forestry operation, close to Concepción

2. OBS-CHILE-2: Observations during visit at the agro-ecological farm in the area of Yumbel and during study visit to municipality of Portezuelo
3. OBS-CHILE-3: Observations during preparation of a native forest management plan. Sharecroppers and native forest consultant
4. OBS-CHILE-4: Observations during workshop to explain to forest owners about carbon trade projects
5. OBS-CHILE-5: Observations during *festival de aguas libres*, Ñuble
6. OBS-CHILE-6: Observation during meeting between agronomist and peasants in the study area

Code: OBS-CHILE- NUMBER OBSERVATION

Texts and documents not indicated as references

1. Media coverage on forestry activities during the research period
2. Forestry service information material
3. Municipalities Development plans
4. Regional development plans
5. Documents and reports from institutions working with forestry in Chile

The empirical material produced and collected in Sweden and used in this thesis consists of:

Interviews

1. INT-SWEDEN-1: Forest owner, Ullånger
2. INT-SWEDEN- 2: Forest owner, Ullånger
3. INT-SWEDEN-3: Forest owner, Kramfors
4. INT-SWEDEN- 4: Forestry agency staff study area
5. INT-SWEDEN-5: Forestry agency staff study area
6. INT-SWEDEN-6: Consultant on bio-energy study area
7. INT-SWEDEN-7: Municipality Ånge
8. INT-SWEDEN-8: Municipality Timrå
9. INT-SWEDEN-9: Society for Nature Conservation members study area and parliament representative study area
10. INT-SWEDEN-10: Forest workers trade union

11. INT-SWEDEN-11: Forestry company manager
12. INT-SWEDEN-12: Pulp mill manager
13. INT-SWEDEN-13: Forestry agency staff study area
14. INT-SWEDEN-14: Forestry agency staff study area
15. INT-SWEDEN-15: County Administrative Board in the study are
16. INT-SWEDEN-16: Forest owners association manager study area
17. INT-SWEDEN-17: Swedish Forest Industries Federation manager
18. INT-SWEDEN-18: forest owners association in Uppsala
19. INT-SWEDEN-19: Pulp mill manager
20. INT-SWEDEN-20: NGO Protect the Forest member

Code: INT-SWEDEN- NUMBER INTERVIEW

Observations

1. OBS-SWEDEN-1: Observations accompanying XXX during a whole day visiting a forest affected by the storm Ivar and forest actors in the study area in Sweden
2. OBS-SWEDEN-2: Observations accompanying forest owner XXX during a visit to his ongoing forestry work,
3. OBS-SWEDEN-3: Observations at an information meeting organized by the forest owners association in Ullånger
4. OBS-SWEDEN-4: Observations during the Bispgården conference
5. OBS-SWEDEN-5: Observations during seminar of the All-Party Committee on Environmental Objectives strategy for sustainable water policy and sustainable land use
6. OBS-SWEDEN-6: Observations during the forest festival

Code: OBS-SWEDEN-NUMBER OBSERVATION

Written texts and documents

1. Skog & Industri - Forest & Industry
2. Nytt i Norrskog and Norrskogen
3. Din skog (SCA magazine)
4. Shape (SCA international magazine)
5. Vi Skogsägare -We forest owners
6. Lokal eko - Forest agency magazine
7. Forest & Future -Future Forest Program magazine

8. Forest agency information material
9. Congressional records on the Norrland question and forest act discussions
10. Municipalities' development plans
11. Regional development plans (Jämtland and Västernorrland)
12. Government forest initiatives documents
14. Environmental objective reports
15. Media coverage of forestry issues

Appendix IV

Interview guide and field questions used in the study

The guide and the questions were adapted according to subjects interviewed (individuals or representatives of organizations) and according to specific circumstances of the interviewed persons

Part 1: Introduction

Name:

1. Please explain your position and activities within XXX ?
2. Please describe the main characteristics of XXX in XXX?
3. What are the main goals of XXX in XXX?

Part 2: Specific questions

1) Forest

1. What is the view of XXX in XXX in relation to the environmental and ecological aspects of forest resources?
2. How does XXX in XXX aim toward the environment and forest ecology in the area?
3. What is the significance of forest activities for XXX in XXX?

2) Forest sector

- 1) How important is the forest sector for XXX in XXX?
- 2) What are the main activities associated with forest resources in the area where XXX in XXX develops activities?

3) How is the production of forest products organized in the area where XXX in XXX develops activities? What are the main forest products? Which are the main markets?

4) What is the competition that XXX in XXX faces in term of forest activities?

5) How is this competition faced?

6) How do investments on new technology take place in relation to forest activities within XXX in XXX?

7) What are the reasons for investments? What problems and challenges are faced?

8) How are the costs defined within the forest sector in this area?

9) How can forest companies keep and increase their incomes and profits? Why should it be important?

10) How is XXX in XXX affected by the overall economic context?

11) Why and how have XXX forest companies expanded their operations to other countries?

12) What in your view are the main problems forest companies have in XXX?

13) And, the forest sector in other parts?

14) What would be the conflicts in the forest sector in XXX?

15) In which of these conflicts is XXX in XXX involved?

3) Communication

1) What is the role of communication for XXX in relation to environmental issues?

2) What does XXX in XXX need to communicate in relation to forests and the use of forest resources?

3) What does XXX in XXX need to communicate to other actors as for example XXX, XXX and society at large in relation to the forest?

4) Are there differences in how XXX in XXX communicate with different actors?

5) How does XXX in XXX communicate its vision, views and projects in relation to forest resources and activities?

6) What are the conflicts that XXX in XXX faces when it communicates its goals and project

4) Environmental objectives and Environmental Impact Assessments

1) What is the perception of XXX in XXX about the environmental objectives within XXX? Are they being achieved in the area? If not, why? If yes, why?

2) What is the view of XXX in XXX about the Environmental Impact Assessment (EIA) system in XXX?

3) How does EIA work in these areas? Are there cases of relevant of EIA involving forest activities? Could it be important?

4) What are the economic aspects, legal aspects, political aspects involved in the development of EIA?

5) How does the process of public participation assured within the EIA work?

5) Climate change

1) What is the form and extent of the knowledge that exists in relation to climate change in the area?

2) What do you think is the relation between climate change and forest resources?

3) What is the practical view of XXX in XXX in relation to climate change? Risks, opportunities?

4) How does XXX in XXX deal with climate change in its internal policy?

5) How does XXX in XXX deal with aspects related to climate change and forest activities?

6) What are the measures (short-medium-long term) adopted in XXX in XXX in relation to climate change?