Chapter 25

Science Panel for the Amazon (SPA)

WG 9: Conservation and Sustainable Development Policies for the Amazon

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Chapter 25: A Pan-Amazonian Sustainable Development Vision

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A Pan-Amazonian Sustainable Development Vision

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Chapter 25

ACRONYMS AND ABBREVIATIONS

ACTO	Amazon Cooperation Treaty Organization
ARPA	Amazon Region Protected Areas Program
ASL	Amazon Sustainable Landscapes Program
CAR	Rural Environmental Registry
CBD	Convention on Biological Diversity
ESGs	Environment Social and Governance arrangements
GCF	Governors' Climate and Forests
GDP	Gross Domestic Product
GHG	Greenhouse Gas
ICDPs	Integrated Conservation and Development Projects
IPLCs	Indigenous peoples and local communities
LCDS	Low Carbon Development Strategy
NDCs	Nationally Determined Contributions
PADDD	Protected Area Downgrading, downsizing and degazetted
PCI	Produce, Conserve and Include
PES	Payments for Ecosystem Services
PNGATI	National Policy on Territorial and Environmental Management in Indigenous Lands
PTAP	Program on Protected Areas
REDD+	Reduced Emissions from Deforestation and forest Degradation, plus the sustainable management of forests, and the conservation and enhancement of forest carbon stocks

Chapter 25

SDGs	Sustainable Development Goals
SISA	System of Incentives for Environmental Services
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change

Chapter 25

INDEX

Chapter 25

Chapter 25

KEY MESSAGES

- The Amazon presents multiple worldviews, often antagonistic, that pose a challenge to establish a consensus regarding a common vision for the future of the region.
- Historic imbalances of power have led to the dominance of monetary-centric visions that reinforced the false rhetoric that standing forests do not produce socio-economic development, resulting in the destruction of the Amazon's ecosystems, inequalities and violence.
- The Living Amazon Vision presented in this chapter results from consultations with scientists of the Science Panel for the Amazon, and is based on a set of guiding principles and values. This vision proposes a new development model that is inclusive and just, as well as socially, environmentally, and economically healthy. It recognizes the role of the Amazon in the 21st Century, and the need for economies that can sustain ecological integrity and diversity, protect human rights, and promote well-being.

Chapter 25

ABSTRACT

The Amazon holds the highest biodiversity on the Planet, as well as a multitude of peoples, cultures, languages and customs. Its ecosystem services provide fundamental benefits at the local, regional, national and global scales. As a consequence of this diversity, innumerous worldviews, interests, perspectives, values and connections exist between Amazonian people and ecosystems, biodiversity and natural resources in the region. However, historic imbalances of power among distinct Amazonian stakeholders and the invisibility of processes at different scales have led to the dominance of certain interests and values over others, and to public policies and institutions that prioritize economic returns from land-use and do not fully consider its associated environmental, social and historical costs. These monetary-centric visions reinforced the false rhetoric that standing forests do not produce socio-economic development. To break this false paradigm of development *versus* conservation, it is imperative to recognize and integrate these antagonistic visions, addressing conflicts and promoting the recognition of the multiple values for healthy standing forests, free-flowing rivers, as well as for cultural interactions with nature and the Amazon as a whole. This chapter aims to provide an alternative vision that supports a sustainable Amazon, where the use of its resources and biodiversity in the present will not compromise the existence of future generations of human and non-human living beings. The Living Amazon Vision results from consultations with scientists of the Science Panel for the Amazon, as well as with different stakeholders in the region, and is based on a set of values, principles and epistemes described throughout the chapter. The strategy to reach a future Living Amazon Vision, based on a development model that is inclusive, just, and socially, environmentally and economically healthy, includes: (i) the conservation, sustainable management, restoration and remediation of ecosystems; (ii) the incentive for bioeconomy development; (iii) the strengthening of governance and people's empowerment; and (iv) aligning policies at multiple scales.

Keywords: Sustainability, Amazon worldviews, bioeconomy, social justice, environmental integrity

Chapter 25

GRAPHICAL ABSTRACT

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Chapter 25

1. INTRODUCTION

Developing a clear vision is the central starting point from which any action plan emanates, providing it with the foundations to have meaning, direction, substance and boundaries. Having a vision is necessary to change course, and an action plan will be able to be successfully put into practice if all stakeholders involved share a common vision and participate in its construction. This is a complex and delicate task for the Amazon, where an intricate and diverse web of stakeholders from distinct countries have interests - often antagonistic - in the land and its resources.

Assessing these multiple visions and agreeing on a common one is not a simple undertaking. As we will see in this chapter, multiple visions can be imbedded in distinct worldviews. They may depend on where you come from: central capitals, local cities, towns, communities in rural areas; and who you are, what you do, how you do it: Indigenous peoples speaking different languages, non-Indigenous local communities, migrants, traditional loggers, ranchers and farmers, modern producers and large mining, oil, agribusiness, or timber enterprises; municipalities, provinces, states and national governments; the military; civil servants and contractors managing infrastructure that serves distant populations; even drug traffickers, smugglers and illegal miners and loggers. The distinct scales and dimensions at which the Amazon is being examined will offer different perspectives: global, local, provincial, national; private, public, civil society; sector or activity; economic, political, social, natural.

When thinking about a vision, it is of the utmost importance to consider the Amazon's populations and remember that this is not an empty space (see Chapters 8-14). This biodiverse, naturally bountiful biome contains the largest rainforest in the world and around 40 million people. If we consider the remote but steadfast economic and political interests that highly influence the Amazon's fate (see Chapters 14 and 17), it would be fair to say that even more people occupy the space. The Amazon is a stage in the interconnected world of globalization.

The current path the Amazon is on is leading to its demise and putting in peril the living world that depends on it, both locally and globally. In order to change course, we must compromise in a vision based on values, principles, cultural assumptions, and metrics that drive human institutions and sustains life at all forms. We need to foster a new ethic, a mutually enhancing

human–nature relationship at all scales: individuals, communities, watersheds, ecosystems, biomes and ultimately on a planetary scale. The emerging **Living Amazon Vision** aims to transform the "life-blind" economic system to one that is "life-centric" and based on values and principles of mutual benefit where both people and the Amazon rainforest flourish. This framework would recognize the well-being of people and the web of life as inextricably linked. The Living Amazon Vision represents **a moonshot goal**; an ambitious vision to achieve what may seem inconceivable today. Averting the potential tipping point (see Chapter 24) of collapse of the Amazon biome's hydro-climatic system will require nothing less. This chapter, on A Pan-Amazonian Sustainable Development Vision, represents, in many ways, the first steps into the future.

The most important indubitable fact that we must take from this chapter and from this work, is that an environmentally and socially sustainable, inclusive and just Amazon, where people and nature thrive, requires that we abandon the extractive-based vision and model that has dominated in the region until now and that have bought us this far. Stakeholders will need to be willing to compromise and agree on an encompassing vision that accommodates their own. If we collectively accept that, in will and commitment, in thought and paper, we may have overcome our biggest obstacle. The age of COVID-19, with its dire consequences, provides a transparent example of how lifestyle changes are possible when will and commitment accompany thought and proclamation. Fortunately, unlike the COVID-19 example, fundamental change can usher in improvements in the quality and possibility of life. That is the purpose of the transformational vision proposed below: the vision of a Living Amazon that is ecologically healthy, socially fair, culturally inclusive and offers comprehensive economic prosperity.

2. CONTEXT FOR THE LIVING AMAZON VISION

2.1. The Amazon today

The Amazon is a vital entity for the planet. The largest tropical forest in the world has evolved over the past millions of years into complex, dynamic, and heterogeneous landscapes that are essential for life on Earth (see Chapters 1-7). Its geodiversity is represented by specific geomorphologies and unique habitats with a high degree of endemism (Sombroek 2000, Alvez-Valles et al. 2018; see also Chapters 2 and 3). The result is a diverse mosaic of dominant forests, with encrusted savannas and grasslands, forming one of the most biodiverse and functionally diverse terrestrial and water ecosystems on Earth (see Chapters 1-4; Wittmann et al. 2006, Sakschewski et al. 2016). Estimated to host more than 15,000 tree species, the Amazon is the home to about 10% of the described species of plants and animals compressed into only around 0.5% the Earth's surface area (ter Steege et al. 2020).

Holding 10% of the planet's biomass and representing 17% of freshwater discharge on the planet (Baccini et al. 2012, Giffard et al. 2019), the Amazon basin provides fundamental ecosystem services to the region and the Globe. Its more than 390 billion trees are responsible for pumping and recycling water to the atmosphere and holding carbon, contributing to cloud formation, cooling the earth system, sending heat back to the atmosphere and supporting primary productivity (see Chapters 5-7) (Hilker et al. 2014, Ter Steege et al. 2016, Ahlström et al. 2017). Agricultural production in the South American continent – and beyond – is dependent on the maintenance of the essential water cycle functions that these forests provide. The rainforest regulates local to regional temperature by intense evapotranspiration, maintaining air temperatures below 30°C (see Chapter 7). This regulatory capacity, associated with the year-round level of solar radiance, keeps the rainforest operating at a near optimum for photosynthesis (around 34% of global terrestrial photosynthesis) and resulting an important annual carbon sink of 0.56 GtC (Beer et al. 2010, Rödig et al. 2018; see also Chapter 6).

The Amazon is also home to a great diversity of human cultures, worldviews, languages, and customs, including hundreds of Indigenous peoples, as well as a diversity of local communities such as Afro-descendant groups, riverine communities, forest extractivist communities, family farmers, and many other human populations, which developed in association with its

fundamental ecosystem functions and outstanding biodiversity (see Chapters 10, 12 and 13). The region inhabitants live between urban and rural areas of Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, Venezuela and the French Guiana territory. Diverse Indigenous peoples and local communities (IPLCs), living in both urban and rural areas, depend on the ecosystems services and functions provided by the forest and rivers for food, shelter, income and well-being, and have their livelihoods, culture and languages or dialects closely connected to Amazonian ecosystems and biodiversity (Lima et al. 2016, Iriarte et al. 2020, RAISG 2020) (see Chapters 10, 12 and 13).

