Too Big to Fail:

Transforming the Amazon's Economy from Deforestation-Driven to Inclusive and Green

Analysis and strategy for consultation

Amazon Green Economy Hub

September 2020

This paper will be maintained as a 'living' draft core text during the first year of work of the FAS-GEC Amazon Hub. Comments and suggestions are welcomed – please contact stuart.worsley@greeneconomycoalition.org; and Gabi Sampaio gabriela.sampaio@fas-amazonas.org

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FAS and GEC [1]

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Abstract

This paper brings together fresh *evidence and insight* on the environmental, social and economic challenges that threaten the future of the Amazon. The escalating problems of deforestation, inequality and poor economic productivity are linked. The risk of systemic collapse – a 'tipping point' – is now too high to ignore. The Amazon is *'too big to fail'*. The urgent need is to *shift from the business-as-usual 'deforestation economy'* that serves a small elite only, *to an inclusive green economy* that is based on standing native forest and creates prosperity for Amazon people, while delivering public goods for Amazon nations and the world.

There are *recent innovations* that offer glimpses of how to tackle the problems and meet future needs. However, they usually address single issues, they fail to connect with each other, and have yet to influence mainstream governance and economic activity. In response, *Fundação Amazonas Sustentável* (FAS) and Green Economy Coalition (GEC) propose a way to join stakeholders together to realise a *new vision,* of an inclusive and sustainable Amazon green economy that enables people and nature to thrive together, at no cost to economic growth.

In September 2020, a new FAS-GEC joint venture, the *Amazon Green Economy Hub*, is being launched in Manaus. A new addition to GEC's global network of seven other Hubs in the Caribbean, India, Mongolia, Peru, Senegal, South Africa and Uganda, the Amazon Hub offers stakeholders a platform and facilitation to collaborate in transforming economic policy and activities. Interested stakeholders are invited to join the Hub's programme of learning, dialogue, consensus-building, policy reform and investment.

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Executive Summary

The Amazon region is huge, unique and diverse. People both within and outside the Amazon are highly dependent on it for economic growth, environmental security, and social and cultural integrity. But the Amazon economy runs as a *'deforestation economy'*, extracting few commodities such as beef, soy and timber, to benefit a small elite. Economic rules and incentives systematically entrench the destruction of natural assets as the basis of economic activity.

The continued loss of forest area and function has sharply increased vulnerability at local, national, regional and indeed, global levels. The Amazon has become a net source of carbon rather than a net store, driving continued global heating. Local climates and water regimes are becoming more extreme, and can no longer sustain agriculture and industry even in areas far from the forest. The value of Amazon biodiversity is being compromised, both in terms of intellectual property, in the native plants that could be used to develop medicines and other products, and in providing insurance against extreme weather events. Meanwhile local people – those who are often best-placed to manage the forest sustainably – are marginalised by governance and financial regimes, unable to get what they want and need from the forest.

These problems are intimately linked. There is increasing scientific consensus that these issues are converging towards a systemic tipping point of economic and environmental collapse. Many believe there are only a few years left to avoid this but avoid it we must. The Amazon is simply too important: *The Amazon is 'too big to fail'*.

The good news is that there are many *innovations*, both within the Amazon and globally, to address these problems. They are the work variously of governments, businesses, investors, civil society and international institutions. But too many of these innovations address single issues alone. Most of them are isolated and fail to connect, missing the synergies that could arise from coming together.

Yet the combined *evidence* they reveal is that shifting to *zero deforestation and sustainable use* of indigenous forest assets can improve people's wellbeing, income and health – as well as environmental and cultural sustainability. Recent developments in markets, new data and biological technologies are improving the potential for developing value chains that use products obtained from sustainable management of the natural forest – an Amazon *'bioeconomy'* that is well-suited to micro-, small and medium enterprises (MSMEs) and local livelihoods. Moreover, recent research suggests that the shift away from a deforestation-based economy and towards an inclusive and sustainable approach can be achieved with little or no reduction in economic growth.

We therefore propose that a *new vision* of an inclusive and sustainable green economy for the Amazon. What we envision is an economy based on standing forest, and not on deforestation, that delivers:

- *Forest peoples' needs* for full inclusion in economic decisions and activities
- *Local needs* for income and livelihoods; food, water and energy security; education and health; identity and other Sustainable Development Goals (SDGs)
- *National needs* for jobs and economic growth in forestry, farming, fisheries and tourism, as well as the clean water and air that intact forests provide to key economic sectors
- *Global needs* for biodiversity, carbon storage and climate regulation

To meet these needs will require transformative policies, instruments, responsibilities, and relationships – a wide 'menu' of options is illustrated in Table 1 below. But it is within reach.

To get there will require a collaborative process of learning and leadership. To catalyse such a process, FAS and GEC have set up a new joint venture, the *Amazon Hub for Inclusive Green Economy*, based in Manaus, which now joins GEC's worldwide network of seven such Hubs. Supported by a dedicated Convenor, the Amazon Hub will drive a sea-change in how Amazon economies are incentivised and run. Bringing together businesses including MSMEs, investors, academia, civil society, and government at state, national and regional levels, the Amazon Hub expects to provide:

- *A cross-sectoral platform* for dialogue, learning, and policy development
- *A research and knowledge focal point* on green economy approaches that work
- *Communications and capacity* development and empowerment support
- *A business incubator* to scale-out MSME 'bioeconomy' enterprises and forest restoration

It is anticipated that the Hub will eventually support major programmes in Amazonas State, the Brazilian Amazon, and the wider Amazon region. In addition, it will provide a platform for exchanging learning on sustainable economic models for forested regions with Southeast Asian and African stakeholders through GEC's network of seven other Hubs -- with the ultimate aim of influencing international fora that shape global economic 'rules of the game'.

The required transformation cannot be achieved by one organisation alone. An 'Amazon green economy institutional ecosystem' will bring together many organisations with different mandates, assets and powers, including those leading some of the progressive initiatives described in the paper. The programme partners, their roles, responsibilities, relationships and rules will be firmed up in an inception year when the programme will be jointly designed with interested stakeholders.

This paper is not a complete, scientific survey of Amazon assets, problems and potential. Rather, it aims to give each reader – who invariably will have special interests – an illustration of the huge range of dimensions for which the Amazon is important. However, FAS and GEC welcome views on the evidence and propositions in this paper.

The Amazon is a global icon for its amazing and diverse natural and human assets. Yet for too many years it has also been an iconic example of disaster and mismanagement. It is now time to shape the Amazon as a new global icon of '*building back better*' for its people, businesses and governments – and for the future of humanity and the planet.

Table 1: From Deforestation Economy to Inclusive Green Economy – where we are, where we want to go, and how to get there

Deforestation Economy	>>> Inclusive Green Economy	>>> Transformation Strategy Illustrative menu of activities
ECONOMIC MODEL		
Based on illegal and unsustainable deforestation that makes way for alien monoculture crops and livestock	Based on nurturing world-leading Amazon assets of biodiversity and ecosystem functions by applying local knowledge combined with modern technology within a sustainability approach	**Natural capital accounts** to track forest stocks, flows of goods and services, and interactions with the economy, so as to promote wealth creation
A 'frontier' economy extracting resources with high levels of waste and damage that externalises environmental and social issues	A 'circular' economy that grows, sustainably uses and markets Amazon assets, while internalising	**Modelling economic strategy options** against green economy criteria; developing **restoration** options and economics
POLITICAL ECONOMY		
A 'colony' [of Brazil], with high dependence on external inputs, blighted by poor productivity, waste of resources and growth that has been value-added locally and remains low	Creates jobs, wealth and resilience by mobilising indigenous Amazon natural, social and human capital	**Policy dialogue** on 'the economy we want' to foster an enabling environment for green economy policy
Led by a small elite – government, military, big business	Inclusive and participatory decision-making processes which consider the interests of local peoples, businesses, and the public	**Societal** assessment with communities and social groups, through structured consultation and policy dialogue within an accessible platform
PRODUCTION PROCESSES		
Produces commodities such as timber, beef, soy, etc, that depend upon global markets and incentivise unsustainable practices	Produces many goods and services for local, national and global needs, and creates novel high-value markets by applying sustainable practices combining traditional and technical know-how	**Intellectual property** and payment for environmental services (PES) regimes; recognition of local people's rights; investments on R&D connecting traditional with technical know-how
Technology and inputs are external and often unsuited to the Amazon environment, leaving Amazon human capital out of the scheme	Shaped by traditional Amazon knowledge and human capital, but now also by new-generation digital, renewable and bio technology	**New technology** to capture values and remove constraints to production, marketing and territorial management

