



# Making place-based sustainability initiatives visible in the Brazilian Amazon<sup>☆</sup>

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From state-based developmentalism to community-based initiatives to market-based conservation, the Brazilian Amazon has been a laboratory of development interventions for over 50 years. The region is now confronting a devastating COVID-19 pandemic amid renewed environmental pressures and increasing social inequities. While these forces are shaping the present and future of the region, the Amazon has also become an incubator of local innovations and efforts confronting these pressures. Often overlooked, place-based initiatives involving individual and collective-action have growing roles in promoting regional sustainability. We review the history of development interventions influencing the emergence of place-based initiatives and their potential to promoting changes in productive systems, value-aggregation and market-access, and governance arrangements improving living-standards and environmental sustainability. We provide examples of initiatives documented by the AGENTS project, contextualizing them within the literature. We reflect on challenges and opportunities affecting their trajectories at this critical juncture for the future of the region.

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Current Opinion in Environmental Sustainability 2021, 49:66–78

This review comes from a themed issue on **Transformations to sustainability: critical social science perspectives**

Edited by **Eleanor Fisher, Emily Boyd and Eduardo Brondizio**

For a complete overview see the [Issue](#)

Available online 8th May 2021

Received: 16 October 2020; Accepted: 17 March 2021

<https://doi.org/10.1016/j.cosust.2021.03.007>

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## Introduction

A laboratory of development interventions for over 50 years, the Brazilian Amazon is again experiencing frontier expansion, resource expropriation and deforestation, pollution and pressures on Indigenous and rural communities. Today, land-use conflicts, conservation, climate change, urban poverty and inequality, and a devastating COVID-19 pandemic interact in complex ways. While academic and policy debates rightly emphasize these forces as shaping the present and future of the region, the Amazon has also become an incubator of local innovations and efforts to confront these pressures and historical social inequalities, by both individual and collective-action [1–3,4<sup>\*</sup>].

Place-based initiatives involving individuals, rural communities, organizations, associations and cooperatives, while often overlooked at the regional level, have growing roles in efforts to promote sustainable development. Throughout the region, they are contributing alternative approaches to manage, conserve and restore landscapes [5,6], promote regenerative agriculture and agroforestry [7–9], reduce poverty [10], empower women [11], promote value-aggregation and market access [12], and make environmental governance more inclusive [13]. They

<sup>☆</sup> Given his role as Editor, Eduardo S Brondizio had no involvement in the peer-review of this article and has no access to information regarding its peer-review. Full responsibility for the editorial process for this article was delegated to Eleanor Fisher.

have been important protagonists of regional change during past decades, but remain largely marginalized and invisible, challenged by land invasions, conflicting policies and poor access to transportation, sanitation, education and health services, and credit.

In this article, we review the recent history of development interventions in the Brazilian Amazon to examine factors and conditions influencing the emergence of place-based initiatives and their potential to promote and sustain changes and innovations in this time of uncertainty for the region. Specifically, we focus on rural place-based initiatives pursuing changes in productive systems, institutions, and access to markets to improve living standards and environmental sustainability. We review three overlapping phases in regional development ideas (and ideologies): state-based developmentalism (1960–), transnational socio-environmentalism (1990–), market-based and corporative green schemes (2000–). We further highlight the influence and lasting legacy of three key interventions ‘enabling’ place-based initiatives, particularly the Liberation Theology movement (1970–1980), the PPG7 program (1990s–2000s), and socioenvironmental policies (2000–2010).

We use place-based initiatives to refer to actions by on-the-ground actors who have ownership (and take the risks) in implementing ideas and actions, even if the initiatives are externally initiated and supported. While many of these initiatives are place-specific (e.g. a rural association’s agroforestry nursery and fruit-pulp processing micro-industry), they are connected in various degrees with governments at multiple levels, external markets, donors, and supporting non-governmental organizations.

As reviewed in the sections that follow, place-based initiatives are addressed in different ways in the vast academic literature examining (and influencing) the transformation of the Brazilian Amazon during the last 50 years. On the one hand, attention is given to the power of policy and external interventions in impacting local practices, landscapes and driving conflicts and political struggles. On the other hand, attention is given to the power of sustainable practices shaped by adaptation to local contexts. Beyond normative perspectives of ‘negative’ external drivers versus ‘positive’ local drivers, the literature describes regional transformations shaped through all kinds of dialectical relations among interventions, environmental and climate change, and local-level action.

For decades, alliances between external and local interest groups have enabled and benefited from government policies and market forces supporting the spread of deforestation, logging, mining, large-scale infrastructure, and land invasions. Recently, for instance, local actors coordinated forest-burning events via social

media while resonating a narrative about regional development promoted by the Brazilian president and allies [14]. Conversely, several top-down but progressive national public policies, including formal titling programs, social safety-nets, Indigenous land demarcation, and environmental regulation, exist to a large extent because of longstanding coordinated external and bottom-up pressure from social movements. For instance, the rubber tapper movement grew from and inspired a multitude of other social movements and shaped public policies on conservation with implications beyond Brazil; and experiences with community-based management of floodplain fisheries, initially inspired by external interventions have been scaled-up and inspired state-level policies. In today’s reconfigured Amazonia, these contrasting legacies are increasingly intertwined in an inescapable interdependence among actors and levels of governance.