Despite the importance of the Amazon, its forests have been lost and degraded at accelerated rates compared to other tropical forests (Turubanova et al. 2018), and many of its rivers have been polluted, dammed or fragmented over the past four decades (Castello et al. 2013, Latrubesse et al. 2017; see also Chapters 14 and 19-21). The 18% of forest loss (RAISG 2020) and the associated increase in forest degradation from logging and forest fires affecting the region (most of it in Brazil - 85% of deforestation and 69% of degradation between 1995 to 2017; Bullock et al. 2020), have been products of regional, national and transnational political decisions, environmental processes, market-oriented forces and social conflicts that result from development models which helped to establish the landscape as we know it today (Curtis et al. 2018). Unfortunately, the development models that have been dominant across Amazonian countries are based on free-market forces, commodity production or extraction, often for export, accompanied by social inequality, poverty and criminality (see Chapters 14-18).

In the current paradigm, the compass heading for our economic and political systems is growth and wealth accumulation. Governments aim for 3 percent per year gross domestic product (GDP) growth, which means that the size of the global economy doubles every 20 years (Jones 2016). This growth accompanies a corresponding growth in materials throughput including commodities that contribute to deforestation of the Amazon basin. Currently at 80 billion tons per year, the total materials throughput of the global economy is 60% more than the Earth's carrying capacity. By 2050, despite the efficiencies from the movement towards "Green Growth", our total materials throughput is projected to reach between 95 billion and 132 billion tons per year – an overshoot far above safe planetary limits (Global Footprint Network 2018). One justification of the growth based economic goal, is that wealth will trickle down to

the poor and help alleviate poverty. In reality, only an average of 5 cents per every dollar of growth in the global economy over the past decade has gone to the poorest half of the Earth's population, while the 95 cents accrue to the wealthiest 1% (Woodward 2015, Stiglitz 2016, Hickel 2018, Lin et al. 2018).

Achieving the Sustainable Development Goals (SDGs) by 2030 within the present economic model would require a 12-fold increase in the size of the global economy. This would likely further accelerate forest and biodiversity loss and push the Amazon biome past a tipping point (Woodward 2015, Hickel 2018, Lin et al. 2018, see also Chapter 24), impacting rainfall, increasing droughts, and leading to a potential irreversible change in the remaining forest structure. This scenario could have not only regional, but also global consequences, impacting global carbon stocks and increasing CO_2 emissions from a more prone-to-burn impoverished forest (Aragão et al. 2018). It would also affect biodiversity and the people that live and depend on the Amazon forest and rivers (see also Chapter 23).

The window of opportunity for action is rapidly closing with possible catastrophic consequences for future generations and the livability of our shared Earth. Donella Meadows, in her seminal work "Leverage Points: Places to Intervene in a System", describes how in complex systems, the most effective points of intervention are: 1) changing the mindset / paradigm which gave rise to the system, and 2) changing the goals of the system. While these two points of intervention are often the hardest to implement, they produce the most profound system change, whereby through self-organization, the system can potentially transform itself towards the new goals, while keeping the resilience of structures and processes that are vital for the system's viability and functioning in the long term (Folke 2006).

Within the Living Amazon Vision, well-being, fairness, integrity and resilience (human and non-human) could become the goals around which all of our economic political governance systems would be organized. From this shift in the system goal, infinite solutions would emerge to align economic prosperity with ecological vitality. In measuring progress, the GDP would be replaced by holistic indicators of well-being, including projections of quality-of-life indicators for future generations. Well-being indicators that measure happiness, mental and physical health, and sense of belonging, democratic participation, as well as ecosystem and biosphere health could then

guide our economic, financial and public policies. New Zealand, Sweden, Scotland, Costa Rica and Bhutan have begun making this shift.

2.2. Historical worldviews and emerging alternative frameworks for a Living Amazon

Historically, dominant worldviews, philosophies, and narrative frames, mostly from European outsiders, have shaped the views of the Amazon region over time, bringing perspectives out of which societal norms, economic and political systems, public policies and ecological and social outcomes have emerged (Figure 25.1). The premise here is that distinct worldviews are a reflex of the dominant paradigms shaping societal beliefs and values and ultimately influencing politics and history (see Chapter 14). The view of the Amazon as empty lands for imperial ambition (as framed in the 1494 doctrine of discovery), a place containing hidden riches (Myth of El Dorado), or the 18th century movement that proclaimed that man can improve or tame nature through engineering and technical feats, are examples of religious, cultural or scientific views that were widely held. Those informed the ideas about places, peoples and the legitimacy of forms of economic and political engagement. How the region might be made more economically viable, politically legible, and globalized and as a kind of experimental terrain. These framings informed the colonial practices of native and African enslavement, the patterns of the rubber period, the modernization enterprises of the 20th century authoritarian period, the rise of highly globalized extractive economies under conditions of extreme inequality and the expansion of infrastructures (see Chapters 9-17). Such worldviews could be deeply ingrained, could be contested, could gradually shift or be replaced, or diminish in their influence as humanity's collective understanding of the cosmos and our place in it evolves.

The Historic Frameworks section of Figure 25.1 is an attempt to outline worldviews and cultural assumptions of different times about such concepts as "human-nature relationship", "economy", "wealth" and "progress", norms about treatment of people and nature itself. The Emerging Alternatives section represents more holistic worldviews that are emerging today and that can guide our future actions. Historic views of the Amazon as an infinite storehouse of "resources" to be exploited in pursuit of the goals of "progress" and "economic growth" must be replaced with an Earth Systems Science view, whereby the Amazon is recognized as a key biological entity of the biosphere's life support system. This emerging Earth systems science perspective is aligned

with the Indigenous kin-centric worldview where the landscape and all there in is seen as kin and where kinship is essential for mutual survival.

It is important to understand that paradigm shifts can happen, and relatively quickly, so what seems unimaginable or immune to transformation can radically shift. For instance, slavery is now viewed with profound distaste and largely rejected as an appropriate, correct and accepted form of human interaction as norms have shifted. Thus, very profound changes have happened in the past, and new ones can happen again. This possibility is important because of the precarious global and local dynamics in which we find ourselves.

Framing the historical Amazon worldviews is an important step in the process of shaping the Living Amazon Vision and defining systemic problems, as well as designing and advancing effective solutions to the ecological crisis facing the region and our planet.

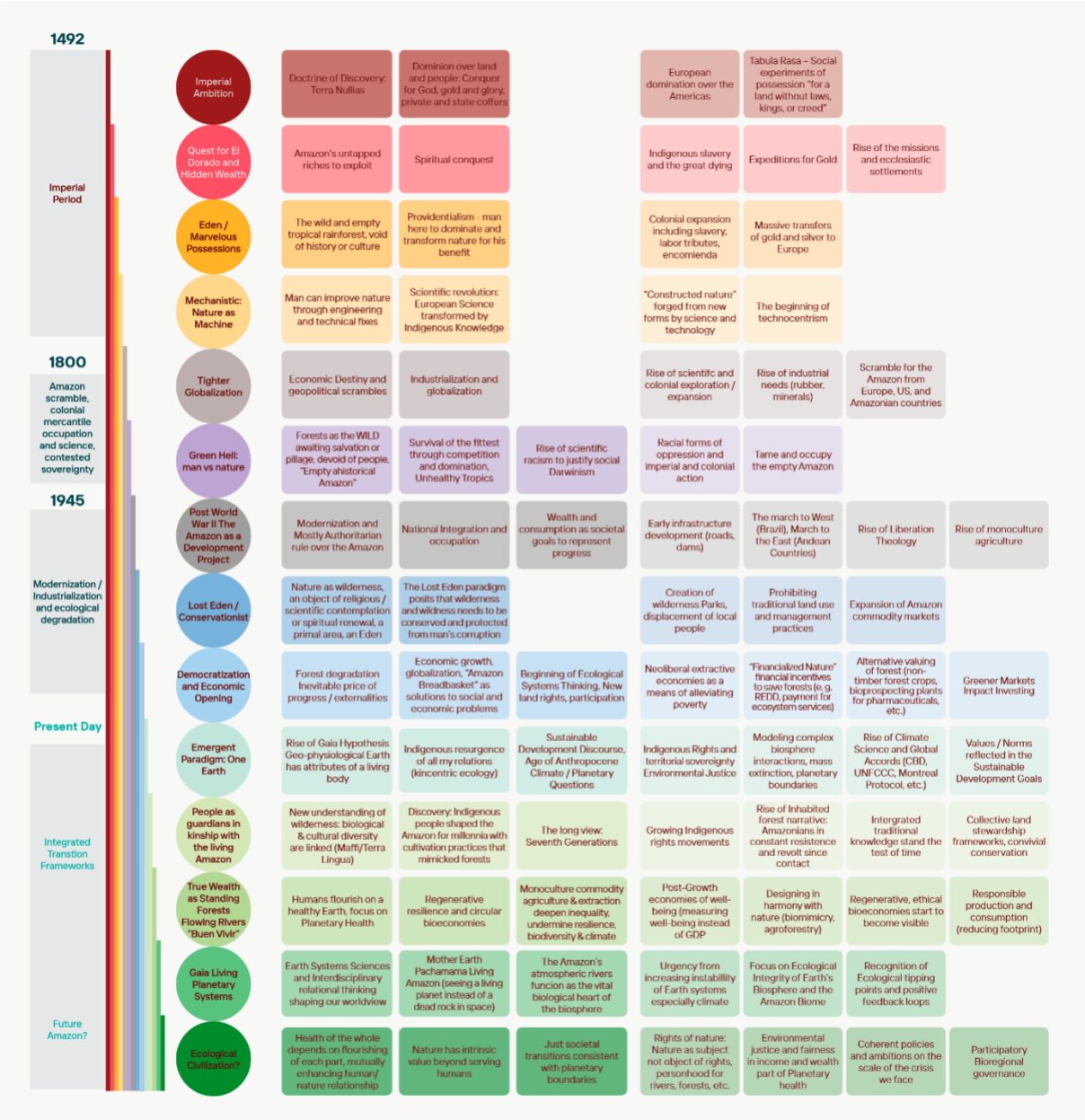

Figure 25.1. Amazon worldviews overtime, emerging alternatives to historical frameworks.