Risks associated with environment and climate are high and often realised, resulting in fires, floods and wildlife loss	Cost savings and some earned income for reducing and managing environmental risk in vulnerable sectors by building resilient businesses	**Assessment of material risks** and development of risk management strategies to foster effective public policies and programmes
FINANCE		
Finance, loans and investments are limited to commodity production, preferring big business	New finance mechanisms and investments favour, and are suited to, diverse MSMEs and/or environmental services	**New mechanisms** to combine Natural Capital assessment with international willingness to pay for global public goods like biodiversity and climate regulation
Financial mechanisms underplay or ignore environmental, social and economic risks	Promote sustainable financial products and approaches that consider risks properly, and that favour sustainability	**Blended financing mechanisms** to disinvest in unsustainable supply chains and to offer credit to sustainable and inclusive businesses
Governments spend little on environmental services, do not account for them, are not trusted, and so earn little revenue from them, losing to corruption	Amazon countries are accountable and high-earning global environmental powerhouses with excellent reputation for their environmental/climate services	**Transparency measures** such as reviews of public environment expenditure and revenue
WINNERS AND LOSERS		
Exclusive club of (external) elites who enjoy short-term wealth but high poverty and inequality for most Amazon people	Inclusive wealth creation for all with the Amazon providing most livelihoods and some jobs, while supporting local entrepreneurship	**Costs of just transition** absorbed by the Amazon nation-states, to cover initial loss of jobs from halting 'deforestation economy'
Big business rules – remote small businesses cannot access information, markets, finance and close deals	Networks of small businesses combine labour, local knowledge and high-tech into diverse products and interact on favourable terms with big businesses	**MSME development**, plus enabling conditions, business services and value chain improvements
INITIATIVES		
Some green economy 'islands' exist – but in a 'sea of failure', fragmented and unsupported by mainstream	Policy, governance and economic rules incentivise inclusive, green activities and penalise deforestation	**Research on policy and management options** that work well; **knowledge** and dissemination programmes
Polarised institutions (e.g. development or protection) create biases, corruption and few services in field	Integrated institutions with common aims and distinct responsibilities deliver good services in the field	**Institutional analysis and platform** on green economy drivers, mandates, functions, powers and constraints

Too Big to Fail:
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1. The uniquely valuable Amazon forest is 'too big to fail' [3]

1.1 Global dependence on the Amazon forest

Every citizen of the world benefits from Amazon forests storing carbon, nurturing biodiversity, and regulating the climate, as well as from Amazonian cultural diversity and knowledge as key assets of humanity. Many people also benefit from products traded from the Amazon, such as açaí berry and brazil nuts.

This dependence is not fully appreciated however, and so it is worth laying out the extraordinary attributes of the Amazon:

- *Unique and irreplaceable biodiversity:* The Amazon is the principal reason why the top global biodiversity superpowers are Brazil, in first place, Colombia, in second, with Peru in sixth and Ecuador in ninth place (CBD website). The Amazon Basin is the Earth's most biodiverse terrestrial ecosystem (Jenkins *et al* 2013), including over 60% of the world's remaining rainforests (Butler 2019) and home to at least 25% of terrestrial species (Lovejoy, 2006). The Amazon's biodiversity sustains the food, material and health needs of local populations. It also contributes enormously to global crop, medical and technological security and advances – even though the roles of local people who invest in conserving it tend not to be adequately recognised and supported.
- *Unique cultures and knowledge associated with the forest:* According to the Coordinator of Indigenous Organizations of the Amazon Basin (COICA), about 9% (3 million) of the Amazon's population comprises indigenous people belonging to 400 different ethnic groups, more than 60 of which still remain largely isolated. These groups have a deep and evolving knowledge of how to manage to the forests sustainably for the production of materials, food and medicines (e.g., Vanderbroek et al., 2004, Jauregui et al., 2011). Their relationship with the forest also extends to a variety of religions and beliefs connected with the forest as a being in itself (e.g. Otsuki, 2013). COICA emphasises how Amazon biodiversity, and the cultural diversity that has evolved through respecting biodiversity and nurturing it, are deeply connected and interdependent.
- *The world's most significant terrestrial carbon store and source of climate resilience:* The forests of the Amazon Basin form the largest single terrestrial carbon pool on Earth, storing around 135-180 billion tonnes in living biomass and soils (PRI *et al* 2019). They take up 0.42– 0.65 billion tonnes of carbon from the atmosphere every year (Phillips, 2009), about 150% of the UK's annual emissions.
- *Water and regional weather:* The Amazon rainforest would not be rainforest without adequate rain, which it gets equally from two sources: ocean evaporation and its own evapotranspiration (water produced by the trees in the Amazon). The Amazon forest evapotranspiration serves as a 'flywheel' of continental climate for the planet (Lovejoy and Nobre, 2018), creating 'aerial rivers' of moist air which

[3] This section does not pretend to be a complete and scientific survey of Amazon assets, problems and potentials. Rather, it aims to give each reader – who invariably will have special interests – an illustration of the huge range of dimensions for which the Amazon is important. Many of the illustrations draw from the Brazilian Amazon. Comments on e.g. better data sources and material from outside Brazil are welcomed – please contact emily.benson@greeneconomycoalition.org. This paper will be maintained as a 'living' draft core text during the first year of work of the FAS-GEC Amazon Hub.

drive the regional hydrological cycle and buffer against the effects of cyclones (Butler, 2019). The eventual freshwater discharge into the oceans is about 20% of the world's entire discharge (Salati and Vole, 1984).

- *The largest 'water pumping mechanism' to sustain rainfall regimes and to support global climate regulation*: Evapotranspiration contributes to cloud and rainfall formation for the entire South American continent, with some 7 trillion tonnes of water being 'pumped' by the forest into the atmosphere per year (Salati *et al,* 1979) , contributing more than 70% of rainfall in some parts (Ellison et al., 2017). In turn, the resulting regional humidity sustains the circulation of air masses that regulate the whole global climate (Kunert et al, 2017).

1.2 National dependence on the Amazon forest

The Amazon forms a large part of the territory of most Amazon nations and is home to many of their people. For example, Brazil contains 60% of the Amazon, land on which 13% of its population lives. Forestry and agriculture in the Amazon are the most widespread forms of livelihood and uses of land, but in general are modest contributors to national GDP, job creation and people's incomes. But they are significant contributors to food security and balance of payments: local production is important for import-saving as well as for exports (ILO ref). Within the sector, on-wood forest products like rubber, acaí berry, brazil nuts and fish are much better multipliers of employment than agriculture (Ferreira and Poschen 2019).

While the Amazon's formal economic contribution to Brazil is only 8% of GDP, this is a very narrow measure, and its true contribution is far higher. Enlightened leaders from government, business, academia and civil society are increasingly aware that native forests maintain rainfall and water flows. Amazon rainfall and rivers feed the regions that generate 70% of South America's GDP (Butler, 2019), providing water for agriculture, forestry, fisheries, tourism, pharmaceutical products and industry, as well as significant sustainable energy in the form of hydro-electricity (UFRJ, 2018).

But there is much more that the Amazon offers to the economy: Amazon ecosystem services are critical for stabilising climate and soils and supporting crop growth. Their role in preventing soil erosion is estimated to be worth US$238 per hectare of farmland per year (Verweij et al, 2009). And they ensure the survival of pollinating insects and animals on which most fruit, seed and nut crops are dependent. In Brazil alone, the economic contribution of pollinators has been estimated at around US$12 billion a year (Giannini et al, 2015). Therefore a significant proportion of the Amazon's contribution to economies relates to the role it plays in the *reduction of risk* rather than simply the value of its timber, minerals and other resources.

However, these economic contributions are neither routinely nor comprehensively assessed. The prevailing policy presumption for many years has been that forest removal for farming and cattle rearing is an effective stimulant to economic growth (Young, 2018). But this is increasingly challenged. Recent high-resolution macro-economic modelling has shown that this model is not better than forestry in terms of economic growth. Moreover, even a strict zero deforestation policy – gaining all the benefits that forests provide to many sectors and livelihoods – would lead to a drop in GDP of only 0.62% (Ferreira and Poschen 2019).

1.3 Local peoples' dependence on the Amazon forest

About 34 million people live in the Amazon, recent settlers as well as indigenous peoples, with a large proportion of people living in cities. The forest forms a foundation of their societies and values, and an important part of their economy.

- *Forest people's well-being and jobs:* People who live in the Amazon forest, whether indigenous, traditional or migrant communities, depend on intact forests to provide often all their basic needs – shelter, food, water, health and materials. Livelihoods, such as fishing and mixed farming, are shaped around meeting these needs from the forest. Many more people earn their livelihood from forests in the Amazon than previously thought. More than 525,000 workers were directly employed in harvesting and processing forest products in 2005, and 115,000 employed fishing in rivers – but low productivity, low value-added and associated income levels limit the attractiveness of these jobs (Ferreira and Poschen 2019). The potential to improve livelihoods may be greater for MSMEs (micro-, small and medium enterprises) if good business and policy support is available (see Section 3.3). The economic potential can be good where incentives for keeping forests intact exceed those for damaging alternatives: in the Brazilian Amazon, ecosystem services from protected areas provide national and local benefits worth 50% more than the returns from smallholder farming (Portela, Rademacher, 2001), and can draw three times more money into the local economy than extensive cattle ranching (Amend et al, 2007).

  The forest is also the foundation for diverse cultures, identities and sense of home. Many forest-dependent groups describe themselves as 'wealthy' in respect of the many values that forests provide – if they can access forest land and have the rights and resources to manage it.