Examining the emergence and trajectories of place-based initiatives has further conceptual and practical implications. Ostrom’s pioneering *Governing the Commons* [15] contributed immensely to understanding the conditions where communities can develop long-term sustainable management of common-pool resources, at least where external pressures are limited. Recent work investigates the conditions promoting bottom-up initiatives, and sustainability initiatives more broadly, to replicate and amplify [16–19]. Less understood is under what conditions place-based initiatives can connect (e.g. socially, economically and institutionally), consolidate, and inspire broader and lasting changes while confronting growing external pressures [20].

As we illustrate below, external factors have sometimes become enabling conditions making local actors more visible, empowered and creative to develop innovative paths with impacts beyond their local context. But in periods of economic and political hardships, when external forces and interventions generate conflicts and shrink space for local actions, local actors have also developed new ways to mobilize socially, resist, reshape alliances, redefine their livelihoods, build new knowledge and inspire one another. In these spaces, transformative paths are being re-imagined from conflicting but hopeful narratives of development and resistance, new ideas, political alliances, and exchange of experiences. During the past two decades, these paths of action and place-based initiatives have proliferated in the region; they are gradually connecting through new alliances and collective narratives with support from external actors and new technologies. However, counter-forces of fragmentation, vulnerability and silence have gained strength. In response, to realize these imagined transformative paths, these seeds of innovation are seeking to expand and develop new connections. The recent history of the region shows that place-based initiatives, if adopted

by social and political movements, can shape regional landscapes and policies; they can also be undermined and disappear.

Following a review of regional development interventions, we illustrate our discussion with examples of place-based initiatives promoting sustainability in the region today as documented by the AGENTS project (Amazonian Governance to Enable Transformation to Sustainability) and contextualize them within the regional literature. We then reflect on challenges and opportunities affecting their potential trajectories at this critical juncture for the future of the region.

### **Fifty-years of development interventions and conflicting legacies**

From state-based developmentalism to community-based initiatives to market-based conservation, the Brazilian Amazon has been the focus of actions, overlapping in time and space, to reconfigure the region since the 1960s (Figure 1). Between 1960–1990, state-based development projects promoted top-down, large-scale infrastructure, land occupation, and a vision of economic extractivism that led to high deforestation rates, land ownership concentration, and social inequities [21–24]. From 1990–2010, following the United Nations' Rio Earth Summit in 1992, a unique version of 'transnational socio-environmentalism' emerged along with programs to strengthen environmental policies, expand environmental monitoring, and demarcate Indigenous lands and protected areas. These efforts slowed deforestation, improved land security of traditional communities, and expanded sustainable production initiatives grounded in cooperativism, value-aggregation, improvements in local infrastructure and social services [25,26,28]. As socio-environmental policies declined after 2010, market-based nature conservation initiatives grew, such as voluntary compensation schemes, certification programs, and multi-stakeholder roundtables [24,27,29]. Since 2010, these advances have happened in parallel to resurgent state-based developmentalism, including the systematic dismantling of environmental policies and monitoring systems, expansion of large-scale infrastructure, illegal deforestation and continuing land conflicts [24,30,31,32\*,33\*]. While these different development framings and interventions emerged in different periods, today's ideas and visions of regional development not only overlap, but interact in synergistic and conflicting ways.

Place-based initiatives have emerged and changed in several phases. Local actors have articulated experiences and elements from each phase by adapting and seeking new opportunities to support their livelihoods using knowledge co-production, alliances with other actors, and self-governance. Causing or responding to