2.3. The plurality of social actors, interests and perspectives in the Amazon

Intrinsic to the worldviews that affect the Amazon, there is a plurality of social actors, interests and perspectives that interact and compete for territory, natural resources and ecological co-benefits. Today, approximately 60% of the Amazon population is based in main urban centers (RAISG 2020). As previously documented throughout this Report, at least 2.8 million Pan-

Amazonian residents are Indigenous peoples from some 400 communities - around 60 of which live in voluntary isolation (IWGIA 2020) - speaking more than 300 distinct languages (see Chapter 12). Some Amazonian countries have an expressive or majoritarian Indigenous population, including Peru, Bolivia, Suriname, Guyana and the French Guiana territory. The Pan Amazonian population is, in greater or lesser extent, a socio-cultural product of the miscegenation and ethnogenesis between Indigenous, Afro-descendant peoples, settlers and migrants from different countries (see Chapters 8-13; Chambouleyron and Ibáñez-Bonillo 2019). This mix of identities, cultures, languages and histories is expressed in a diversity of worldviews, perspectives and connections with the Amazon's ecosystems, natural resources and biodiversity (Figure 25.1, see also Chapter 10). The multiple worldviews and economic activities which co-exist in the Amazon are also dynamically shaped by historical and political processes, and at times violent conflicts, in a struggle for land, natural resources, ways of thinking and being, and human and territorial rights that have characterized most of the development trajectory in several Amazonian countries (Hecht and Cockburn 1990, Schmink and Wood 1992, Becker 2004, Ioris 2020, see also Chapters 14-20).

The diverse actors that use, govern, manage and share the Amazon biome can be grouped in distinct ways depending on different purposes. Here, we distinguish actors that: a) live, use and manage Amazonian resources; b) public, private and civil society organizations who manage or govern Amazonian social-ecological systems; and c) actors who interact with the Amazon, including private companies, multilateral organizations and investors (Figure 25.2). Residents include various peoples and sectors, such as IPLCs, forest producers, urban residents, agribusiness producers, family farmers, among others (Buschbacher et al. 2016). These actors are all dependent, directly and indirectly, and to a greater or lesser extent, on Amazonian ecosystems and the goods and vital services they produce, such as water, energy, minerals, food, fuel, fiber, and medicinal products, as well as through more impactful activities such as the conversion and degradation of forests for production of agribusiness commodities and exports such as soy, cattle, timber, among others.

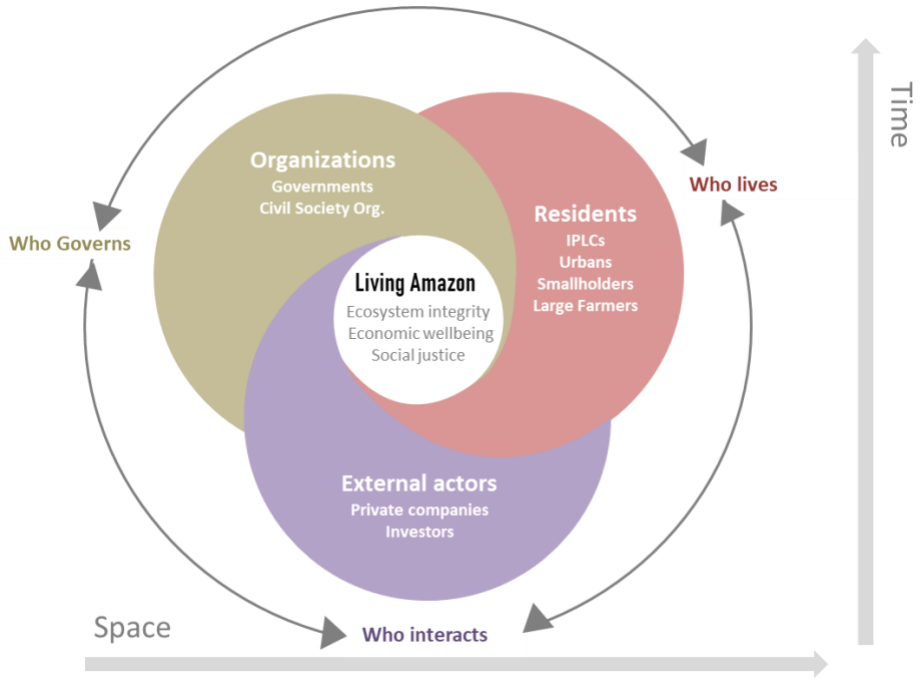

Figure 25.2. Key actors that need to be engaged in a Living Amazon.

The diversity of social actors, economic activities, and social-ecological interactions across Amazonian temporal and spatial scales, is underpinned by several and often contrasting worldviews, interests and values connected to water, rivers, forests and the rich biodiversity shared across the region's geopolitical borders (Biery-Hamilton 2002, Buschbacher et al. 2016, Lea 2017, Huambachano and Cooper 2020). When Amazonian actors look at a forested area, one might be thinking of the market value of forest goods and services (instrumental or market value), whereas another may express a relational value with the forest by seeing it as kin, a sentient being where powerful ancestral spirits live, and who should be recognized as a subject of rights (Kawsak Sacha Declaration 2018). Others might think about their subsistence or cash livelihoods based on their engagement with forests and waters. Another person may want to conserve the forest for the intrinsic value of animal and plant species, which are products of thousands of years of genetic evolution, and have an inherent existence right (Himes and Muraca 2018). Others might view it through the lens of territories and Geopolitics.

These values can be overlapping and co-existing in the same individual and/or across social groups, and can be expressed under different contexts and practical situations. However, historic imbalances of power and socio-economic inequalities among different actors have led to the

dominance of certain stakeholders' interests and values over others, and to the articulation of dominant monetary values in public policies and institutions within and outside Amazonian borders (Bebbington 2013, Ioris 2015). Over time, these visions ended up creating a set of views based exclusively on monetary values, reinforcing the false rhetoric that standing forests do not produce development. To break this paradigm of trade-offs between development and conservation, it is imperative to recognize, negotiate and articulate these antagonistic visions, addressing conflicts and promoting the recognition of the multiple values for standing forests, free-flowing rivers, and of the Amazon socio-biome at large. Circular economies and bioeconomies need to create nature-based opportunities and solutions in which people that do not see value in the standing forest start to see it, and that the ones that already do can in fact improve their quality of life with it (see Chapter 29).

The SPA Living Amazon Vision emphasizes the need to reconcile economic and ecological security and prosperity with social justice and ecological integrity and diversity (Figure 25.4), entailing a more inclusive, democratic and participatory process of knowledge production and decision-making, plural valuation, and innovative multi-level governance arrangements amongst Amazonian social actors (Cross-Chapter Box, see also Chapters 31-33). These arrangements will be key to the success of an Amazon-based bioeconomy and other nature-based economic arrangements for the region (see Chapter 30).

Experiences of governance and management of Indigenous territories and collectively managed areas, in various co-management arrangements with collective, public and/or private actors, provide important contributions to a post-COVID-19 Living Amazon Vision (Cross-Chapter Box). Amazon-Andes based Indigenous philosophies and concepts have inspired local, national and international policies and social movements, including the Rights of Nature movement, the *Buen Vivir* (Living Well) and *Pachamama* concepts and values, which have been incorporated in National Constitutions (Bolivia and Ecuador), and in national, regional and local development policies and practices, with special provisions for Indigenous peoples and Afro-descendant communities (Fleuri and Fleuri 2018, Williford 2018). These philosophies are based on principles and values of collective human-nature well-being, reciprocity, and compromise with past and future generations. These principles and values can be engaged with economic instruments and global policies, including agreements on Climate Change, Environment Social

and Governance arrangements (ESGs) and ideas and normative positions such as SDG indicators (van Norren 2020).

Promoting a wide Pan-Amazonian dialogue on the main principles and values proposed by this Report would be an important step to jointly address this emergency in an attempt to stop and revert the trajectory of destruction and desertification that humans are inflicting on the Amazon, which is within the timeframe of this generation.

2.4. The regional and global vision for the Amazon

The protection, sustainable management and restoration of tropical forests, rivers and associated ecosystems (see Chapters 27-29) is key to meeting global climate, biodiversity and Sustainable Development Goals. Sustaining a Living Amazon Vision would mean realigning strategies and relationships with actors interacting with the Amazon (Figure 25.2), aligning policies, and reimaging and supporting alternatives to monocultural development and extractive and extensive economic activities (Zycherman 2016, Hoelle 2017, Soares-Filho and Rajão 2018, Müller-Hansen et al. 2019).

Beyond domestic investments and incentives in a proactive agenda to achieve the Living Amazon Vision, financial support should be mobilized from developed countries, as they have a deep responsibility both as buyers of products from areas associated with deforestation, and for their accumulated greenhouse gas (GHG) emissions. Supply chain actors, such as companies, investment funds and portfolios trading and utilizing Amazonian products, can mobilize for sustainable production, and should provide transparent information to consumers and investors about their sourcing and investment (Gardner et al. 2019). Setbacks on environmental agendas can lead to restrictions on the economies of Amazonian countries. One example is how the current deforestation rates in Brazil have become so critical that may undermine the MERCOSUR trade agreements with Europe (Gonzalez 2021).

Global cooperation, robust diplomacy, and mutual responsibility are essential for achieving sustainability in the Amazon. Sustainable development pathways for a Living Amazon must be shaped and implemented by Amazonian countries and supported by nations everywhere. The United Nations (UN) Convention on Biological Diversity (CBD), the Nagoya Protocol on

Access and Benefit Sharing for the genetic use of biodiversity, and the UN Framework Convention on Climate Change (UNFCCC) Paris Agreement on reducing global climate change, are important and relevant multilateral agreements with significant impacts for the future of the Amazon. All the eight countries in the region, as well as French Guiana, explicitly include forest protection in their Nationally Determined Contributions (NDCs) to the Paris Agreement (Wong et al. 2019). Brazil's massive reduction of deforestation from 2004-2012 through a series of public policies, as well as private and cross-sectoral measures (see Chapter 17; Assunção et al. 2013, Nepstad et al. 2014), is a conservation success story which led to the Amazon Fund (Correa et al. 2019), even though it was dependent on a complex of activities and global conjunctures, as well as significant "regulatory flight" (see Chapters 14 and 15). Nevertheless, these gains were achieved in part by forest clearing elsewhere, such as in the Chaco, Cerrado, and Chiquitania of Bolivia, as a form of escaping from regulations, and also seeking cheaper land prices (de Waroux et al. 2019). To avoid these leakages in a Living Amazon Vision, it is important to accommodate and harmonize trans-regional and trans-national policies to protect neighboring biomes, as they are also crucial to support regional ecological integrity.