- *Farming communities' well-being:* The Amazon is a significant agricultural region, too, with farmers living in and around forests depending on the rainforest for its climate and hydrological regulation and managing its relatively infertile soils for their sustenance. There are three types of farmer in the Amazon, all of them motivated by different incentives: local and traditional smallholders (mostly riverside and indigenous peoples), medium-size farmers (mostly family businesses), and large private or corporate businesses often owned elsewhere (currently focused on cattle ranching and soy). They all depend on the forests as a source of new agricultural land, even if there is little understanding of how to balance the ratio of forest to farmland. Farming and cattle rearing are bigger employers in the Amazon than forests, but incomes are very low for workers in all three sectors (Ferreira and Poschen 2019). Many farmers, especially the poor, also depend on the intact forest as an alternative source of food and as a source of unique forest products to bring to market.

- *Urban people's well-being:* The Amazon is, perhaps surprisingly, a highly urbanised region. About 75% of the population live in settlements, two of them cities of over 2 million people (Manaus and Belem). Most people living in these large cities lack awareness of their high dependence on forests for water and climate stability, and of their impact on it. However, there is increasing concern in urban areas about forest fires as a result of smoke from the fires polluting the air in cities and damaging people's health.

In conclusion, Amazon forests are vital for everyone's well-being, whether you live in Manaus or elsewhere in the world, whether we are speaking of this generation or the next. The enormous value that the Amazon rainforest represents to humanity – and its accelerating loss as discussed in the next section – means we believe the Amazon should be considered 'too big to fail'.[4] A looming Amazon emergency demands tough, practical and urgent action.

[4] With the financial instabilities faced in 2008-9, governments across the world decided that the banks were 'too big to fail' and worked hard to protect them. The analogy applies even more to the forests of the Amazon.

2. Challenges: an environmental, social and economic 'tipping point' is fast approaching

2.1 Multiple Amazon problems

In Section 1, we described how the native Amazon forest has immeasurable value to every citizen of Brazil, the Amazon, and the world. This is especially evident to those people who live in it, but people elsewhere are also realising it is of huge value to them, too.

In spite of this growing realisation, there is an extraordinary profusion of environmental, social, economic and governance challenges in the Amazon which together create a *'vicious cycle'* of negative consequences. Much worrying new evidence, which we can only summarise here, points towards the Amazon coming dangerously near to a 'tipping point' – a possible ecological collapse. This would create a snowball effect in which deforestation leads to longer dry periods that fuel forest fires, that in turn disturb the hydrological cycle and change the structure of the forests, leaving ecosystems with diminished biodiversity (Nobre and Lovejoy 2018).

There is an alternative tipping point that we will turn to in Section 5 -- a tipping point in governance and investment that could shift us out of the vicious cycle and into a new 'virtuous circle'. But first let us explore the Amazon's many problems, the latest evidence, and how they are connected:

- *Forest losses:* There has been a recent upsurge in deforestation rates, especially in Brazil. Over the last 50 years, 17% of forests across the entire Amazon Basin have been destroyed, with levels approaching 20% in the Brazilian Amazon (Lovejoy and Nobre 2018). If deforestation reaches 40% under stable temperatures (or if temperature rises by 3-4 degrees Celsius even with no deforestation), a very serious forest collapse is predicted. Even with current climate change, only 20-25% deforestation is needed to lead to system collapse (Lovejoy and Nobre 2018, cited in PRI *et al* 2019). Significantly, there is much less deforestation in protected areas. About 50% of Amazon forests have protected area status, and suffered only 11% of the total forest losses (Qin *et al*, 2019). Some deforested areas have managed to grow back, but it usually takes many years – if at all – for the forest to recover all its attributes. In general, secondary forest cover can be expected to offer only about half of the carbon storage and tree biodiversity (Elias *et al* 2019). Therefore, real 'forest losses' not only relate to the reduction in the area covered by forest but also the *degradation of forest quality*.

- *Biodiversity losses:* Historical deforestation and other negative impacts have resulted in a biodiversity loss of 39-54%, which could double in the next ten years (Barlow et al., 2016). With the Amazon in the midst of a trend that has seen it getting drier and drier, the biodiversity of tree species is shifting away from rainforest towards drier types of forest and savannahs. As a result of the dry season lengthening, mortality rates of wet climate (rainforest) species have increased, while dry climate species are showing resilience (Ometto et al., 2014).

- *Carbon storage losses:* The Amazon now absorbs one-third less carbon than it did a decade ago (McSweeney 2015). Where it had once been a net store of carbon keeping the climate stable, it is now believed to be a net source of carbon emissions, especially in the drier south-east (Lovejoy and Nobre 2019). However, only 10% of the Amazon's carbon emissions come from indigenous territories and protected areas. (Walker *et al* 2020)

- *Climatic and hydrological instability:* As deforestation becomes more extensive, it has a disproportionately high impact on rainfall, water run-off, and climate. Since the 1970s, when deforestation accelerated, dry seasons in Amazon regions have become hotter and longer. The length of the dry season has increased by about a month, with later onsets and/or earlier ends of the wet

season in southern Amazonia (Ronchail *et al* 2018). This has knock-on impacts, for example, the droughts of 2005, 2010 and 2016 have affected the frequency of fires and carbon balance in the region (Brienen *et al* 2015). The increasing frequency of unprecedented droughts as well as floods in 2009, 2012 and 2014 (PRI *et al* 2019) have led to major water crises in the region, including São Paulo, the largest city in the southern hemisphere (PRI *et al* 2019). Moreover, there is good evidence of the effect of deforestation in changing rainfall patterns, and the damage to agricultural productivity as a consequence (Davidson et al. 2012).

- *Economic and market instability:* The economic story of the Amazon has always been of one commodity boom and bust after another – initially rubber, then timber, then beef and soy. There is much research to suggest that sugar and palm oil will be the next 'deforestation commodities' to dominate the Amazon. However, to reduce the Amazon in this way -- as a resource to be exploited through deforestation -- is antithetical to the many values the forest holds for both local people and the global community, and on which they depend. Indeed, this reductive thinking has prevented local people from benefitting fully from the rich values of the forest. Market kick-back against the damage caused by crops produced on deforested land can itself bring instability with investors rethinking their support for Amazon business due to the associated risks. Prompted by the 2019 Amazon fires in Brazil and Bolivia, 230 global investors with US$16.2 trillion in assets issued a strongly worded statement warning hundreds of unnamed companies to either meet the deforestation commitments of their commodities supply chains or risk economic consequences. (Principles for Responsible Investment and Ceres, 2019.)
- *Social damage:* The Amazon is a very large and very diverse region, with a varied social landscape. The rural population ranges from wealthy soybean farmers of the south to extremely poor, isolated communities. In terms of inequality, Latin America is the most unequal region in the world, and two Amazon nations are among the most unequal within the region – Brazil and Colombia. In terms of poverty, more than 45% of the population of the Brazilian Amazon live below the World Bank's poverty line (R$ 852/month/family). While measures of poverty may be less significant for people living in and around forests, they also tend to be marginalised and disempowered with little support for using their knowledge of ways to manage forests sustainably. In addition, they have suffered from an ongoing loss of leadership as a result of politically-motivated killings. In 2018, 135 indigenous leaders were assassinated in the Brazilian Amazon, an increase of 23% comparing with 2017 (CIMI 2019).

2.2 Amazon problems are intimately linked – and could trigger a combined tipping point

The Amazon's many ecological, social, governance and economic challenges are linked, and magnify each other. This complexity makes development inherently risky and unsustainable. Cumulative deforestation now means a collision between ecological, social, governance, and economic thresholds ('tipping points') which means the Amazon system could lose its resilience and fail.

In 1984, a scientific paper said the Amazon 'system' was in equilibrium – in spite of historic deforestation, the forest could broadly recover and continue to play its unique roles (Salati and Vose 1984). By 2012, a highly credible scientific assessment raised the alarm that the Amazon system could be close to collapse (Davidson *et al* 2012). But by 2019, scientists Carlos Nobre and Thomas Lovejoy warned that the Amazon rainforest had reached a critical tipping point sooner than expected. Changes in rainfall caused by a combination of deforestation, environmental degradation, fire, and climate change had left the future of the forest at risk. "What we predicted is now being observed in real life. It's no longer a theoretical forecast about the future," they said (Lovejoy and Nobre 2019), outlining that:

- Reduced rainforest size leads to lower humidity
- This increases the incidence and severity of forest fires
- Drier forest species then compete better with rainforest species
- Rainforest dieback (shorthand for standing trees losing health and dying) releases carbon
- Resultant drier forest has lower carbon storage than rainforests, exacerbating climate change
- Regional agriculture and power generation across South America suffer unreliable rainfall, and production costs will increase
- The impact on the biodiversity of what has been the world's most diverse forest will be immense, with loss of the risk-reduction services and the 'library' of genetic information

Once 20-25% of the Amazon has been deforested – i.e. not much more than the current 17% - this could lead to system collapse (Lovejoy and Nobre 2018). A group of scientists and economists have calculated that the economic costs of more expensive and reduced supplies of food, water and hydropower alone will exceed US$3 trillion (Lapola *et al* 2018). This 'nexus' of problems that could lead to system collapse is the big existential worry.

2.3 The underlying cause of Amazon problems are prevailing economic and governance rules that shape a 'deforestation economy':

We are confronting an extremely challenging moment in the Amazon's modern history with a major increase in land invasion, misappropriation of public assets, and killing of indigenous leaders and activists. It is a challenging moment in economic history, too, with institutions and incentives entrenching unsustainable deforestation-based economies that produce very few commodities which simultaneously destroy forests while yielding only short-term results with high risk. And it is a pivotal moment in environmental history, as cumulative deforestation has become so huge that the remaining forest can no longer provide vital ecological functions, reaching its tipping point (Lovejoy and Nobre, 2018).