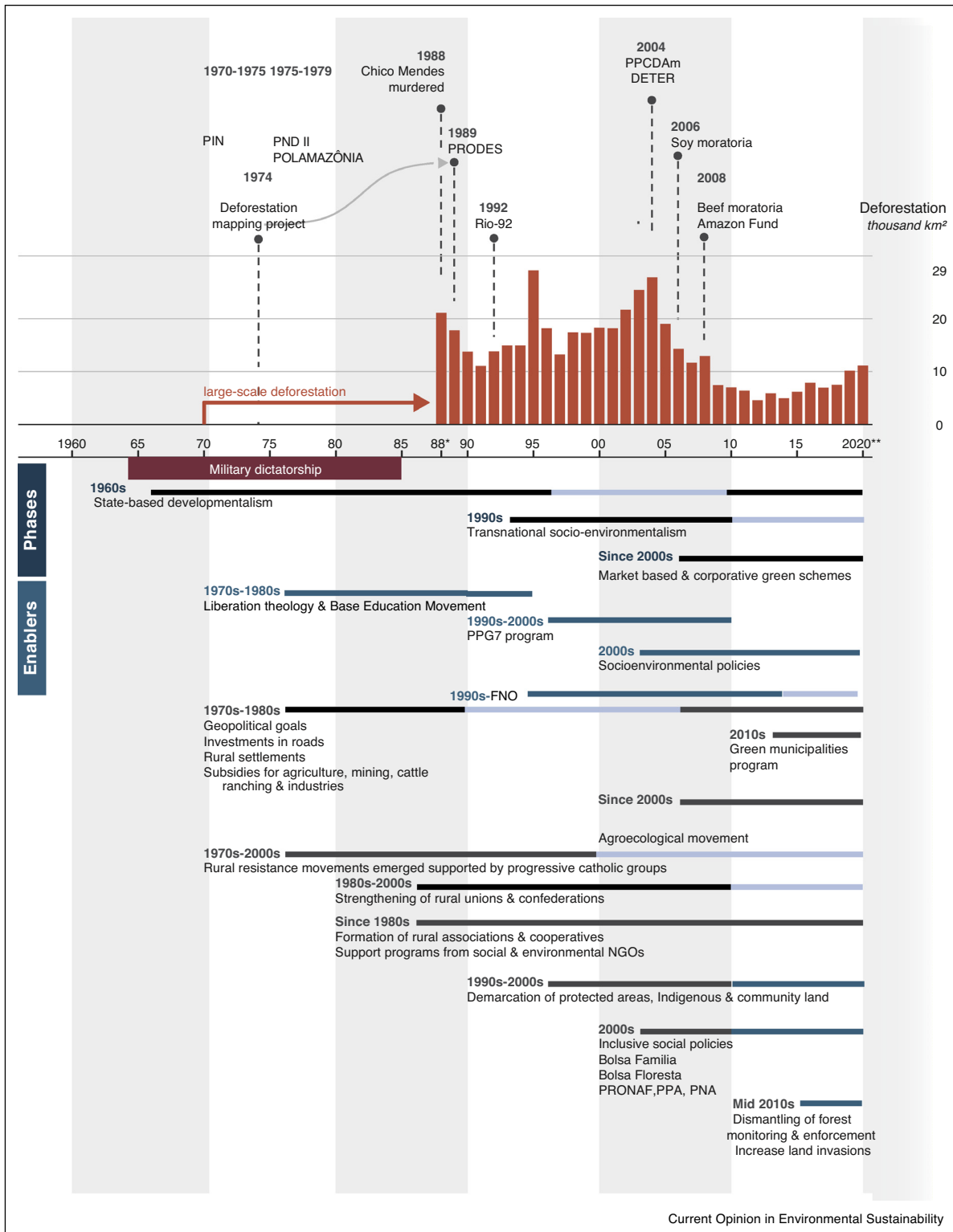
the outcomes of development programs, three groups of interventions have enabled structural changes, and influenced each other, at both ground and policy levels: the Catholic Liberation Theology movement during the 1970s and 1980s, the externally funded Pilot Program to Conserve the Brazilian Rainforest (PPG7) during the 1990s and 2000s, and the development of a bundle of socio-environmental policies by the federal and some state governments supported by non-governmental organizations and social movements [24] (Figure 1).

Based on social justice principles, the Liberation Theology movement catalyzed social and economic interventions in rural Amazonian communities [34]. Parish leaders and supporting organizations organized rural families into communities, often based on external ideals and practices of collective governance and ownership. The term 'community' gained region-wide usage to represent place-based social and political organizations, progressively gaining relevance as a source of identity and land rights, and as a unit for project implementation and public policies [35–38]. Based on Paulo Freire's methodology, they promoted literacy and political consciousness among marginalized rural populations, building rural leaders who became vital in land struggles during the 1980s re-democratization. These programs have continuously influenced the formation of rural community associations, forest-peoples organizations, and rural worker unions throughout the region since the 1970s.

Movements such as that of rubber-tappers reached international visibility [39] and continue influence many grassroots environmental movements today. They helped connect local concerns and actors to international levels, created alliances connecting social-ecological concerns, and articulated a forest/river-based development narrative. They gave rise to 'socio-environmentalism' a movement during the 1990s and 2000s grounded in transnational alliances between social and environmental movements for alternative development pathways, based on local knowledge and resource governance, and the economic value of biodiversity and local products [24,35]. Focused on controlling deforestation, creating protected areas and demarcating Indigenous lands, and recognizing local knowledge and territorial governance, these communities became the main allies in a larger socio-environmental project involving governmental and nongovernmental organizations [40,41].