Regional and cross-country cooperation and coordination are needed to protect forests and restore degraded lands. The Governors' Climate and Forests (GCF) Task Force, a network of 35 tropical states and provinces in eight countries, including Brazil, Peru, Colombia and Ecuador, has highlighted the role of subnational governments as leaders in sustainable development. In 2014, the members of this task force pledged to reduce deforestation by 80% by 2020 in their respective jurisdictions' contingent on adequate finance (GCF Task Force 2014). In 2019, the national governments of Colombia, Bolivia, Ecuador, Peru, Suriname, Guyana and Brazil signed the Leticia Pact, which includes commitments to share information and coordinate efforts to fight deforestation and wildfires and restore degraded areas in the region. Nevertheless, subnational jurisdictions and countries have yet to meet their commitments.

All initiatives emphasize the importance of empowering Indigenous peoples and local communities, paying special attention to gender equality, and of engaging the private sector in sustainable finance as key requirements for meeting their goals. In addition, the Amazon Cooperation Treaty Organization (ACTO), an Intergovernmental Organization formed by the eight Amazonian countries, was created in 1995 to encourage sustainable development and

social inclusion in the region. The "Amazon Vision" is another initiative which intended to integrate and engage countries in protecting biodiversity, producing a ten-year action plan (2010-2020) incorporating new strategies and proposing investments and financing plans, all in compliance with the Aichi Biodiversity Targets and the strategic plan of the Program on Protected Areas (PTAP) of the CBD.

It is paramount to strengthen cooperation among Amazonian and non-Amazonian countries' governments, civil society, financial institutions, private sector and IPLCs' organizations to build the Living Amazon Vision. This includes supporting *inter alia* agroforestry and fisheries practices, forestry, and other products connected to the region's socio-biodiversity that support the Amazon-based global economy (see Chapters 27-29).

2.5. Experiences of sustainable development in Amazonian countries

There has been a long history of sustainable development interventions in the Amazon, which have attempted to balance forest conservation with livelihood development and could be used to pave the Living Amazon. These experiences have distinct scales, from local projects to regional policies. Among them there are the creation of sustainable use protected areas, integrated conservation and development projects (ICDPs), and payments for ecosystem services (PES, see Chapter 30), implemented along the years with varying degrees of success (Börner et al. 2020). Some of these experiences are identified in the SDSN-Amazonia Map (SDSN-A, 2021) which presents the spatial distribution of initiatives linked with the SDGs. These are only a small portion of initiatives that have been part of decades of history of government domestic and international investments, as well as private donation or loans, many of them invisible at scale, but that have helped to shape the evolution of local, regional and global solutions to achieve sustainability (Cross-Chapter Box).

From these experiences, one that engaged diverse global stakeholders around the objective of maintaining Amazon forests standing as a way to mitigate climate change was the REDD+ mechanism. REDD+, which stands for reducing emissions from deforestation and forest degradation, along with the conservation and sustainable management of forests, and enhancement of forest carbon stocks, emerged in the context of the UNFCCC negotiations over a decade ago (Moutinho et al. 2011). This mechanism is now enshrined in the Paris Agreement,

and was seen as a great potential win for conservation and development, providing financial incentives to forest-rich countries for maintaining standing forest (Angelsen and Wertz-Kanounnikoff 2008).

Brazil, Colombia and Ecuador have fulfilled all UNFCCC requirements to access REDD+ results-based payments from the Green Climate Fund. Since 2019, the Green Climate Fund has committed to pay Brazil USD 96.5 million for forest-based emissions reductions in 2014–2015, Ecuador $18.6 million for results achieved in 2014, and Colombia $28.2 million for 2015-2016. Norway has also invested heavily in Brazil and Guyana: Brazil's Amazon Fund (2008) was the largest climate pay-for-performance mechanism ever created (Figure 25.3).

It is important to understand how such international investments have affected forests and people in the region. Although most national REDD+ initiatives have so far failed to stop deforestation, REDD+ finance has contributed to a better understanding of deforestation drivers, stronger and improving forest monitoring capacities (e.g., Brazil, Colombia, Guyana; Laing 2018, Nesha et al. 2021), engagement of local and regional stakeholders in national forest policy discussions, and improved policy coordination among national ministries involved in forest governance (e.g., Brazil, Guyana and Colombia; Griscom et al. 2020). For example, in Guyana, the REDD+ support from the Memorandum of Understanding with Norway resulted in the US$250 million of performance related payments made to the country over five years, and inextricably linked to a wider national development policy and planning process, which is encapsulated in Guyana's Low Carbon Development Strategy (LCDS), 2009 and 2010.

Although Brazil's success in reducing Amazonian deforestation by 80% from 2004-2012 (see Chapter 17) largely predated the bilateral agreement with Norway, some have argued that the agreement helped consolidate the political will needed for continued progress (Seymour and Busch, 2016). It also incentivized the leadership of subnational states and provinces, such as Acre (Brazil), which aligned its decades-long sustainable development policies through the state System of Incentives for Environmental Services – SISA (Alencar et al. 2012, Schmink 2014) to become a global model for jurisdictional REDD+. Local government that before saw the forest as a burden for development started to engage in creating solutions (i.e., Acre´s SISA) and articulating policies (i.e., Mato Grosso state policy's Produce, Conserve and Include – PCI). In

the case of Brazilian states, resources channelized through Amazon Fund helped to support the Amazonian states with insufficient funds to invest in better state environmental governance systems. The Brazilian Rural Environmental Registry (CAR), which today is one of the most important databases used to point challenges and design policies for rural areas of Brazil, had fundamental support from the Amazon Fund (Roitman et al. 2018).

Even though REDD+ initiatives, as individual projects or jurisdictional programs, in some places led to decreased forest clearing (Simonet et al. 2019) and helped to improve livelihoods (CIFOR 2018, Souza and Alencar 2020), it is not a silver bullet. A major challenge is that the scale of REDD+ finance has paled beside its business-as-usual competition, with the lack of incentives for forest conservation contributing to the environmental and social backsliding experienced in Brazil in recent years. Furthermore, land tenure insecurity remains a key barrier for REDD+, and it is critical to prioritize the rights, participation and livelihoods of local farmers and communities, including women, in forest-based climate mitigation initiatives to ensure more effective and equitable outcomes (Duchelle et al. 2019). Another problem has been leakage of destructive activities away from the REDD sites.

The broader challenges to engage in a Living Amazon agenda represent the integration and articulation of all conservation and development initiatives, including REDD+. Strategies of integration must be founded in solid principles and values, and articulated in innovative pillars that highlight the importance of the Amazon across scales. They must support possibilities of innovation in a new bioeconomy paradigm, as well as embrace more democratic and representative governance systems.

[Figure 25.3 will be inserted here]

Figure 25.3. Density of REDD+ initiatives at national level, and existence of REDD+ Policies/programs at subnational level. Adapted from Simonet et al. 2018, Duchelle et al. 2019.

3. PRINCIPLES AND VALUES FOR A LIVING AMAZON

Building pathways towards dialogue, negotiation and articulation of distinct visions on the future of the Amazon is fundamental to develop common principles and values. *Values* represent intrinsic qualities that influence people's behaviors in order to achieve such common vision,

while *Principles* represent a proposition, an objective reality to be followed in order to guide people's behaviors towards a new vision for the Amazon. In this case six values and seven principles were highlighted to support the Living Amazon Vision. This vision incorporates aspects of the sustainable development triad framed here as ecologically healthful, economically prosperous and socially fair (Table 25.1). Below, values and principles will be discussed jointly, as they reinforce each other.

Table 25.1. Principles, values and keywords shaping the new Amazon vision.

Principles	**Values**	**Keywords**
1. The Amazon is a geodiverse, and biodiverse system, which must be valued, respected and protected.	1. The Amazon is the world's largest tropical rainforest, with a unique and complex geodiversity, exceptional biodiversity and high level of endemism.	Diversity, Uniqueness, Complexity
2. The Amazon ecosystem functions provides benefits at multiple scales.	2. The Amazon provides key, cross-scale regulatory ecosystem functions, especially for climate, hydrology and biodiversity that form the basis of water, food, and income security.	Connectivity, Cross-scalar, Integration, Teleconnection
3. Use of the Amazon's natural resources and its ecosystems must support ecological processes, functions and livelihoods in	3. Amazonian peoples hold diverse and interconnected livelihood strategies that can form the basis of a future world bioeconomy.	Interdependency, Responsibility, Reciprocity

the face of a climate crisis and potential tipping points.		
4. Urban and rural areas of the Amazon must function as integrated productive systems that promote and support a wide range of socio-economic and ecological benefits.		Identity, Integration, Innovation
5. Amazonian governance must include participatory processes of engagement among diverse stakeholders and across scales for the well-being of the whole.	4. The Amazon holds diverse worldviews, values, institutions and governance systems, which have and should contribute to shape pluricultural, inclusive and democratic societies.	Engagement, Participation, Inclusion
6. The Amazon houses diverse experiential knowledge systems and cultures resulting from the connection between people and nature, or biocultural diversity, which must be valued, recognized and protected.	5. The Amazon holds high levels of cultural and linguistic diversity, and provides an opportunity for collaborative knowledge sharing in relation to sustainable resource use.	Knowledge, Diversity

7. Recognition of the rights of Indigenous peoples and local communities and ensuring their access to justice is paramount to promoting well-being for all.	6. IPLCs territorial rights recognized, reduces conflict, promotes equity and increases well-being.	Rights, Justice, Equity

3.1. The Amazon is the world's largest tropical rainforest with a unique geodiversity, exceptional biodiversity and high level of endemism, which must be valued, respected and protected

The Amazon is a living, active, complex and dynamic diverse system (Jézéquel et al. 2020), which is a product of evolution and co-evolution of natural and human interaction with values that go beyond utilitarian in terms of products and services. This principle recognizes the rights of nature, particularly the right of ecosystems to keep their integrity and their evolution. It is based on a biocentric worldview that recognizes nature's existence or intrinsic value, in contrast with a conventional and predominant anthropocentric worldview, in which human well-being is viewed as superior or more important than other beings' existence (Nesshöver et al. 2017). This includes geological resources being well managed to avoid permanent damage to the landscape and impacts on all forms of diversity, more investments in science to fill knowledge gaps about this complex and diverse system, and the promotion of the importance of geodiversity to human-environmental well-being in order to leverage societal dialogue and engagement in conservation.