- *Unsustainable policies encourage the liquidation of forest capital – creating a 'deforestation economy' which:*
  1. serves short-term narrow political ambitions to grow profits for a few at all costs
  2. promotes the fallacy of "trickle-down" economics – false claims that benefits from the wealthy exploiting forests will ultimately reach everyone including the poor
  3. assumes that it is the removal of forest that creates value, and does not recognise the wide range of local and global forest values – or account for them, pay for them, or deliver them
  4. is ignorant of the growing body of science and local knowledge of how to manage forests for these broader values, and ignorant of the risks of not doing so
  5. has short-term planning horizons and narrow metrics of success that ignore the wellbeing of people and nature
  6. creates a large disconnection between actions and consequences, between who benefits and who pays (or suffers consequences)
  7. is enforced by government authorities in top-down and often brutal ways
  8. invests very little in the forest and in engaging with forest groups
  9. has few opportunities for stakeholders to come together to analyse, learn, debate, innovate, develop the trust and confidence to change things for the better
  10. is far bigger financially than counter-investments like Amazon conservation programmes, leaving them ineffective in the face of prevailing deforestation incentives
- *The historical and colonial roots of Amazon problems are persistent*: Despite growing evidence of their failure, much Amazon policy, institutions and incentives are stuck in the past, still reflecting centuries-old colonial goals of *'improvement through deforestation'* (clean forest areas). This is in spite of all the

evidence showing that many Amazon ecosystems, unlike those in Europe, cannot sustain long-term conversion to grazing and crop cultivation. The Amazon effectively remains a *colony of Brazil* – or of its other nation-states: it is treated as a region from which to extract resources, using inputs from outside the region, with little concern for the terms of trade or for adding value. Policies, laws, economic incentives and stakeholders' roles continue to create and sustain a non-inclusive 'deforestation economy'. Elites speculate on increasingly fragile land, while the needs and values of local and global citizens remain unmet, and local solutions for reaching a good balance between competing demands on forests are ignored. The possibilities to misuse the forest have always proved too easy to exploit, due to the lack of law enforcement and commitment to conservation policies, but today this is being actively encouraged.

- *Inequality in assets, powers and accountability:* These are both a cause and a consequence of the deforestation economy and have led to illegal activity becoming the norm. Some of the region's richest people have shifted between holding high political posts and running major agricultural companies, setting the terms that best suit their interests. Illegal timber extraction, grabbing of public land, drug trafficking and gold mining have been important drivers of deforestation and social conflicts. Illegal timber finances the paving of roads, which facilitates access to public land for illegal grabbing. Drug traffickers and illegal gold miners are known to launder cash by investing in land and cattle, driving deforestation across large swathes of the Amazon.

- *History, illegality and inequality are too often entrenched by unstable and inequitable economic policies:* Brazilian President Jair Bolsonaro still calls for 'unproductive' Amazon forests to be liquidated in favour of agriculture and mining, and with very few controls. While there are occasional bans on setting fire in forests, these have little effect compared to the large and prevailing economic incentives to deforest, and in the last two years forest fires have increased dramatically. The possible paving of BR 319 through the Amazon, for example, without effective measures to prevent illegal land grabbing, timber mining and deforestation will strengthen the power of the 'deforestation economy'. These economic policies – and their instability – pose a real risk to long-term sustainable economic development in the Amazon. Currently they threaten the US$20-25 billion/year industries of Manaus: the city's industrial park relies on international investment, yet the international community is now demanding urgent action to tackle unsustainable activities in the Amazon. And they hold back major national priorities with wider implications: EU Ambassadors threaten that, because of Amazon deforestation, the 2019 deal to facilitate trade between European Union and Mercosur will not be ratified by Europe.

- *Political changes:* Forests have suffered in all kinds of political dynamics. Poverty and political unrest have caused people who have never managed forests before to migrate into forest zones in search of food and livelihoods. In Colombia, the peace process disarmed FARC combatants, which led to a power vacuum that has been exploited by large landowners who are now clearing forests to make way for farms and for the illegal growth of coca crops. In Brazil, until January 2019, progress on environmental protection and social inclusion had been steady with new policies on welfare and inequality, some impressive achievements in tackling deforestation, and international climate action. But recent political changes at federal and state level have reversed much of this fragile progress, with new roads planned that will reduce the costs of agricultural activities deeper in the Amazon. Moreover, institutions and laws designed to ensure safeguards and fight deforestation have been gutted. Environmental and social welfare schemes have been weakened. While some world-leading initiatives such as the *Bolsa Floresta* PES scheme are alive, others such as Bolsa Verde were discontinued. Multi-stakeholder bodies providing oversight of the Amazon forest and civic

consultation processes have been weakened or abolished altogether. Climate change budgets have been slashed by 95%, and indigenous lands opened up for mining. (GEC Brazil Tracker 2019).

- *Poor information:* While there may be increasingly good information about forest area and some attributes such as carbon storage, there continues to be a critical lack of information about the economic and social value of the forest. "Unless you have valued nature and natural resources on the balance sheet, you are flying blind, leaving off an asset worth up to nearly 50% of the wealth of the nation" (Prof Cameron Hepburn, Oxford Martin School). Moreover, the prevailing metrics used to collect data do not reflect the full economic value of the forest and its diverse roles for the economy, livelihoods and global public goods – reflecting a lack of policymakers' interest in these values until recently. Finally, there is little *comparative* information. Decision-makers are not always clear about alternative options, whether at high policy level on the choice of deforestation or green economy, or at management level on technology options for given types of land and enterprise.
- *Constraints to the economic success of forest communities:* Most forest communities are remote, with poor technology, communications, energy and transport infrastructure. They have little information on markets, limited ability to ensure the reliable delivery of quality products and poor access to finance and business assistance. They often suffer weak rule of law and inadequate service delivery by local government. In short, the terms of trade are very poor for forest-based communities and they cannot close deals which work well for them.
- *Inadequate support for sustainable approaches:* Government support for conservation efforts and for forest-based economic development is feeble in comparison to the support for deforestation. This reflects a global syndrome, too: "For US$1 spent tackling deforestation, US$150 is spent on activity that drives deforestation. Let that sink in: over 99% of our economic engagement with forests is destructive" (Halle 2010).

  Despite the lack of adequate support, almost countless numbers of initiatives have emerged in support of sustainable approaches to forest development. However, they are fragmented and there is not the enabling environment for them to combine resources, complement each other and expand beyond the niches in which they have found a 'safe space' to work. Not being able to combine their powers means they have not been able to tackle underlying causes: they remain some 'islands' of success within a 'sea of failure'. Yet many of these initiatives have proven benefits and have mobilised diverse political, business and citizen support. We explore initiatives in the Amazon in Section 3 and relevant global initiatives in Section 4. Together they provide a catalogue of 'what works' in real complex contexts – and are the seeds of a practical new vision for the Amazon.

3. Initiatives in the Amazon - diverse innovations to link up, learn from, and build on

There are many initiatives to address the Amazon's many problems, emerging at local, national and international level, and from government, business or civil society. Some initiatives have already made some progress, but may not be well-known. Others are looking for proven and trustworthy solutions, but don't have access to the right evidence. Further initiatives could be catalysts for the processes of learning, dialogue and investment needed to drive system-wide change. In this section and Section 4, we recognise and introduce these many initiatives. We will analyse their respective mandates, visions, approaches and achievements as we develop the Amazon Green Economy Hub and seek to combine their energies and assets (Section 5).

3.1 Amazon government initiatives

There are several of these at the national level, notably in Brazil, but surprisingly few that are genuinely at the regional level:

- *The Governors' Climate and Forests Task Force (GCF Task Force)*: A Brazilian collaboration of 38 states and provinces working to protect tropical forests, reduce emissions from deforestation and forest degradation, and promote realistic approaches to developing rural areas while maintaining forests. In 2014, the Governors adopted the Rio Branco Declaration, which commits its signatories to reduce deforestation by 80% by 2020. In 2015, the Norwegian Government pledged US$25 million to support the GCF Task Force to implement the Declaration through two funding windows, which are exploring the potential for bioeconomy, REDD+, PES schemes and environmental safeguards.
- *The Brazilian State Governors' Inter-State Consortium for Sustainable Development of the Amazon* (Consórcio Interestadual de Desenvolvimento Sustentável da Amazônia Legal): In 2019, governors from all nine Brazilian states in the Amazon region joined forces to come up with sustainable development strategies. Determined to tackle deforestation and generate jobs and income, the governors and their advisers (which include FAS) are exploring a range of green economy concepts such as bioeconomy, and looking for effective conservation and sustainable development programmes. During COP-25 in Madrid in 2019, the Consortium signed an agreement to attract investments and donations from the international community to fund policies for low greenhouse gas emissions and sustainable development for the territory.
- *The Amazon Fund*: Built primarily upon the climate rationale for investing in Amazon forests, and capitalised by the governments of Norway and Germany, since 2008 this US$1 billion fund has been a REDD+ mechanism created to raise grants for efforts to prevent, monitor and combat deforestation, as well as to promote conservation and sustainable development in the Brazilian Amazon. Until recently, it was the most prominent financial mechanism for curbing deforestation while supporting local community development (Garcia et al., 2019). It has supported more than 100 projects with US$600 million, including two projects with FAS, totalling US$10 million. However, the Fund was suspended in 2019 following a sharp increase in illegal fires in the Amazon and disagreement between the Brazilian, Norwegian and German governments on how to respond. Brazil's Vice President, Hamilton Mourão, is trying to unlock this.
- *The Floresta+ Programme* (*Forest+)*: This R$500 million pilot programme, which has largely replaced The Amazon Fund, and has been capitalised by the Green Climate Fund, promotes environmental conservation as a basis of sustainable development. It offers communities financial compensation for their commitment to restoring and sustaining native forest through zero deforestation. The programme will create a National Register of Environmental Services and a payment regime within the Forest Code. As the Ministry of Environment puts it: "With the largest biodiversity heritage in the world, Brazil has the potential to support a new green economy".
- *National Sustainable Development Goals (SDGs), Nationally Determined Contributions and Green Economy plans in Amazon countries*: Colombia, Peru and some Brazilian Amazon state governments (e.g., Amazonas and Pará) have progressive plans to achieve the SDGs. Guyana – the Amazon biome country with the highest percentage of standing forest – is actively pursuing a Green State Development Strategy Vision 2040.
- *Land use and landscape planning:* The Brazilian Amazon is updating its regional plan for tackling deforestation and degradation (PPCDAm, in Portuguese) which presents strategies and targets for each state (UNDP 2018).