These transformative paths in social organization and territorial governance strengthen from the launch of the Pilot Program to Conserve the Brazilian Rainforest (PPG7) on the heels of Rio-92 (Figure 1). PPG7 became the largest environmental program implemented in Brazil at the time, and arguably the most influential to date for

Figure 1



Development interventions, initiatives, and deforestation in the Brazilian Amazon. Data source: PRODES/INPE. Notes: \* PRODES data is available from 1988 to 2019. The absence of bars before 1988 does not mean there was no deforestation in the period. \*\* The deforestation rate in 2020 is a preliminary estimate.

the Amazon.<sup>7</sup> It shaped the current environmental governance of the region and the experiences of rural and Indigenous communities with sustainable development initiatives [42,43,44\*\*]. The program's impact has been seen in support for the then-nascent Ministry of Environment and of the Legal Amazon, supporting the crafting socioenvironmental policies, and advancing Brazil's comprehensive satellite-based deforestation monitoring system.

PPG7 contributed to unprecedented territorial policies, including the expansion of demarcated Indigenous lands, new extractive and sustainable use reserves based on co-management arrangements with communities, and other types of protected areas. Hundreds of thousands of communities received support from PPG7 programs for local projects before it wound down around 2012. Concomitantly, many initiatives also benefited from the credit program FNO (National Fund for the North), approved as part of the new 1988 constitution, which included credit granted through associations and local organizations [45].

These initiatives were boosted by socioenvironmental policies implemented during the Workers' Party government (2003–2016) such as credit-lines to improve agricultural practices, expanded rural energy, and conditional cash-transfer programs [24,46–48]. In addition, the creation of the Amazon Fund in 2008 expanded the financial support for place-based initiatives (Figure 1). Local and regional organizations, such as rural workers' unions, Indigenous and rural community associations, and women's networks were strengthened significantly. They gained experience working with governments, national and international NGOs, and, not least, by sharing leadership and organizational expertise. Regionally, a comprehensive Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAm) eventually led to an 80% reduction in deforestation rates by 2012 (Figure 1), helping to decrease pressures on forest-dependent communities. However, government policies during the same period also supported the expansion of large-scale commodity agriculture, logging and mining, and large-scale infrastructure, creating a situation where these diverse forms of living and interacting with the region co-exist today [24].

Since 2000, market-based sustainable development projects also emerged through various partnership arrangements [49]. Carbon compensation schemes for forest conservation started to gain more attention as

corporations allied with environmental NGOs to develop market-based mechanisms to incentivize forest conservation. Voluntary sustainable supply chain certification schemes emerged from the private sector to comply with sustainability criteria increasingly demanded by global consumers. Although supply chain certification arrangements remained largely non-accessible to smallholder producers, diverse forest product entrepreneurship emerged in the form of cooperatives and micro-industries for processing and commercializing oils, fruit-pulp, food products, jewelry, timber and other products sold to local and to external markets. Credit lines for family farming (PRONAF), and institutional purchase of family farmers' products (PAA and PNAE) (Figure 1) as well as partnerships between grassroots organizations, researchers, private actors and NGOs were instrumental in establishing these initiatives [50–52]. Also relevant during this period is the rise of the agroecological movement, which gained force throughout Latin America (Figure 1) in tandem with the international peasant movement *Via Campesina*, and has since expanded in the Amazon and Brazil as a whole promoting regenerative agriculture and advocating for the social value of smallholder producers, gender and collective identity [53,54,55\*].

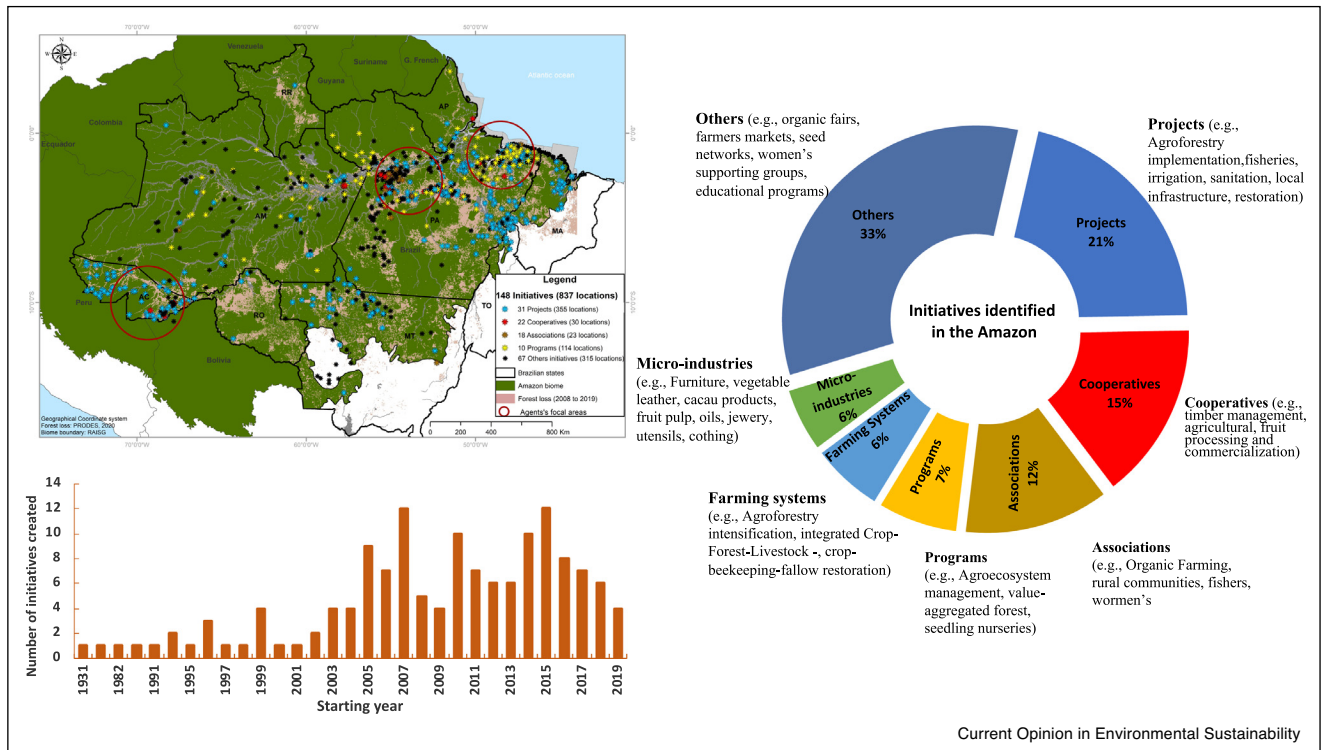
### **Making visible place-based initiatives pursuing social and environmental goals**