3.2. The Amazon provides key, cross-scale regulatory ecosystem functions, especially for climate, hydrology and biodiversity that form the basis of water and food security

The Amazon functions as a key entity in the hydro-climatic life support system of the Earth's biosphere and in the ecological processes at multiple scales. This second principle is associated with the significant local, regional and global climate benefits from the Amazon (described in

section 1), from preserving carbon stocks to maintaining hydrological equilibrium and supporting the health and resilience of terrestrial and aquatic systems. It recognizes that the globe is one large interconnected system and the integrity of the Amazon represents an important piece of that system (Baker and Spracklen 2019). Thus, it is essential to acknowledge that depleting Amazon terrestrial and aquatic systems would have profound impacts that percolate across scales. The health and integrity of Amazon terrestrial and aquatic systems, including well-functioning ecological processes and connectivity, are essential to improve peoples' quality of life. Consequently, it is imperative to consider the Amazon in its totality to promote trans-national management strategies and policies in order to guarantee the integrity of the Amazon as a living support system of the globe.

3.3. Use of the Amazon's natural resources must support ecological processes, functions and livelihoods in the face of a climate crisis and a potential tipping point

This principle is embedded in the diversity and natural socioeconomic vocation of the Amazon. It highlights the value of diversity of production strategies and livelihoods in the region and their interdependence with ecosystem services. It also highlights the Amazon as a potential world bioeconomy leader (Valli et al. 2018). It assumes that forest-based activities or other economic activities and practices that support forest and aquatic systems and services as the main type of activities in the Amazon. Thus, whether properties are private, state or common, the result of forest and water use must sustain the integrity of the ecosystem services and functions provided by it. This principle ensures the renewal of natural resources, recognizing the limits on the extent and intensity of their use, avoiding large-scale extractive economic models that consider the Amazon as a region of inexhaustible wealth focusing on short-term profit maximization (Frey et al. 2018, Sauer 2018). It acknowledges synergies, feedbacks and interactions of climate, ecosystems, economic activities and associated infrastructure, thus avoiding impacts on these activities on extensive forest loss, rivers flow and baseflow, alteration of energy balance and release of carbon to the atmosphere (Guimberteau et al. 2017, Latrubesse et al. 2017).

3.4. Urban and rural areas of the Amazon must function as integrated productive systems that promote and support a wide range of socio-economic and ecological benefits

This principle addresses the fact that Amazon has a strong urban character, and rather than the usual trajectory of countryside occupation, is gradually shifting out into towns and cities (Padoch et al. 2008). Amazonian cities possess a particular matrix of historical, social, and spatial dynamics that enable people to incorporate aspects of Amazonian agroforestry as key assets for the creation of resilient survival strategies on the urban periphery (Costa and Brondízio 2011, de Souza and Alvalá 2014). Hence, this principle is based on the importance of including the Amazon cities in the perspective of integrating development and conservation, and the urban with the rural areas in order to enhance their mutual socio-environmental and economic benefits. In this principle the Amazon should invest in more "urban forests", where cities are less reflective, with more green productive spaces providing some habitat value for biodiversity and agrobiodiversity production. Based on this principle, the "urban forest" may be a source of innovation jobs and industries that connect with forest and rivers use in rural areas in a sustainable form, strengthening the identity of the Amazon citizenship and the urban/rural relationship.

3.5. Amazonian governance must include participatory processes of engagement among diverse stakeholders and across scales for the well-being of the whole

In the Amazon, the governance of common goods requires not only strong government and institutions (i.e., trained people, appropriate infrastructure, sufficient financial support), but also balanced participation in the decision-making process of diverse worldviews at different scales (Wampler and McNulty 2011, Thaler et al. 2019). A desired governance system for the Amazon provides equal opportunities of representation and participation in decision-making processes regarding territorial and natural resource use rights. It is fundamental to protect the array of collective and individual IPLCs' territories and provide equal opportunities for participation. This principle reinforces the proposition that any decision-making process must involve local people and communities, use the best scientific knowledge to assist in decision-making, value traditional knowledge and cultural practices to assist in decision-making, and ensure public participation and integration of actors/stakeholders from local to international scales. It must

therefore encompass the following elements: strong and articulated institutions; equity, justice and rights policies; inclusive decision-making processes that can be referred to as the enabling environment; improved access to information; cross-sectoral articulation and cross-scale alignment that are basically bridging mechanisms for greater and more effective input from civil society. These are reflected in new models of trans-basin cooperation and local activism, which ends up creating and reinforcing a collective identity of the Amazonian people (Cross-chapter Box and Appendix).

3.6. The Amazon houses diverse experiential knowledge systems and cultures resulting from the connection between people and nature, which must be valued, recognized and protected

The Amazon hosts a range of symbolic, spiritual and material values that reflect the diversity of IPLCs and their interactions with nature (Millenium Ecosystem Assessment 2005, Hirons et al. 2016). This principle acknowledges how diverse cultural heritage knowledge systems of Amazon Indigenous peoples and local communities are formed and of special value, needing to be respected, protected and shared (Olsson 2011). It considers ancient knowledge as a public good which should not be seen merely as the product or possession of individual minds, but built and used collectively and dependent on social and physical environments (Athayde et al 2016). This knowledge is fundamental to contribute for deep understanding of the Amazon human-nature relations, which is also key to promote sociocultural, environmental and economic sustainability (see Chapter 30). This knowledge must be protected from private expropriation and biopiracy at the same time that highlights the potential for dialogue, exchange and articulation within and between IPLCs knowledge systems, scientific knowledge and policy-making to inform pathways toward sustainable resource use and sustainability of the Amazon (see Chapter 33).

3.7. Recognition of the rights of Indigenous peoples and local communities and ensuring their access to justice is paramount to promoting well-being for all

Amazonian IPLCs have played an important role in shaping, protecting and restoring Amazonian ecosystems and biodiversity under different changing contexts, despite genocide, violence, displacement, and conflicts between conservation, livelihood, territorial and development agendas (see Chapters 10 and 11). Criminal activities driven by the demand for high value

resources such as timber and gold, take advantage of the weaknesses in the justice system, particularly in border regions, affecting the integrity of IPLCs territories and lives (Villén-Pérez et al. 2020). The responsibility behind ecosystem degradation in the Amazon, resource consumption, and hence the planetary crisis is not equally distributed; nor is the vulnerability to this degradation. To promote justice and well-being among peoples that support conservation and depend on natural resources for their livelihoods, there is a need for improved frameworks to defend the collective territorial rights of IPLCs, the rights of all citizens of today and tomorrow to a healthy environment, and the safety of local defenders of nature (see Chapter 31). This principle highlights the importance of recognizing IPLCs' rights to healthier landscapes, to their well-being and the well-being of the region and the planet. A human rights approach to achieving sustainable livelihoods and well-being is essential to reframe the Amazonian development model to the pursuit a Living Amazon Vision.

4. PILLARS OF THE LIVING AMAZON

Based on principles and values exposed above, we propose a strategy to support a Living Amazon based upon three pillars. The strategy is inclusive and just, and will promote healthy societies, environments, and economies. These pillars are associated with (i) the incentives for conservation, sustainable management, restoration and remediation (i.e., removal of pollution) of ecosystems, (ii) the incentive for development of an inclusive bioeconomy, and (iii) the strengthening of governance and people's empowerment (Figure 25.4).

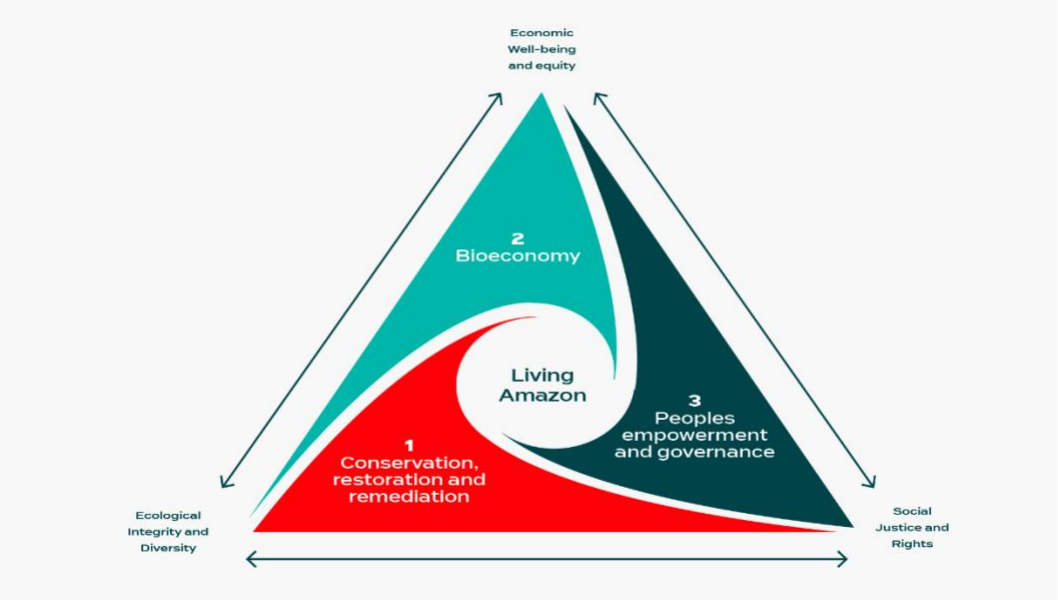

Figure 25.4. Pillars of the Living Amazon and its relation with aspects of sustainable development tripod.