- *Green Free Trade Zone:* This provides the incentive, granted by the Federal Government of Brazil, of exemption from tax on industrialized products that use regionally-sourced plant and animal materials or minerals. It applies within Free Trade Zones, such as the Manaus Free Trade Zone (MFTZ) – and also has a wider aim to promote integration of the Western Amazon within Brazil, promoting national sovereignty. The *Zona Franca Verde* within the MFTZ has created jobs and lowered poverty in Manaus (Castilho et al., 2018) while also helping to reduce deforestation (Rivas, Mota and Machado, 2009; Viana 2010, 2015).
- *The Alliance for Amazon Bioeconomy (ABio)*: Established in 2018 by 19 organisations, including FAS. As with most work on bioeconomy globally, this has a focus on forest-based enterprises and value chains. ABio aims to prepare a practical bioeconomy strategy for Amazonas State that will develop and deploy biotechnologies for sustainably using Amazonian biodiversity.
- *The Amazon Cooperation Treaty Organisation (ACTO):* Created in 1995 to implement the Amazon Cooperation Treaty. Based in Brazil, it covers most development, social and environment issues as well as institutional, financial and legal matters. ACTO is an important forum for Amazon countries to negotiate region-wide strategies and projects with recognised, if sometimes inefficient, processes. It has set out a series of forest priorities including forest monitoring, conservation, sustainable management and restoration, strengthening of protected area systems and integrated use of water resources (WWF 2016).
- *The Leticia Pact signed in 2019 by 7 Amazon countries:* The pact covers regional coordination in monitoring deforestation and creating an Amazon Network for Natural Disaster Cooperation to improve emergency response; green innovation to expand afforestation initiatives and promote alternatives to fires; and participation of indigenous people and women in lead roles in land stewardship as well as rights.

3.2 Indigenous and traditional groups' knowledge of achieving well-being (buen vivir)

Amazon peoples have managed forests sustainably for millennia (Rebellato et al., 2009), and are continuing to innovate. Their use of the forest is not, as some policymakers believe, unsuccessful or primitive and in need of replacing. On the contrary, most Amazon peoples, in the absence of meddling from policies and economic incentives set in faraway capitals, obtain everything they need from the forest. Hunting, gathering, cultivating, and rearing animals can offer what these diverse social groups value for their well-being.

Deforestation is more controlled in areas where local people's rights, institutions, operational practices and financial support for looking after forests are well-established. (Reydon et al., 2019). There is not as much deforestation on indigenous lands as other land categories (Nolte et al., 2013; Nepstad et al., 2006), partly because forest people are often the best stewards of their land. They tend to be better informed about the impact of deforestation and understand the wider potentials of the forest on which they lived for generations. As a result, they bring insights that are absent from mere technical analysis and where empowered to do so, they often pick options that are better for forests and people.

As the world becomes increasingly concerned about social and environmental well-being and the way in which current economic models based on extraction and consumption are undermining it, there is much to be learned from the Amazon people's philosophy of *buen vivir* – well-being at all levels (with a major emphasis on social and environmental well-being) - and their ways of securing it. To support indigenous and traditional groups, we need to better understand their perceptions of the forest, what rights and responsibilities help and what 'external' conditions encourage or discourage them because "*the current*

economic model, and the government that supports it, steals our wealth to serve external interests…" (indigenous people's leader at FAS's March 2018 Green Economy Papo Sustentável, Manaus).

*COICA (*Coordinadora de las Organizaciones Indígenas de la Cuenca Amazónica): This umbrella organization brings together indigenous organizations from nine Amazon nations to advocate for the rights and self-determination of indigenous peoples through the defence of their way of life, principles and values. Its current work includes Indigenous REDD+ (REDD+ Indígena Amazónico, RIA), which seeks to strengthen indigenous governance of indigenous territories and their land use planning, according to cultural uses of natural resources. It has been recognized in Colombia, Ecuador and Peru (WWF 2016).

3.3 Sustainable micro and small forest enterprises (MSMEs)

Many initiatives coming from the MSME sector and NGOs, such as FAS, and larger businesses that work with MSMEs, are significant and increasingly positive drivers of sustainable economies. In the last few years, there has been huge growth in small business value chains based on healthy standing forests, sustainably harvested commercial timber, non-timber forest products like açai berry, brazil nuts, river fish, and eco-tourism.

Demand for açaí fruit has created a US$1.5 billion/year industry in the Amazon, which is growing rapidly with at least 300,000 producers in Brazil alone (Nobre and Nobre 2019). As acai fruit grows in high yields it offers huge potential as a forest-based enterprise[5]. Pirarucu river fish management is a noteworthy case of how to turn an endangered species into a thriving and sustainable economic sector. Since FAS began supporting community production of pirarucu fish in Uacari region[6] yields have increased from 4,838 kg in 2011 to 30,305 kg in 2018 an (increase of 526%). Moreover the market price increased 53% from 2016 to 2018. Brazil nuts are also expanding as MSMEs in Bolivia, the major producer, Peru, Colombia and Brazil. Cocoa production is also growing rapidly and expected to double in the next 10 years.

These initiatives, when not simply treated as a part of a particular commodity value chain, can be real drivers of the local economy, mobilising local capital, generating wealth and jobs, and adding value in important areas such as environmental and social protection.

The Standing Forest Programme in Amazonas: The expanded version of the earlier Bolsa Floresta programme implemented by FAS, has shown that, if scaled up, sustainable MSMEs could form the basis of an inclusive bioeconomy based on the indigenous forest and biodiversity, on which many people can make a good living. According to an independent poll[7] within programme areas, forest people tripled their family monthly income between 2011 and 2019 (data in press). There is a lot of interest in this kind of approach within the Amazon, with the United Nations and international environmental organisations in particular, supporting different approaches. To develop a forest-based MSME economy in the face of a weak enabling environment requires a leap forward in stakeholder confidence and commitment. It would be timely to bring these projects together for learning and mutual support. Those who have begun to look at the potentials are positive: "Programmes like Bolsa Floresta could be developed further to strengthen local skills, capacity and value addition. As part of just transition strategies for economic diversification in

[5] Acai fruit has also proven successful on plantations, which could compete with forest-based production.
[6] Sustainable Development State Reserve
[7] In 2019, the independent poll had 970 valid interviews in 7 Protected Areas (6 benefited by the Standing Forest Programme, and 1 as a fractal sampling) with sampling error of 3% and 5%, respectively.

agricultural frontier states, they could be coupled with investments to explore and use the bio-economy potential of the region." (Ferreira and Poschen 2019)

3.4 Bigger business, finance, investment and economic activity

Shifting to sustainable production: In the last two decades, two major industries have been responsible for Amazon deforestation -- beef and soy (Zacks et al., 2009) -- heavily incentivised by unsustainable public policies (Pereira et al., 2020), market pressure (Amazon Watch, 2019), and unsustainable consumption practices (Wilkinson 2011). But there has been recent progress:

- *The Soy Moratorium:* Starting in 2006, it engaged NGO, retailers, soy and beef industries, and the federal government of Brazil (Gibbs et al., 2015), and was the first zero-deforestation agreement. According to Kastens and others (2017) the moratorium resulted in a decline in deforestation in Brazil's western Mato Grosso state (which produces 85% of the country's soy) to 20% of levels in 2006. As yet, however, most of the companies that have eliminated deforestation from their supply chains globally tend to be smaller players – not the major buyers.
- *The Brazilian Business Council for Sustainable Development (CEBDS)*: The Council brings together about 60 of the largest business groups in the country, with revenues equivalent to about 45% of GDP and employing more than 1 million people. In July 2020, CEBDS joined with the President of the National Council for the Legal Amazon and Vice President of the Republic, Hamilton Mourão, to reinforce the imperative for effective measures to combat illegal deforestation.
- *Brazil's three largest private banks – Bradesco, Itaú Unibanco and Santander – came together to create a sustainable development plan for the Amazon*: Formed in 2020, the plan supports environmental conservation, development of the bioeconomy, investment in sustainable infrastructure, and guaranteeing the basic rights of Amazon people. Focal activities will include support for sustainable supply chains of cocoa, açaí and brazil nuts through different financing lines and other tools; and promoting investment and partnerships to develop bioeconomy technologies.
- *Active investment in the Amazon bioeconomy by some large companies, such as Natura:* Brazil's largest cosmetic company, Natura, has invested over US$1 billion in Amazon cosmetic production since 2017; one of several companies exploring the possibility of developing pharmaceutical, cosmetic and food products from the potential in the biodiversity of the Amazon's plants and other species. Natura has been buying processed vegetable oils through fair-trade practices with Amazonian smallholders. These same communities have benefited from investments by FAS and partners (including Natura), in research and development, capacity building, cooperativism, and entrepreneurship to improve their processes and supply better quality products and inputs to Natura. As a result, over 20 years Natura has impacted 5,500 families (around 22,000 people), and already generated R$1.8 billion in business volume. In 2020, the company closed a deal with a community-based firm to buy around 13 tonnes of finished vegetable oil that will generate a revenue of R$325,000 in the Brazilian Amazon.