The legacy of this history of ideas and interventions, and their interactions, is a range of social-institutional arrangements, innovations, and conflicts endemic to the Brazilian Amazon. Most of the initiatives documented by the AGENTS project were enabled, directly or indirectly, by interventions associated and experiences gained, among others, with Liberation Theology, PPG7, and socioenvironmental policies by both federal and some state governments. These enabling programs were instrumental in building political consciousness and re-organizing kinship-based groups and migrant-colonist families into 'communities' and issue-based associations. Community identity and formal associativism have not only helped 'binding social capital' across horizontal networks of mutual support, but 'bridging social capital' with regional and supra-regional networks, and with municipal and higher governments [4\*,56]. These experiences continue to be instrumental as new opportunities and challenges have emerged. In this section, we illustrate examples of place-based initiatives documented by the AGENTS project, contextualizing an illustrative set of these initiatives within the regional literature.

Since 2019, the AGENTS project has documented through participatory workshops, fieldwork, archival and interviews over 200 place-based initiatives in over 900 localities and 174 municipalities in the Brazilian Amazon (Figure 2). These are mostly small-scale initiatives dedicated, among others, to timber and NTFP

<sup>7</sup> Organized in four main areas, the program supported (1) the development of a national environmental policy, including deforestation monitoring for the region, (2) the creation of protected areas and the demarcation of Indigenous lands, (3) research about regional ecosystems, and (4) local sustainable development initiatives.

Figure 2



A preliminary map of initiatives identified by the AGENTS project in the Brazilian Amazon.

management and certification, land restoration, expansion of agroforestry systems, capacity-building, women's empowerment, micro-industries, production, processing, and commercialization cooperatives, and community-based natural resource governance. Some of these innovations emerged from local knowledge and experimentation, such as intensive agroforestry systems, while others came from interactions between external agendas and local goals, such as the creation of sustainable-use reserves and community-based management arrangements. They have sought to govern more inclusively to manage conflicts or create new and more effective agreements among stakeholders, guiding local people's decisions and actions around rivers, forests, agricultural, and urban landscapes.

Figure 2 presents a preliminary map of initiatives identified by the AGENTS project based on collaborative work with local organizations, individuals and groups in three focal areas. A database of initiatives was built with contributions from collaborators and participants in dialogue workshops, fieldwork, and interviews. Initiatives were included based on their intended scope and also recognition by local actors and organizations as contributing to positive environmental and social transformations at different scales. This is but a small sample of initiatives taking place in the region, yet illustrative of the diversity

and scale of efforts happening today. About half of the initiatives in the database are located in community or private lands, ~18% in communities living in conservation units, ~15% in Indigenous or Quilombola lands,<sup>8</sup> and ~17% in rural settlements.

As Figure 2 illustrates, these initiatives have expanded significantly since 2000 reflecting not only the impact of the programs discussed above, but the building-up of experiences and social capital among local actors. For instance, the development of 'vegetable leather' ('couro vegetal') in the mid-1990s in Acre, as a value-aggregation technology, emerged from efforts involving rubber-tapping communities, the state government, external organizations and funders. While the initial enterprise folded, the know-how continued to be disseminated throughout the region through collaborative networks and women's groups, leading to the emergence of numerous micro-industries and new products elsewhere in the region, as illustrated in Figure 3 (lower-left). The map reveals the regional distribution of place-based initiatives, many of which are nodes of regional networks. They are found among families and communities connected by roads and rivers, in some cases under larger institutional arrangements and property-regimes, such as in national forests,

<sup>8</sup> Afro-Brazilian rural settlements recognized in the 1988 constitution.