These pillars are inspired by the three dimensions of sustainable development and their desired outcomes: a) the ecological integrity of the terrestrial and aquatic ecosystem; b) the economic dimension represented by socio-economic well-being and equity; and c) the social aspect represented by social justice and rights. They are organized in three objectives and strategies described below (Figure 25.5), and that will be further discussed in Chapters 27-34 of this Report:

4.1. Measures to conserve, restore and remediate terrestrial and aquatic systems

1) <u>Consolidate and secure protected areas</u>*:* The Amazon protected areas, which include Indigenous territories and other types of conservation lands (i.e., national parks, ecological stations, nature reserves, extractive reserves, sustainable development areas, quilombo lands among others), have been acknowledged as efficient strategies of conservation in the Amazon to protect both natural and cultural systems (Nepstad et al. 2006; see Chapter 16). In the Amazon, at least half of standing forests are inside formal protected areas (RAISG, 2020) and the protection and consolidation of these territories as sustainable drivers of conservation is fundamental to support IPLCs well-being and the

basin ecosystem integrity. Nonetheless, these areas have been seriously threatened in recent years (RAISG 2020), being downgraded, downsized and degazetted (PADDD; see Chapter 16), indicating the need for action towards their protection (Kroner et al. 2019). Policies designed to support sustainable use and protection of these territories (i.e., Amazon Region Protected Areas Program - ARPA), strengthening the capacity of institutions responsible for managing and monitoring these areas (i.e., people, infrastructure, technology), and articulating and implementing transnational programs to promote connectivity among them, represent important elements to protect and consolidate these protected areas and sustainable drivers of conservation in a Living Amazon Vision.

2) Cease deforestation and degradation of terrestrial and aquatic ecosystems: Controlling the loss of Amazon forest is a centerpiece and one of the main goals in a Living Amazon Vision. Important strategies that need to be strengthened in order to impede forest degradation and the voluntary expansion of non-forest land-uses over forest areas include: strengthening the governance of land and natural resources, improving and supporting monitoring and enforcement, providing economic incentives for good practices in areas already deforested, and engaging private sector and companies in zero deforestation agreements (Stabile et al. 2020). This would help to restrain illegal deforestation in public lands (i.e., in Brazilian Amazon, where at least half of deforestation happened in public lands; Alencar et al. 2021), including illegal logging and mining, which are important drivers of degradation, at the same time that emphasizes the need of private landholders to follow the deforestation restrictions imposed for each country, but also would provide incentives for landholders to engage in a more sustainable land-use practice.

3) Restore and remediate landscapes and watersheds for maximizing multiple ecosystem services: To safeguard the ecological integrity of the Amazon biome, it is not only necessary to cease loss and degradation of natural resources and support the consolidation of protected areas, but also restore and remediate terrestrial and aquatic ecosystems in areas deforested, degraded, or contaminated. In the Amazon, at least 72.4 Million hectares (64%) of the area deforested in the basin were lost in the past 35 years, and most (80%) of it was converted to pasture (RAISG, 2020). In Brazil, which accounts for 84%

of the deforested area in the region, it is estimated that 60% of the area once deforested is either heavily degraded pasture or abandoned (Mapbiomas 2020). In addition, infrastructure and mining have impacted and polluted the Amazon rivers (Castello et al. 2013). In a Living Amazon setting, there is a need to restore the integrity of these areas, as well as strengthen conservation strategies and policies already in place. These processes must include the restoration of deforested or degraded riparian areas, in order to support connectivity (Alvim et al. 2020). It also reinforces the recovery of other priority areas that are not necessarily connected by rivers, but hold endemic value and provide fundamental ecosystem services, and the remediation of areas polluted by mining, industries or disrupted by infrastructure activities. In addition to existing strategies of restoration, including passive natural restoration and active induced restoration, silvo-pastoral systems may also be used in a way to provide economic and other social benefits from restoration (see Chapters 27-29).

4) <u>Implement systems to monitor, evaluate, and hold stakeholders accountable for restoration and remediation:</u> To be effective, restoration and remediation processes require that a number of prerequisites are met, including policy and legal enforcement; effective area conservation policies based on the identification of priority areas in which multiple ecosystem services are maximized; payment for environmental services; societal participation and engagement; strong and transparent monitoring systems; and social as well market-based incentives and investments on restoration. A monitoring system, with a clear framework of accountability and enforcement, to foment engagement and support, while avoiding leakage and additionality. The creation of an Amazon restoration fund, and/or the strengthening of the Amazon Fund, would help to support stakeholders' priorities in conservation and restoration. These efforts would also support tree planting in main Amazonian cities and restoration of watersheds and biodiversity corridors. In addition, they must be transnational and incentivized as crosscutting policies influencing more than restoration and remediation, but also supporting transboundary integrated basin management and large-scale sustainable conservation.

5) <u>Implement global and regional incentives for conservation, restoration and remediation:</u> There is a need for a comprehensive Living Amazon Basin Pact agreed to by all Amazon countries and backed globally. Such a pact would include a clear target for the percentage

of forest cover that must be protected and restored to avert the tipping point. Beyond the 30 percent target being discussed within the Convention on Biological Diversity, and more than the proposed Nature Needs Half targets, ensuring the integrity of Amazon's hydrological system requires an estimated 80 percent of forests to remain standing (Lovejoy and Nobre 2019). There is boldness and clarity in committing to such a target, which would focus the governments of the Amazon and the world as well as the private sector, on their shared, yet differentiated responsibilities and contributions to solution pathways for achieving such a goal. There is also a need for regional and global investments for conservation, restoration and remediation activities. Innovative financial incentives for ecosystem conservation and restoration must be accessible and supported, and restoration should be considered part of a green economy that generates socioeconomic benefits, including jobs. These efforts must be counted as part of the well-being indicators as an alternative to only GDP in a Living Amazon Vision.

6) Signaling Urgency: There is an urgent need for the Amazon Basin countries to declare a state of emergency and call for a “cease fire” for illegal activities, including mining, logging and land grabbing. This means also halting destructive industrial activities and government policies that enable further forest destruction (for example the suspension of new licenses, and new private and public financing for mining, oil, cattle ranching, large dams and other industrial activities). Governments, financial institutions and corporations would need to commit to respecting the state of emergency in order to allow space for longer-term agreements to be negotiated. Such agreements would build on prior attempts to achieve zero deforestation, deforestation free supply chains and investments, and commitments to leave fossil fuels in the ground. They would also need to include financial commitments from the global community to fund the solution pathways to support workers and sectors most affected in the transition. Finally, they would need to promote institutional adaptive capacity including physical and human resources and the ability to anticipate and respond effectively to environmental and other changes.

4.2. Developing innovative bioeconomy arrangements for standing forests and flowing rivers

1) Invest in the research, marketing and productivity of Amazonian socio-biodiversity products: The mainstream Amazon forest economy, even if intrinsically diverse, has been

mostly based on timber extraction, harvest of non-timber forest products and extractive activities (i.e., rubber, vegetal oil, fruits), some of these products having strong appeal for export. Besides timber, and few non-timber forest products, the majority of Amazon forest products and their potential economies have not been valued (Chapter 30). In a Living Amazon Vision, another type of economy that values the diversity of products and services provided by forests and rivers become the fundamental strategy for future regional development. Valuing the variety of forest/rivers-based economies is an important pillar of this future Amazon vision. Some elements are imperative to promote such a shift. First there is a need to understand and quantify the real size of the socio-biodiversity economy operated in the Amazon. The invisibility of these economies makes it difficult to design and realign policies to support and promote them, besides the demonstration of their real value compared to non-forest-based economies. Second, it is fundamental to foment organized market strategies reducing the unbalanced quality of the products and decreasing the chances of meeting the demand of socio-biodiversity products. Third, it is essential to support local value socio-biodiversity product aggregation and invest on marketing strategies to engage the society to recognize the co-benefits to support the consumption of the forest/river products.

2) <u>Create fiscal incentives to engage the private sector and multilateral institutions in innovation around Amazon products:</u> There is a need to elaborate and strengthen the concept of a bioeconomy for the Amazon. This concept must be decoupled from and go beyond the simple forest/river extraction economy. The Amazonian countries can emerge as protagonists of a global bioeconomy, based on the values of socio and biocultural diversity and their services. This will demonstrate and engage society in valuing the Amazon as a socioeconomic functional and integrated system, where the benefits created by a bioeconomy in promoting peoples' well-being are clear. A co-benefit of a well-established bioeconomy system includes people enjoying food security and having equal access to healthy, sustainable, resilient and contextually-appropriate food systems. Attractive policies to create incentives (i.e., fiscal incentives) and engage the private sector and governments on investing in incubating innovation on forest/river derived products is a fundamental step to consolidate this new economic perspective.

3) Promote job creation and capacity building for a bioeconomy adapted to the Amazon context: The establishment of an economy based on utilization and conservation of biological resources, such as the bioeconomy of forest/rivers, is based on solid investments in science, technology and innovation. The potential for job creation of this type of economy is an important economic and social indicator for a region such as the Amazon, where the majority of the population is located in the urban centers. The efforts to take the guidelines of the bioeconomy and apply it for the Amazon context can create opportunities for a new green sustainable industrial revolution. For that, support on peoples' capacity building will be fundamental, from the product collectors to the industry workers. Results from that effort would pave the road of sustainable solutions, knowledge generation, new products, processes and services being created, strengthening the connection between the urban and rural areas of the Amazon.
4) Invest in science, education and the creation of hubs and centers of excellence in bioeconomy technology in the Amazon: It is essential to have secure public and private investment in basic education as well as science, technology and innovation for sustainable economic activities. The creation of hubs and centers of excellence in bioeconomy technology in the Amazon is fundamental to consolidate research in the biodiversity potentials for the medical, cosmetic, and food industries, and are just some of investment mechanisms that can contribute to a bioeconomy that values forests and rivers. Investment in regenerative practices will also be necessary given the scale of loss, change and ecological degradation. These investments will potentially generate improvements in local education, the creation of more jobs and engagement of local communities in more diversified economies (see Chapter 30). The expansion of the açaí economy is but one example (Peña-lévano et al. 2020). Additionally, tourism in the Amazon and its chain can be leveraged, benefiting distinct stakeholders, from rural areas to urban centers (Medeiros et al. 2011). Furthermore, environmental services provided by forests and rivers should be valued in all their potential including the ability to store carbon, provide thermal comfort and clean water, and house biodiversity.
5) Invest in rural, urban and periurban infrastructure that enables multiple Amazonian human groups to benefit from bioeconomy activities: To reach this scenario where bioeconomy is the backbone of the Amazon's economy, it is fundamental to have policies

that also invest in sustainable infrastructure in urban and periurban areas so that urban Amazonian citizens can benefit from these assets stimulated by the bioeconomy. This economy will probably demand more energy supply and better roads. All these infrastructures need to be realized following the principles and values of a Living Amazon, to support the establishment of real bioeconomy era in the region.