3.5 Science and technology

- *Science:* In 2008, the Brazilian Academy of Science published a report on the Amazon's challenges and how to address them (ABC 2008). Since then, scientists in the region have been increasingly getting together to explore region-wide problems, which have become more interdisciplinary over time. The *Science Panel for the Amazon (SPA)* was launched in September 2019 with more than 30 scientists and researchers. This "IPCC-like" panel aims to establish an ongoing scientific process to inform decision-making on the survival and sustainable development of the Amazon.

- *Technology:* An interesting recent initiative, *Amazônia 4.0* was launched in 2018 and seeks to generate a bioeconomy from standing trees in the Amazon through technologies emerging from what is being called 'Industry 4.0', the fourth industrial revolution. This includes artificial intelligence, big data and machine learning. The initiative aims to facilitate the creation of 'local and diversified bioindustries and value-added products across all links in the value chain, jobs, and social inclusion', in part because such technologies can both shape new products and production processes but also tackle the transport, communications and marketing constraints that beset remote Amazon producers. (Nobre and Nobre 2019).
- *Restoration:* There is increasing interest in reforestation. Some scientists who really know the Amazon believe there is scope to build back a margin of safety through immediate, active, and ambitious *reforestation* particularly in the deforested regions that are largely abandoned cattle ranches and croplands, amounting to about 23% of destroyed forest territory. "These areas, which now lay fallow, are probably the main reason why the Amazon has not already become an expanding savannah. Therefore, it is a must to reinforce command-control actions, together with bioeconomy investments, to enhance sustainable practices and conserve the core of the Amazon. Another sensible way forward is to launch a major reforestation project as … part of Brazil's implementing its commitments under the Paris agreement" (Lovejoy and Nobre 2019).

3.6 Civil society movements for change and other initiatives

- *Catholic Church Amazon Synod*: In 2019, the first Synod on the Amazon was convened in Rome to discuss the protection of the environment, climate change, deforestation, indigenous people and their right to keep their land and traditions. The meeting was a response to Pope Francis' landmark encyclical "*Laudato Sí* (Praised Be)", on protecting the environment from global warming and stressing the importance of the forests "for the future of humanity". Preceded by a consultation of 87,000 Amazon people, the Synod called for radical change in ways of producing and consuming, and for management of the Amazon for, and by, the local people.

3.7 Truly multi-stakeholder initiatives

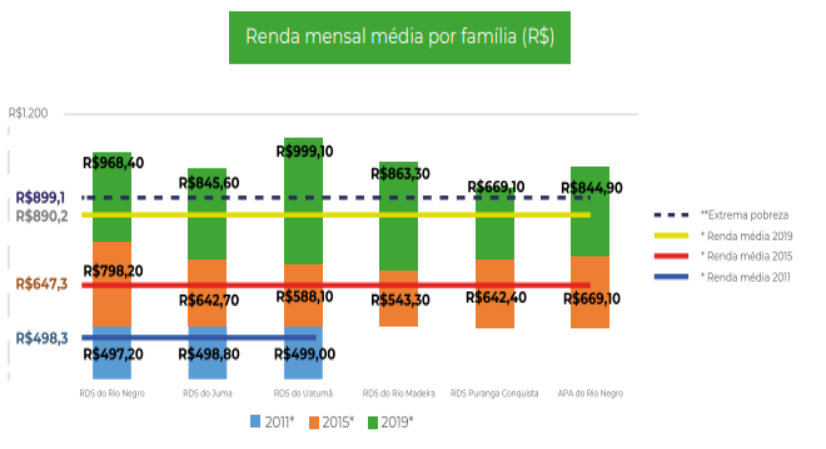
It is clear that future solutions cannot be provided by any one group alone but must be the product of multi-stakeholder design and agreement. Given the multi-dimensional nature of Amazon challenges and the many stakeholders involved, it is surprising how few initiatives there are:

- *Possible Amazon (Amazônia Possível):* Established during Climate Week in September 2019, this group brings together Brazilian entrepreneurs, civil society, businesses and international partners to pursue sustainable development in the Amazon. Its vision is to show that Brazil is serious about acting to stop illegal activity in the Amazon, including illegal deforestation, illegal logging and illegal mining.
- *The Sustainable Amazon Foundation (Fundação Amazonas Sustentável, FAS):* Set up by Banco Bradesco in partnership with the Amazonas State Government, FAS is a distinguished Brazilian NGO defending and promoting the Amazon forest, fostering sustainable patterns of development, environmental conservation and improvements to the quality of life of communities living by rivers in Amazonas State. FAS was designed specifically to 'take care of the peoples that take care of the forests' by helping them 'make forests worth more standing than cut'. The award-winning organisation is known for playing a bridging role between stakeholders and ensuring that policy leads to action and that the results, in turn, feed policy. (See Box 1).

Box 1. Sustainable Amazon Foundation – helping major progress over 12 years

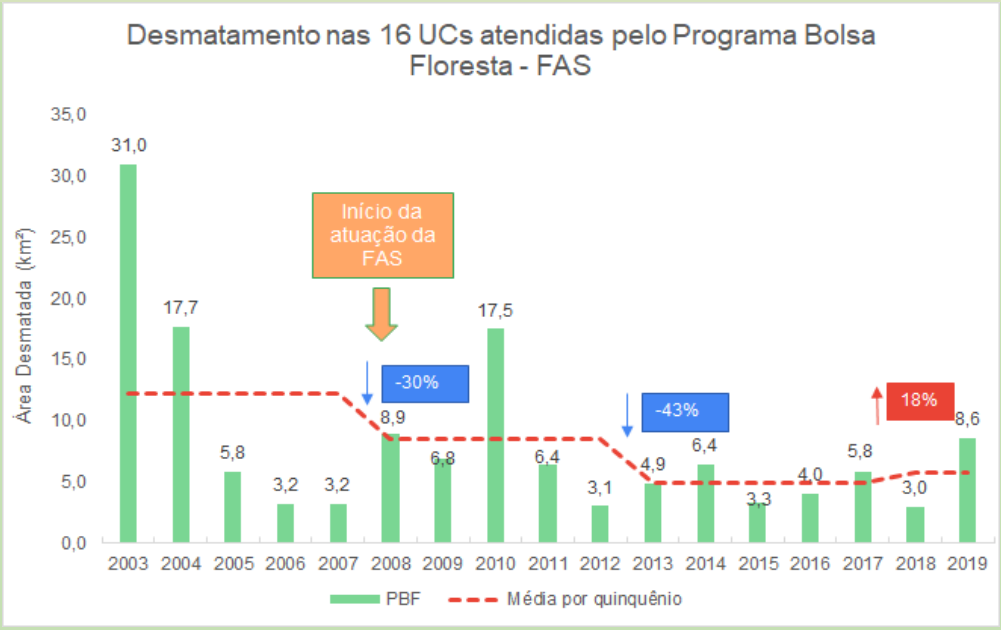
The Fundação Amazonas Sustentável (FAS) has been a proven catalyst for sustainable forest-based economies. Since 2008, it has deployed a strategy of 'taking care of peoples that take care of the forests' by 'making forests worth more standing than cut'. The 11 million hectares of protected forest where FAS operates (the size of Portugal) are sustainably managed by communities and MSMEs through FAS's core programme Bolsa Floresta (now known simply as the 'Standing Forest' programme). This programme has large support from the state government and by the business community, both national and international. The results are impressive:

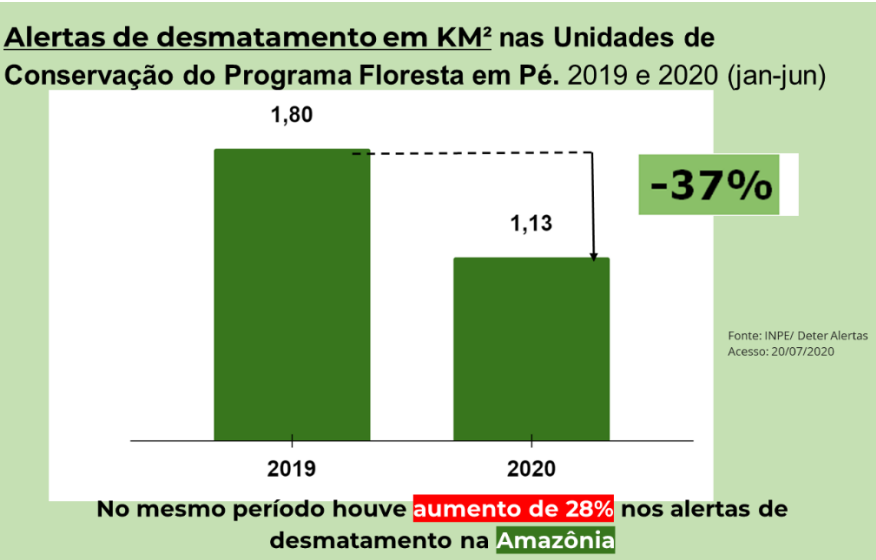
- *According to National official data, deforestation has been reduced by 76%* since 2008 in FAS's programme areas. Participating farmers practise agriculture without resorting to fire to clear their land as part of a collaborative effort to build a standing forest economy. This is in stark contrast with other parts of Brazil. While fires in the Amazon increased by 91% from January to August 2019, they actually decreased by 33% where FAS operates. Credit is in large part also due to the Government of Amazonas State, which gave FAS the mandate to work together in protected areas. Figure 1 shows how deforestation in the 16 protected areas in which FAS works reduced by 30% over 2008-2012 – and further still by 43% 2013-2017.
- *The income of 581 communities has increased by 202%* through making use of the standing forest for timber, fisheries, handicrafts, tourism and other sustainable practices and enterprises. An approach that puts people at its centre has been the key to achieving FAS's biodiversity and carbon gains. FAS supports grassroots organizations that defend the rights of indigenous peoples as well as poor urban populations in the Amazon.



- *The capital base available to local people has grown* as a result of FAS investing in the natural, social, human, physical and financial capital needed to improve peoples' health, education, culture, energy and transport. In doing so it has responded to local people's 'valuation' of the Amazon forest – one which is far richer than most outsiders'. Social and cultural well-being have flourished and the economy has shifted from the old 'deforestation economy' towards becoming a 'standing forest' green economy. FAS's Amazon Summer School has begun sharing learning about *buen viver* internationally.
- *Stakeholders are able to play to their strengths and collaborate more effectively.* FAS has helped to remove constraints to the economic success of remote forest communities – with technology, communications, water transport, quality assurance, marketing support and business assistance. It has been effective in connecting the players who need to work together to tackle problems in the Amazon. Its convening power, government-conferred mandate, policy influence in Amazonas State (and in the region increasingly), and strong recognition and credibility among local communities make it a well-placed 'meso-level' institution. Many of FAS's achievements have been realised through what it calls its growing 'ecosystem' of institutional arrangements. These partners and others have also generated their own innovations to learn from and potentially to scale up. FAS's growing international recognition and credibility (with 11+ Brazilian and international awards and latterly membership of the GEC) add to its potential to be the most inclusive kind of leader of transformative change.

Figure 1 - Deforestation rate in 16 protected areas with FAS activity, based on satellite imagery





4. Global progress on forests and inclusive green economy – lessons for the Amazon

Globally, there are encouraging international innovations on forests and green economy which can offer lessons and support for the Amazon. They come from the worlds of science and research; governance and policy; business, finance and investment; and citizen action. But as with the Amazon initiatives described in Section 3, few of these have yet to come together:

4.1 Science and research

Talk of *global climate change, extinction and inequality 'risks', 'crises' and 'emergencies'* is growing, whether among civil society or business leaders. For example, the World Economic Forum's top risks for 2020 are all environmental: biodiversity loss, extreme weather, natural disasters, human-caused environmental disasters and failure to take climate action (WEF, 2020). The mounting sense of urgency to tackle these problems is fuelled by progressive science and economics as well as activism:

- *Science:* There is now a strong scientific consensus on the world's environmental challenges -- for which the Amazon is often the starkest example -- through the IPCC for climate change and the MA and IPBES for biodiversity. As a result, scientists now understand the Earth's ecological limits and the 10 'planetary boundaries' we are at, or close to, exceeding due to human activity: climate change; ocean acidification; chemical pollution; nitrogen and phosphorous loading; freshwater withdrawal; land conversion; biodiversity loss; and ozone layer depletion. Push deforestation too far, for example, and droughts, fires and floods will all be magnified. In 2018, the world's top scientists warned of a narrow window of 11 years to prevent irreversible damage from climate change, as well as the threat of severe biodiversity loss.
- *Economics:* There is increasing acceptance that standing forests provide far more than their timber value alone, and therefore a case to invest in forest protection. The Total Economic Value of the forest is the sum of the ecosystem goods and services provided by it, whether or not they have market prices, such as: extracting timber, fish, food, minerals; tourism and recreational use; carbon storage; water resource and soil protection; biodiversity and ecological function maintenance; and tax revenues (Young 2019). This presents possibilities for compensation schemes for those using forests to produce global public goods like biodiversity and climate stabilisation. Moreover, there is now global recognition that ecosystem services and other non-marketed goods are critical in making up between 50% and 90% of the total source of livelihoods among poor rural and forest-dwelling households – the so-called 'GDP of the poor'.

4.2 Governance and policy

Given new knowledge and societal concern, it is not surprising that there are the beginnings of a turning point in global governance to address forest challenges. The Amazon's plight has attracted increasing international attention in recent years. For example, the UK Royal Statistical Society's 'international statistic of the decade' could have been on any issue anywhere – but it focused on the Amazon, and the *8.4 million football pitches of rainforest that have been lost in the last decade*. It is notable that the UK Government is currently consulting on a new law to make imports of products produced through deforestation illegal, which could have major implications for Amazon agricultural products as well as timber.

Progressive governments in over 1,000 jurisdictions (i.e. no longer only radical NGOs) are treating biodiversity and climate problems as 'crises' or 'emergencies', terms which often legally permit radical change in policies and budgets. The same is emerging for critical problems of inequality. In July 2020, UN

Secretary-General António Guterres proclaimed inequality to be the issue which "defines our time" and which risks destroying the world's economies and societies.

The Amazon's problems epitomise these linked global emergencies and form a large part of them. If Amazon nation-states, regional bodies, businesses and stakeholders prepare well, they may attract far greater global support in the future.

Indeed, global barriers to progress – ineffective global climate and biodiversity conventions, unwillingness to pay for global public goods like carbon storage and biodiversity, and environmentally-damaging trade and investment regimes – are beginning to buckle. In its 75th year, the UN is mobilising around an Emergency Declaration for the Planet for 2020. This gives extra impetus to four major initiatives which emerged over the last decade:

- *The Climate and Biodiversity Conventions*: 2020-1 has been hailed as a 'super-year' for charting a course to slow climate breakdown and protect biodiversity over the next decade, by reinvigorating the Climate and Biodiversity Conventions to respond to the emergencies. Also of importance will be efforts to address how these emergencies interact and shifting finance flows in order to implement the treaties in ways that support the producers of biodiversity and climate services. The Biodiversity Convention's draft text for the future gives equal emphasis to reducing threats to biodiversity and meeting human needs by transforming financial and economic systems to achieve a 'zero net loss of nature' goal. It calls for enabling conditions that start with the participation of indigenous peoples and communities.
- *The Sustainable Development Goals (SDGs)*: Adopted in 2015, the SDGs are an unprecedented global agreement to move by 2030 towards a more equitable, peaceful, resilient and prosperous world in a way that is sustainable for the planet. For many countries, including across the Amazon region, the search for ways to plan for the SDGs, deploy solutions that work, and attract investment is advanced.
- *Green economy plans and processes:* Over 80 countries including Brazil, Peru and Guyana have green economy strategies or are developing them. These recognise that sustainable development has been elusive because prevailing economic rules and economic activity have not allowed it – and therefore need to be reformed. A wide variety of approaches is being taken; for example, 'green growth' in developing countries; 'blue economy' in island states; 'circular economy' in industrialised nations with waste burdens and technological means to recycle; and 'bioeconomy' value chains based on indigenous biodiversity, especially for countries where rich natural capital forms a significant proportion of wealth. The UN has a Partnership for Action on Green Economy (UN-PAGE) to assist countries. A specialist institution, the Global Green Growth Institute (GGGI), has been inaugurated to help shift investment to green economy. The Green Economy Coalition (Box 2) has convened them and others, such as the OECD, to find common ground. Together they promote five Principles, Priorities and Pathways for inclusive green economies.
- *Natural capital accounting (NCA)*: The UN has agreed a System for Environmental Economic Accounting to account for changing stocks and flows associated with natural capital such as forests, and relating them to economic performance. Eighty countries, including all Amazon countries except Bolivia and Venezuela, have developed at least pilot natural capital accounts, although NCA is not yet routine. Globally, however, NCA is increasingly considered to be an essential part of the 'machinery of government' because it enables governments to understand how the environment and the economy interact: the contributions that the environment makes to the economy, and the impact of economic activity on the environment. This in turn feeds into decisions on, for example, taxation of natural

resource activities and pollution, natural resource rents, and government expenditure on the environment.