Figure 3



Examples of place-based initiatives in the Brazilian Amazon. Upper-left to right: P.A. Benedito Alvez Bandeira; Women's association AMABELA, P. A. Moju I e II; COMFLONA and Jamaraquá community, National Forest of Tapajós; Lower-left to right: Communities of Jamaragua, Maguary, and São Domingos, National Forest of Tapajós; São Sebastião community; Tome-Acu, PA.

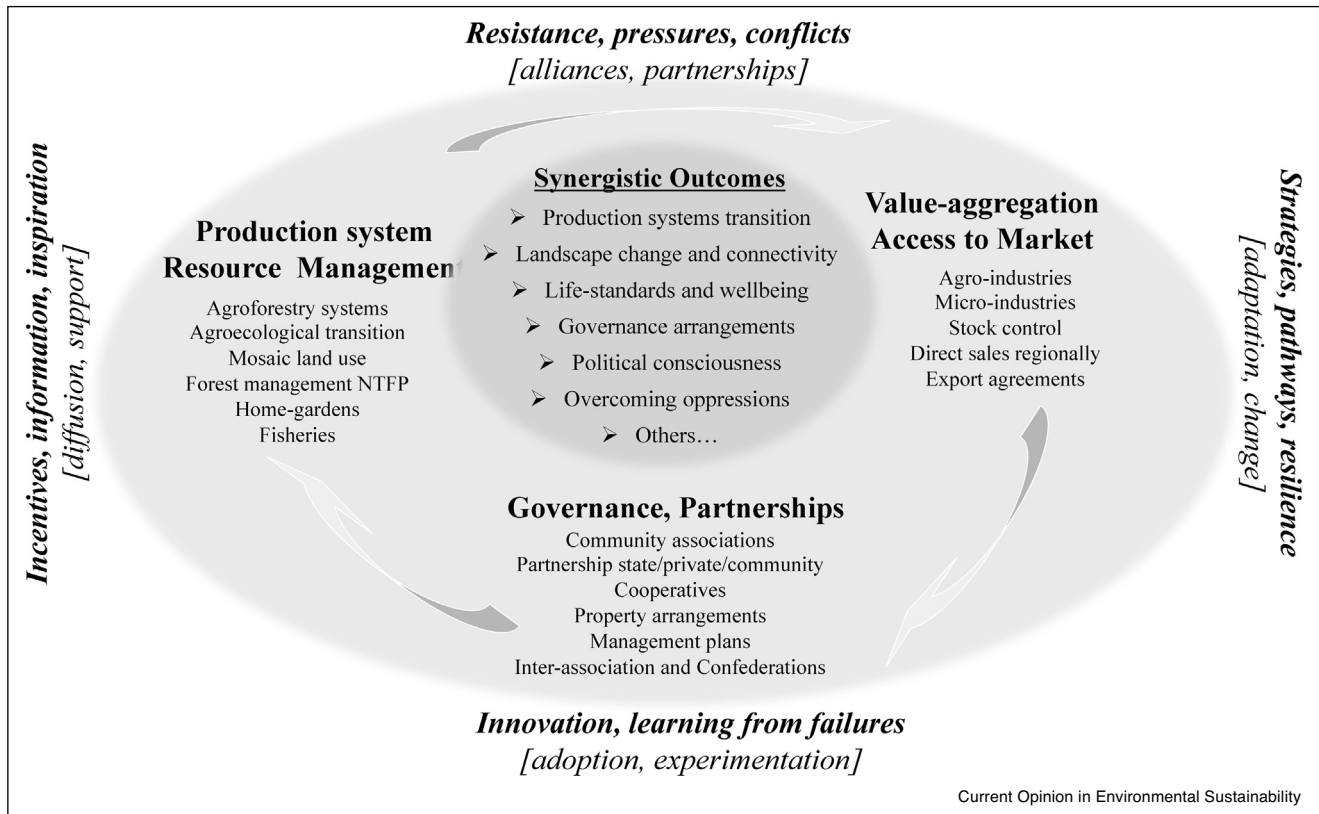
sustainable-use reserves and Indigenous and Quilombola territories. Others are reconfigured agrarian-reform settlements or juxtaposed with large-scale properties. For analytical purposes, the database allows organizing initiatives into multiple groups of working categories, such as in terms of functional structure (e.g. Figure 2), types of activities performed (e.g. Figure 3), and transformation outcome, such as production, market, and governance arrangements (e.g. Figure 4). It is relevant to note that most initiatives today approach intended outcomes in production, market, and governance as interdependent and requiring synergistic approaches to leverage and sustain advances [57–60].