6) Promote new rules for a regenerative financial system: The current exponential growth-based money system will continue to "mortgage" and "indebt" nature, worsen inequality and corruption, and force Amazon countries to seek perpetual capital-growth beyond safe planetary boundaries. For a post-growth, steady-state economy to flourish, we must institute structural solutions that remove the impetus for perpetual capital growth such as: credit instead of debt-based money systems, the institution of linear interest rather than compounded interest borrowing, and the promotion of local alternative currencies and systems of exchange. Financial health depends on robust circulatory flows of money, accountability for externalities, re-localization of primary production and consumption, community-sourced capital, and financial incentives through pollution taxes, fines and green subsidies to promote ecological and human well-being. We must also re-define wealth more holistically to include the biological productivity of ecosystems, as well as empowered community cooperation, resilience and Indigenous traditional knowledge. Policies and mechanisms focused on wealth redistribution are essential, such as wealth taxes on high-wealth individuals and high-net-income corporations to fund universal or special function basic income, dignified livelihood guarantees, and basic services guarantees (health care, advanced education, etc.) especially for rural, urban and forest communities in the Amazon.

4.3. Strengthening Amazonian citizenship and governance

1) Implement Bioregional and Biodiplomacy (environmental diplomacy) governance system to promote better natural resource management and strengthen human and territorial rights: Governance represents one of the major forces of sustainability, with equal opportunities of representation enhancing social-environmental (see Chapter 31). In the Living Amazon Vision, it is imperative that civil society and institutions that represent the voices of the forest and rivers be strengthened and heard, creating a strong

Amazon citizenship. To achieve this level of governance some policies must be developed and strengthened. These policies have to derive from a governance system that incorporates elements beyond the political boundaries and consider the "bioregional domains" (i.e., considering governance structures at the level of the basin). This requires a type of "biodiplomacy", where Pan Amazonian countries and their structure of governance will have improved mechanisms to interact, and to articulate transnational strategies and programs to promote better natural resource management and strengthen territorial rights.

2) Promote the recognition of different identities, knowledge systems and rights: The recognition and value of distinct cultures and identities and their contribution to conservation is essential to empower IPLCs and promote social justice. Strong government institutions that work to support and implement IPLCs policies need to be in place in the Amazonian countries, in order to connect IPLCs pledges with effective public policies that promote territorial security and social rights. Partnership to support IPLCs organizations and articulation among them is also fundamental. Strong IPLCs movements are fundamental to pressure for better policy implementation and recognition of the society of its importance (see Chapter 31).

3) Engage IPLCs when planning policies regarding bioeconomy arrangements and the use of territories and natural resources: Among all policies, the ones that improve territorial governance and value knowledge and traditional cultures shared by different segments of the society envisaged by sustainability policies are primordial. Some examples include participatory planning for rural (i.e., forest and non-forest) and urban areas (infrastructure planning), the incorporation of Indigenous territorial plans and policies in national development plans, and programs that support consolidation and co-management of protected areas (i.e., ARPA; Amazon Sustainable Landscapes Program - ASL; National Policy on Territorial and Environmental Management in Indigenous Lands - PNGATI).

4) Promote political inclusion and representativeness of IPLCs in the legislative branch and enhance decision-making capacity in public policy: There are some elements that need to be accounted for reaching the level of citizenship that values standing forests and flowing rivers in rural and urban areas, including: inclusive governance which accounts for the democratic participation of minorities, mainly those directly dependent on natural

resources (e.g., IPLCs). Thus, the enhancement of the decision-making capacity in public policies by minorities such as IPLCs' representatives with quotas in legislative branch, associated with the development of broad communication strategies, are important tools to engage society in respecting rights and ancient knowledge having distinct identities, knowledge and rights broadly recognized.

5) Promote intercultural education, and knowledge recognition and sharing for a critical Amazon citizenship: The recognition of ancient and empirical knowledge and their role to conservation is an important principle of the Living Amazon (see section 3.6). Hence, policies that value and secure this knowledge rights are a fundamental part of strengthening governance in the Amazon. In addition, democratic education, such as locally appropriate education curricula, to support a culture of innovation at different scales, increased capacity building for Indigenous peoples and local communities, and knowledge recognition and sharing between IPLCs and other groups of society for the construction of active and critical Amazonian citizenship, are paramount (see Chapters 32 and 33).

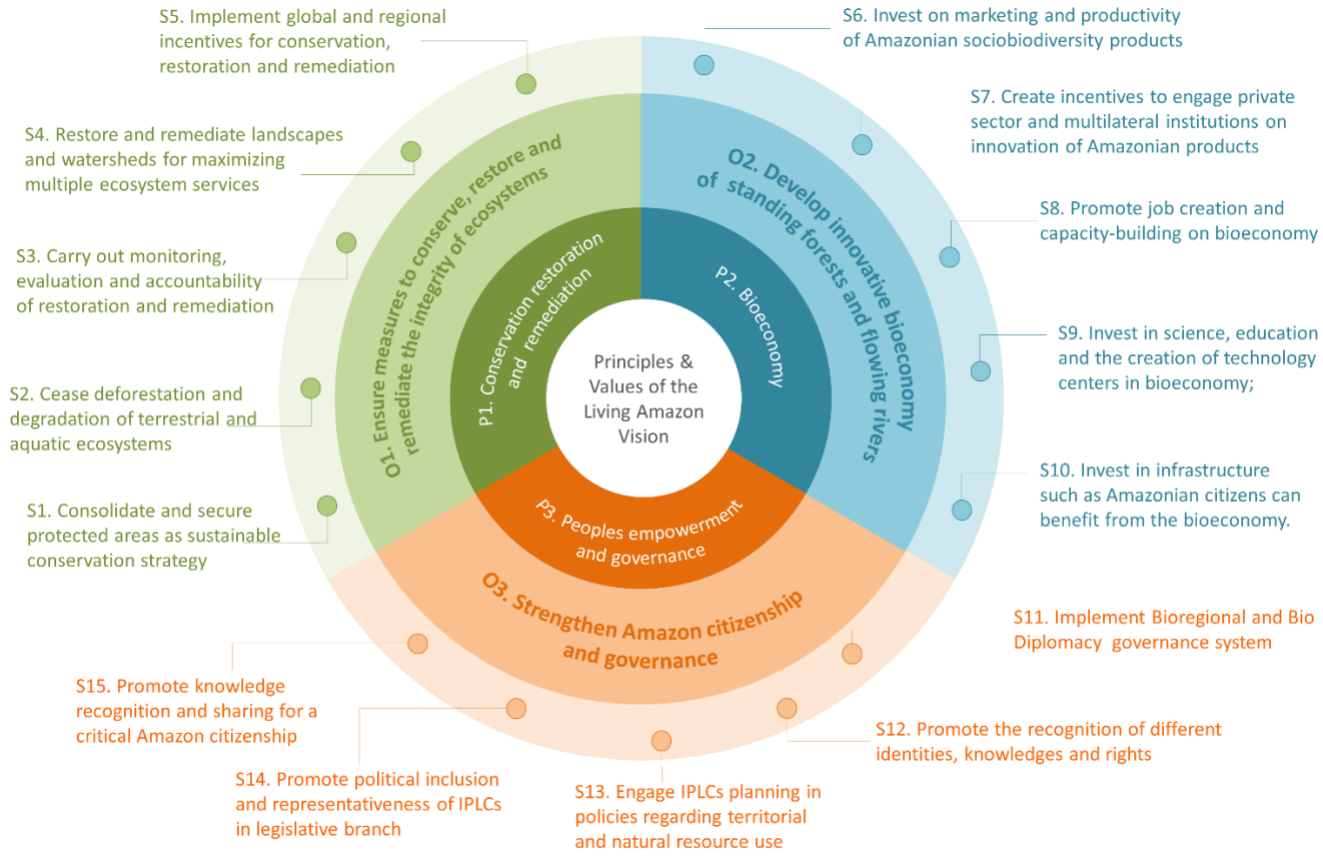

Figure 25.5. Main pillars (P), objectives (O) and strategies (S) for a living Amazon Vision.

The transition for a Living Amazon Vision is not trivial. It requires the establishment of set of feasible solutions supported by political will, civil society and private engagement (Figure 25.6). It is further envisaged that establishment of the three pillars will result in eight related outcomes, namely: (i) Improved science and knowledge characterized by significant improvement in the efficiency of resource utilization, and in finding new development practices, resources, and alternatives, as well as the formulation and selection of sustainable development policies in the decision-making processes at different levels; (ii) More evidence-based decision-making that will rationalize and legitimize public policies and measures that contextualize natural resource utilization and sustainable human development and apply across a broad range of communities and among various populations; (iii) Market equity that ensures a fair distribution of cost and benefits of economic development across different scales; (iv) Improved livelihoods and well-being to the extent that Amazonian inhabitants have the ability to live lives they value, including their cultural heritage, health, access to land and natural resources, and importantly, income

generative opportunities; (v) IPLCs' territorial rights that will protect their land, safeguard biodiversity and nature's contributions to their well-being; (vi) Healthier environments that will, in turn, sustain the health and well-being of humans across temporal and geographical scales; (vii) Green urban economies that provide greater scope for Amazonian cities to become highly innovation areas of economic growth; (viii) Employments in green technology that will ultimately become the emblem of a more sustainable and low carbon, climate resilient Amazonian economy and society, and will ensure the protection of the environment, with the conservation of natural resources for present and future generations.

Finally, more and more we are seeing alignment between Indigenous worldviews and philosophies of Living Earth, Mother Earth, kinship with all life, and the emerging Earth Systems scientific paradigms of seeing the Amazonia as a key entity of the biosphere's hydro-climatic system (biological heart) and the purveyor of atmospheric rivers, mediator of carbon and bulwark against extinction. Redefining true wealth as standing forests and flowing rivers is a promising framework for thinking forward and a life centric economy.

The COVID-19 pandemic and our global ecological crises are giving rise to the frameworks of "planetary health", "well-being" and "living economies" in the new climate regimes that protect the foundations of life on Earth in contrast to the dominant accumulation ideologies and market economics / homo-economicus (man as a rational, cost reducing, benefit maximizing being) where life is valued only insofar as it produces financial returns and where growth in assets is the primary focus and measure of "prosperity" and, now, derived primarily from the depletion of Earth's biological productivity.

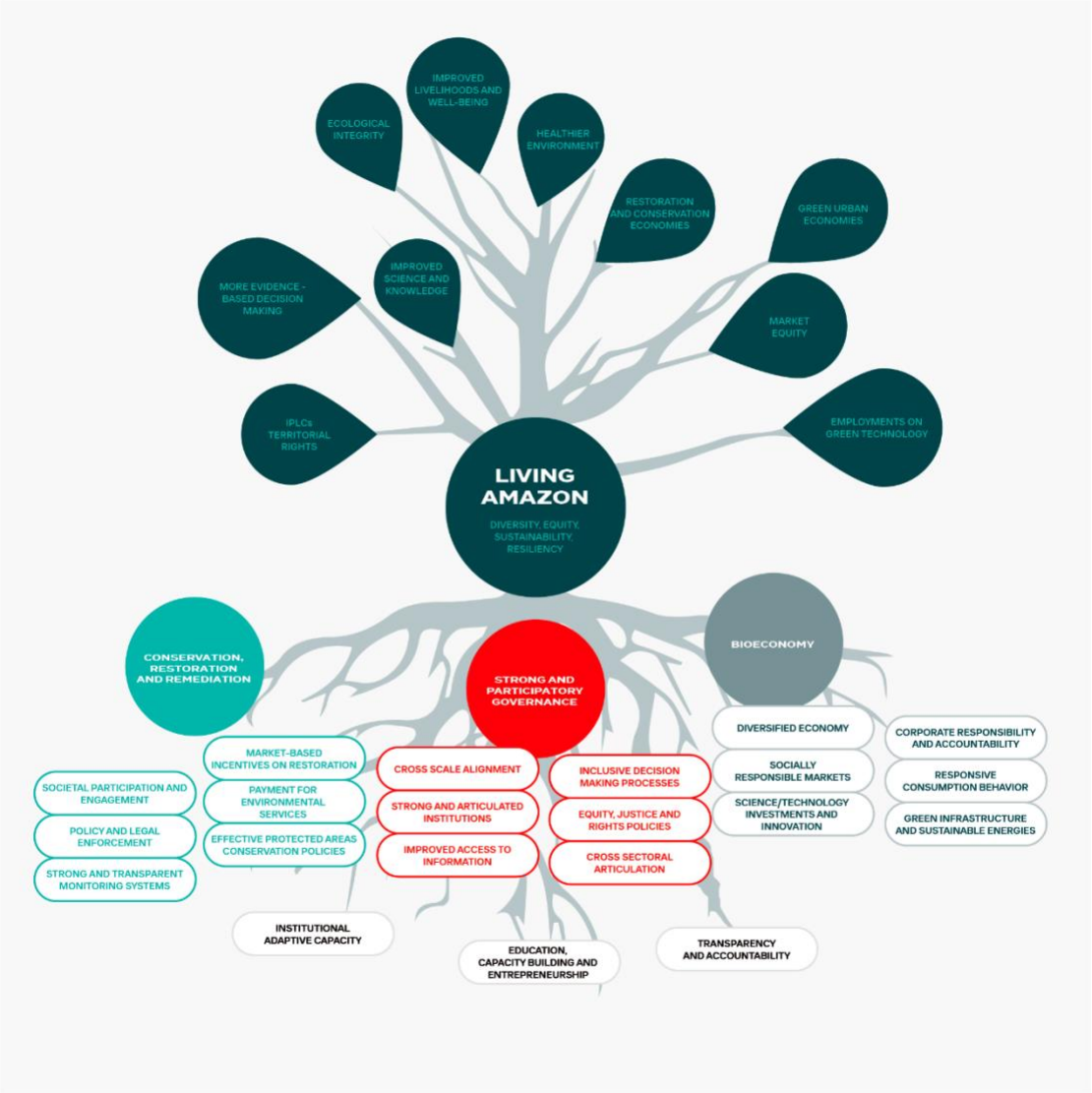

Figure 25.6. The Living Amazon solution tree.

5. CONCLUSIONS

There are several worldviews in the Amazon which represent the diversity of stakeholders with distinct needs and strategies using and interacting with the region's natural resources. The complexity and sometimes antagonist worldviews, imposes barriers to establish a consensus among Amazon sustainability and the consolidation of a unique vision for the future of the region. However, one can argue that there are elements which can be used to guide this diversity of views towards a more healthy, prosperous and equitable future. These elements are expressed

in principles and values which are fundamental to support the pillars of a new future vision for the Amazon.

These principles and values include the recognition of the ecological, biological and cultural diversity, as well as the heterogeneity of Amazonian landscapes as a product of their long history of geological formation and human/nature interactions. It also recognizes the fundamental role of this geodiversity in providing ecosystems services and functions which are key to support life and local, regional and global climate. It incorporates the idea that everything is integrated and interconnected from ecological, to economic and social systems, where significant disturbances in one can provoke cascade changes in the other. These interconnections include the relationship between urban and rural areas and how Amazon cities can become hubs of sustainability and innovation which can percolate and influence positively natural resource use in rural areas. It assumes a strong and inclusive level of governance where the capacity to engage and promote democratic participation in decision making processes is strengthened. Lastly, the rights of IPLCs and respect to their cultures, knowledge, traditions, beliefs are recognized and valued. If these principles and values are recognized and followed it is likely that the future of a Living Amazon can be materialized providing benefits to all living beings including prosperous and inclusive economic activities, ecological integrity and diversity, and social justice and rights.

Here we present the future of the Amazon based on three central pillars and strategies intrinsically oriented by the Living Amazon principles and values. These pillars include (i) the conservation, restoration and remediation strategies and prioritization, (ii) the promotion of a bioeconomy of forest and rivers, and (iii) the empowerment of peoples and governance. These three pillars offer a set of recommendations based on arguments presented over Parts I and II of this Report and detailed in the chapters of Part III.

The Living Amazon Vision for the region represents an opportunity to lead the world by example, recognizing the intrinsic value of nature, culture and peoples to development and breaking the dichotomy between conservation and aspirations for human well-being.

6. RECOMMENDATIONS

1. Develop and implement transboundary Amazon restoration and conservation plans, which support landscape-level conservation initiatives and take into consideration levels of priority and risk areas, in order to maintain connectivity, ecological functions, and conserve and restore the heterogeneous biomes and their biodiversity;
2. Create innovative financial incentives for conservation and restoration, as well as more investments in science and technology supporting studies and research collaborations in order to fill the knowledge gap on biodiversity and its potential to life;
3. Strengthen the management, economies and governance of protected areas, as well as their perception to society as a source of cross scales ecological, economic and social co-benefit;
4. Structure regional innovation bioeconomy hubs aimed at economies that sustain life in the Amazon basin, connecting rural producers and IPLCs with science and technology centers in urban areas, facilitating the production and dissemination of knowledge and sustainable goods;
5. Provide democratic connectivity and internet access, and invest in sustainable and green infrastructure, in a way to support equal opportunities, and promote diversified and digital economies, education, and inclusive and participatory governance strategies;
6. Improve governance, transparency and accountability (e.g., democratic access to monitoring tools), and support enforcement policies and market engagement in good practices, in order to avoid illegal deforestation and associated activities, and reduce all causes of anthropogenic forest conversion and degradation;
7. Support institutional adaptive capacities in terms of people, infrastructure and financial support, towards more modernized and interconnected governance procedures that support better management and facilitate monitoring of natural resources;
8. Strengthen and enforce international agreements, national laws and constitutions, and other mechanisms to ensure promotion of sustainable production and the rights of IPLCs;
9. Promote and support the participation of IPLCs in the design and implementation of conservation and development policies across the Amazon, and recognize Indigenous Life Plans and other initiatives as legitimate instruments of planning and territorial monitoring, while guaranteeing the rights of Indigenous peoples to prior consultation and full participation in planning and implementation of development initiatives;

10. Support the recognition and protection of land and territorial rights to IPLCs, including the ones in voluntary isolation, in connection to policies that value and support land, forest and water-based livelihoods, including economic incentives and credit for non-timber forest products;

Although this list is vast, it resumes the main paths to achieve a Living Amazon in the next three decades, avoiding the over exploitation of the natural resources, disruption of ecosystem functions, increase of inequalities, poverty, and cultural and biodiversity extinctions. All of these recommendations embedded in the Living Amazon Vision are in consonance with the Sustainable Development Goals that face distinct levels of implementation in the Amazon and which will be presented in the following chapter.

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8. CORE GLOSSARY

Endemism: A species with a highly localized or restrictive geographic distribution.

Episteme: Different ways of knowing the world.

Functional diversity: The component of biodiversity that generally concerns the range of things that organisms of the same and different species do in communities and ecosystems.

Geodiversity: The natural range (diversity) of geological (rocks, minerals, fossils), geomorphological (landforms, topography, physical processes), soil and hydrological features. It includes their assemblages, structures, systems and contributions to landscapes.

Nationally Determined Contributions: National plans developed to comply with the Paris Agreement (Article 4, paragraph 2) in order to reduce national emissions and adapt to the impacts of climate change.

Nature-based economy: An economy in which the inputs of production are natural and processes are modeled after natural systems, including circularity. It presuposes a sustainable use of such inputs, where they are harvested at rates lower than recovery rates, and outputs do not include contamination.

Primary productivity: Assimilation (gross primary production) or accumulation (net primary production) of energy and nutrients by green plants and other autotrophs.

REDD+: Mechanism developed by Parties to the United Nations Framework Convention on Climate Change (UNFCCC) that creates a financial value for the carbon stored in forests by offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development. Developing countries would receive results-based payments for results-based actions. REDD+ goes beyond simply deforestation and forest degradation and includes the role of conservation, sustainable management of forests and enhancement of forest carbon stocks.

Tipping point: Any situation where accelerating change caused by a positive feedback drives the system to a new state.