Several groups of initiatives documented by the AGENTS project have been widely discussed in the regional literature, some of which we briefly review here. Experimentation, innovation, and the diffusion of agroforestry systems (AFS) have been common practice in the Amazon since pre-Columbian times [61] and are currently practiced by Indigenous people [62,63], and small-scale to medium-scale farmers of diverse backgrounds [4\*,9, 64–67]. During the past 20 years, AFS have become a preferred approach towards sustainable land-use transition, including for land restoration from abandoned pasture and fallow areas [68]. As productive systems with a

forest-like structure, AFS build on synergistic effects of crop diversity, soil-plant interactions, and ecological services. Since the 1990s, they have been framed as innovative and resilient production systems that provide an alternative to deforestation [72,69], engender a forest-based economy [8], address hunger and poverty [8], minimize production risks [7], promote innovations [76\*,70], and connect farmers to different markets, increasing their income [2,9,71]. Agroforestry production, particularly of fruits and oils, also provides employment in processing industries of various scales, commercialization, and direct-sales to consumers. For instance, the agroforestry-based intensification of acai fruit production has contributed to an economy employing hundreds of thousands of people throughout the supply chain, restoring and maintaining forests in the region's floodplains and upland areas [72].

Even where smallholders have developed intensive agroforestry production for valuable products, their share of profits is small within the supply chain [9]. Many efforts have tried to address these challenges with limited or uneven success. The economic valorization of Indigenous and local ecological knowledge, from bioprospecting to certification, emerged during the 1980s as a response to destructive policy interventions [77,73]. State

Figure 4



Illustrating synergies between production-market-governance arrangements and outcomes.

governments have also promoted value-aggregation projects, such as in the state of Amapá starting in the late 1980s [74] and the forest-economy policy program implemented in the state of Acre in the late 1990s [75]. Currently emerging, but yet to be implemented, the 'bioeconomics' paradigm is proposing to re-articulate development through valorization of biodiversity and local knowledge, but also bringing attention to new technologies and market arrangements [76\*].

Concomitantly to these efforts, rural associations, cooperatives and micro-industries have emerged across the region to confront the bottleneck of value-aggregation and market access for forest-dependent and smallholder communities. Producers grassroots cooperatives emerged and proliferated from a process of education for citizenship, autonomy and participation, with the mediation of local and regional organizations, including the aforementioned enabling programs and efforts [77]. While there are many failures, there are several successful examples of producers' cooperatives in the Amazon providing jobs and income generation, promoting of forest management, agroforestry and crop diversification, enabling political-institutional links with different

regional, national and international actors, and stimulating innovation, creativity, mutual respect and participation [1,78–80].

Initiatives focusing on building women's empowerment have contributed to promoting inclusion in governance and in the production, processing, and commercialization of agricultural and forest products with variable degrees of success [81]. According to Shanley *et al.* [82], many of the women's groups and associations 'capitalized on international donors' interest in gender issues and garnered funding from external sources, ( . . . ) while others came about from the confrontation of discriminatory policies favoring large ranchers and monoculture plantations'. Yet, while women in leadership roles in the governance of local and regional organizations have increased over the last two decades with the support of non-governmental organizations, including religious groups, they remain largely invisible and lacking specific support in public policies [89,83,84].

Finally, governance arrangements grounded on community-based natural resource management (CBNRM) have been documented among rural communities engaged in



community fishing agreements [85], turtle nesting protection [86], community NTFP management [87–89] and timber management [90–92]. Although community-based organizations have been part of the Amazonian rural landscape since the 1980s, CBNRM systems became more visible in Brazil in the 1990s with the emergence of transnational socio-environmentalism (Figure 1), which emphasized the role of forest communities in sustainable development and climate-mitigation strategies [93]. This perspective opened new opportunities for support from international donors and policymakers to CBNRM systems.

Many of these grassroots initiatives have received legal recognition, funding, and training programs to further develop their community-based initiatives. Formal community-based territorial rights [92] and fishing agreements in the Lower Amazon [94], commercial development of community-based management of the fish *Arapaima gigas* [95] and community-based timber management in the Tapajós National Forest [10] are only a few examples. In the state of Amazonas, the perceived success of *Arapaima* management among a dozen communities in the late 1990s led to an expansion of the program, through government incentives and arrangements, to around 500 communities today [96]. A common denominator of these experiences is hybrid governance, where national policies, international funding and multi-stakeholder networks support local institutions.

### Learning from failures is key to engender long-lasting transformation

While place-based initiatives provide social support, innovations, and inspiration towards more sustainable development pathways, they also chronicle some of the frustration and failures that have marked the ups-and-downs of development interventions and programs in the Amazon. A literature on place-based interventions has highlighted the ephemeral nature and the ‘pilot-project syndrome’ that have come to characterize many experiences but also the long-lasting effects of some external influences in local livelihoods [49]. Discontinuities, frustrations, and failures of community-based projects, for instance, have also equipped local actors and organizations to anticipate challenges and to take charge and leadership of new opportunities [97].

An emerging literature on regional-level case-studies highlights the importance of cross-scale interactions in hindering or enabling the intended outcomes of place-based initiatives, and it demonstrates the complexities involved in both understanding whether an achieved goal at one level is resilient and whether goals achieved at one level may contribute to more emergent desirable states at higher levels [98–102], or be undermined by external pressures [64].

A key to moving forward is recognizing the factors and conditions that have undermined the successes of place-based sustainable development initiatives in the past [103]. These include a lack of attention to local needs and capacities in program formulation [104,105], reliance on technocratic management [106] or dependence on financial subsidies with limited attention to project continuation [107,108]. By overlooking local limitations, contexts and expectations, some sustainable development initiatives have deepened conflicts, inequalities, and unsustainable practices [109,110] or proven to be ephemeral or to have mixed outcomes [49,51,111]. Local-level factors, such as lack of administrative experience and unfamiliarity with complex bureaucracies (e.g. financial management, sanitary certification, exporting rules) have also frustrated expectations, including bankruptcy of local associations and cooperatives, community conflicts and frustration with collective engagements.

Many initiatives documented by the AGENTS project reflect the ways actors have gained experience in interacting and responding to external interventions and pressures. They have formed new associations and inter-association networks, created new partnerships with state and non-state actors, and melded local knowledge about resource management and production systems with new ideas, technologies, and market opportunities. As illustrated in Figure 4, place-based initiatives now take more cross-sectoral approaches (Figure 4). They are combining actions intended to advance production systems (e.g. agriculture, forestry, fisheries, NTFP) in tandem with infrastructure for agricultural product storage, value-aggregation in micro-industries, improving access to markets and direct-sales to consumers, and redefining underlying governance institutions. These more synergistic arrangements tend to address multiple goals and involve a wider range of participants, help increase the profitability of local products, form new alliances and supporting networks, and balance individual/family interests and collective governance institutions. However, they remain dependent on and limited by external support, lacking visibility and recognition as important drivers of the regional economy and, thus, more favorable policies and access to basic public services.

### The power and limitations of place-based initiatives to engender transformative paths in a post-pandemic Amazon

The growing complexity of the Amazonian landscape juxtaposes contrasting relationships between and among local populations, a changing environment, and conflicting views intervening in regional transformation and sustainability. The irreducible and intertwined social-ecological fabric of the region — the rivers, forests, animals, weather systems, cultures, actors, politics, institutions, economies and land uses — represents a microcosm of the sustainability dilemmas faced by actors from local to global levels. Beyond a Lilliputian or Leviathan

view of the forces affecting regional transformation, we examine these interactions as historical processes that result in emergent outcomes, either enhancing or undermining local goals, and from which lessons can be learned.

Place-based initiatives are powerful forces of change in the Amazon, but they also show that the governance of a complex region must be a multi-level process. It is well recognized that effective local governance benefits from tenure security, access to conflict resolution and mediation, as well as legal back-up and support in the enforcement of local rules, which depend on governance processes and policies within governmental organizations at higher levels [20,112,113]. Promising place-based initiatives by themselves, despite their success in transforming local spaces, are often insufficient to advance sustainable development at broader societal scales, whereas political and environmental factors are beyond their reach. Confronting the persistent structural and multi-dimensional inequalities (social, political and economic) of the region calls for action at all levels, from all sectors. More than in previous periods, the regional socioenvironmental infrastructure is being systematically dismantled, while inequalities, conflicts on the ground, and the pressures of climate change have been increasing [37,38]. Rural social movements continue to be vital in supporting political mobilization around agrarian struggles and new pathways to more sustainable production systems and better living standards.

The current challenge, however, is how to develop a [eventual] post-pandemic transformative path. The COVID-19 pandemic is revealing both the power and limitations of local governance amid a national and global crisis. The absence of national coordination in government programs to combat the COVID-19 pandemic in Brazil in general, and in the Amazon in particular, has led to a collapse of the health system and many other economic sectors, alongside increasing deforestation and fires, violence and invasion of Indigenous lands and conservation areas. Conversely, one observes the emergence and consolidation of collective-action at multiple levels to further limit the current sanitary and environmental crisis affecting the region's vulnerable majority, that is, the urban and rural poor, Indigenous and Afro-Brazilian communities [114]. Pathways to a more sustainable and just future will depend as much on coordinated and inclusive policies as on the emergent successes of place-based initiatives.

### Conflict of interest statement

Nothing declared.

### Acknowledgements

We are indebted to two anonymous reviewers who provided invaluable comments and suggestions on the first version of this manuscript. We are thankful for the support of the Belmont Forum, NORFACE, and the

International Science Council's T2S Program and the national funders supporting the AGENTS project, in particular FAPESP (Brazil), National Science Foundation (USA), NWO (The Netherlands), and Vetenskapsrådet (Sweden), and to the European Commission through Horizon 2020. We are also thankful for the support of Indiana University's Emerging Areas of Research program for the project Sustainable Food System Science. We are indebted to the support of all individuals, communities, and organizations who have been collaborating with us in the Amazon. The views and ideas expressed in the paper is the sole responsibility of the authors.

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Papers of particular interest, published within the period of review, have been highlighted as:

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- of outstanding interest

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