- *Bilateral and multilateral aid:* To some extent, this follows the above trends. A recent review of development aid (OECD 2019) revealed that there was concern among many development cooperation agencies about investing more in biodiversity, in the way that has become mainstream with climate change. The SDGs are a common aim for many agencies, although green economy has fewer adherents. However, the EU's European Green Deal as well as the new plan to protect and restore the world's forests provides potential springboards for action on green economy.[8]

4.3 Business, finance and investment

The days are long gone when business leaders saw forests simply as sources of timber or land, or forest protection as an obstacle to growing their businesses. Progressive business leaders recognise their *dependence* on a stable climate, water, biodiversity and soils, as well as on worker and neighbour well-being. Environmental and social issues have entered the mainstream of business and investment decisions:

- *Businesses:* CEOs of progressive major corporations now avoid carbon-intensive, deforestation-causing business models. A new coalition, *Business for Nature*, has come together to ensure businesses protect nature and reverse losses. Bankers, insurers and credit rating agencies have started to tighten controls as they have quantified the systemic economic risk that environmental losses pose. Furthermore, there is new business interest in the potential of restoring degraded forests: restoring 350 million hectares could generate US$9 trillion in ecosystem services and take an additional 13-26 gigatonnes of greenhouse gases out of the atmosphere (FAO).
- *Finance, investment and technology:* There is a recent and rapid shift towards investing in natural capital-based economies, in nature-based solutions to tackling climate change, and in green jobs aligned to social development and the prosperity of traditional communities. Private investment in green activities has grown rapidly: the green bond market has reached US$500 billion (Climate Bonds Initiative) and impact investment has doubled in the last year, rising to US$502 billion (Global Impact Investing Network). But there are changes afoot in mainstream investing, too, as the Chair of BlackRock investors wrote to CEOs in 2020: "Sustainability should be our new standard for investing. Climate change is … driving a profound reassessment of risk and asset values. And because capital markets pull future risk forward, we will see changes in capital allocation more quickly than we see changes to the climate itself." Indeed there is already a shift in investment away from fossil fuels to renewables: coal investment has collapsed by 75% in three years (International Energy Association); and for the last four years, more renewable energy capacity has been installed than new fossil fuel and nuclear capacity combined (Ren21). (All citations from GEC *Barometer* 2019).

4.4 Citizen awareness and concern

Activists have become increasingly vocal about the failure of current governance and economic structures in enabling people and nature to thrive together within 'planetary boundaries'. Anger over the growing climate emergency has fuelled the #FridaysforFuture strikes during which schoolchildren in more than 120 countries -- including Brazil, Colombia and Peru -- walked out of their classrooms in 2019, in an unprecedented global protest against government inaction on climate change. In European elections,

[8] Aid policy and practice on forests and green economy is an extensive subject that FAS and GEC will explore in a later paper.

Green parties became a real challenge to mainstream political parties, as well as in Latin America. Yet key Amazon countries, such as Brazil and Peru, have witnessed a rise in right-wing politics with policies now limiting civil participation and favouring economy over environment.

4.5 Multi-stakeholder initiatives

Finally, few initiatives are multi-stakeholder in their origins, mandate and governance. There are several intergovernmental or international NGO initiatives on green economy or forests which have evolved to work with a wider range of stakeholders than when they were first established. As with FAS in the Amazon, there is a convening initiative that was designed to act globally to bring together progressive stakeholders and to catalyse transformative action – the Green Economy Coalition, GEC (Box 2). Like FAS, the GEC plays the role of a 'meso' institution: bridging themes, policymakers and the people they represent, and both problems and their underlying causes.

Box 2. The Green Economy Coalition (GEC) – catalysing progress in its first 10 years

In 2009, in the midst of both the financial crisis and international gridlock on action on climate change, four leading global environment and development organisations – UNEP, IUCN, WWF and IIED – came together to explore what was needed to achieve sustainable development globally. They concluded that nothing less than full reform of the economic system was required to shift away from the prevailing 'brown' economy which was failing both nature and people. They established a shared and inclusive initiative, the Green Economy Coalition. Today, the GEC is the largest global movement for green and fair economies, convening civil society, business, workers, governments, the UN and academics to:

- advocate for systemic economic reform at all levels: local, national and global
- create new narratives to challenge economic orthodoxy and to inspire change
- catalyse inclusive, bottom-up change through citizen-led dialogues and green MSMEs
- track the policies, evidence and debates driving the transition

Over 10 years, investment in the GEC has created valuable *assets* that could be more widely used to tackle the world's major challenges – and notably now, the Amazon's 'deforestation economy'. The GEC has:

a) *An influential global network spanning six continents and major stakeholder groups:* The GEC connects diverse local constituencies with national economic decision-makers and global institutions. Through collective action, GEC has ensured inclusive green economy gained legitimacy on the global agenda, with governments agreeing at the UN Conference on Sustainable Development in 2012 (Rio+20) to frame the green economy as an important means to achieve sustainable development. The various GEC partners lead on GEC activities according to their strengths and interests.

b) *A tested model of citizen-led dialogue that has informed national policy changes:* The GEC has supported 17 green economy talks between multiple stakeholders around the world. Many of these outcomes have been embedded in local institutions. *Green Economy Hubs in seven countries and one region* mobilise society's demand for green economic reform, ensure more people get a stake in it, and coordinate a variety of field work involving communities and small business[9]. A new Amazon Hub has recently been announced, hosted by FAS.

c) *A shared vision and best-practice principles jointly developed with major global institutions:* The GEC was instrumental in ensuring green economy work embraces inclusion, equity and environmental limits. It brought together the key global institutions driving green economy initiatives (including the OECD, the UN

[9] India, Mongolia, Peru, Senegal, South Africa, Trinidad and Tobago, Uganda and the Caribbean.

Partnership for Action on Green Economy and its UN agency constituents, the Global Green Growth Institute GGGI, GIZ, etc) with over 300 civil society organisations to produce shared Principles, Priorities and Pathways for inclusive green economies.

d) *A policy framework for planning and tracking the transition to green and fair economies:* The GEC and its networks have evolved a coherent policy plan across five themes: (1) measuring and governing economies differently, beyond simply GDP or corporate profit, (2) reforming financial systems to break the cycle of short-termist policies and investments (3) making economic sectors inclusive, less carbon-intensive and damaging of nature, (4) tackling inequality and improving inclusion to strengthen societal support for green economies, and (5) valuing nature to drive investment in it, and reduce over-consumption that is incentivised by its current zero pricing. Its Green Economy Tracker records progress in 20 countries.

e) *A living casebook of examples of the transition to green economy in action:* A knowledge base of solutions, insights and experience of green economy practice has been built on the GEC web platform. The annual Global Green Economy Barometer and National Barometers for each Hub country are used by governments, researchers and civil society, and offer a high-profile agenda-setting narrative.

5. The way forward – an Inclusive Amazon Green Economy delivering what people value

Both in the Amazon and globally, there is a *sense of urgency* -- indeed emergency -- which is inspiring change. Public and market scrutiny is growing so fast that most political parties and corporations can no longer ignore it. Many motivated government, business and civil society leaders believe that it is time to make change happen – dialogue, yes, but also action. Whether they come from government, business or indigenous groups, these leaders have launched the initiatives described in Sections 3 and 4 – the 'glimpses' of more inclusive and sustainable approaches to development in the Amazon that can be learned from.

But there is a *challenge of fragmentation*. Many initiatives are unknown to each other and only deal with one issue. Such single-issue initiatives may mean well but can have unintended consequences, for example, a focus on carbon that excludes biodiversity and local people's diverse needs. Single-stakeholder initiatives do not combine enough powers and mandates to make change happen. Top-down policy initiatives may be fast-acting but go nowhere, if they are not well informed by bottom-up social demands. With their proven ability to effectively link issues, stakeholders, resources, FAS and GEC can use their platforms, evidence base and networks to catalyse real change that works for all.

GEC and FAS have reviewed the *evidence* brought together in this paper, and have held initial discussions about moving forward. They are convinced that a *new vision* is desirable and possible, of an inclusive and sustainable Amazon green economy which enables people and nature to thrive together, at no cost to economic growth and indeed supporting growth (5.1 below). They believe that a *new approach to decision-making* is both needed and within reach based on the lessons of how transformative change has already been achieved (5.2). And they have outlined a *strategy* and a set of practical and proven *activities* (5.3) to shift from the prevailing deforestation economy which excludes many stakeholders, to an inclusive green economy based on standing forest. But GEC and FAS also recognise that change will not happen simply because two institutions, enlightened though they are, have defined an agenda. Stakeholders will be centre stage, starting with encouraging feedback on this paper. To support a potential Amazon green economy partnership coming together, FAS and GEC have recently agreed to establish a new *Amazon Green Economy Hub*. Part of the GEC global network of Hubs, it will support stakeholder engagement, dialogue, learning, leadership and concerted action (5.4).

5.1 A new vision of an inclusive and sustainable Amazon green economy enabling people and nature to thrive together

This Inclusive Green Economy Vision demands a fresh look at how the economy serves people and nature. We envision an economy that invests in standing forest and not, as before, on deforestation. An economy that is based on good science and long-term knowledge – and not on outmoded paradigms and short-term opportunism. An economy that is geared to deliver the host of values important to many people in their diverse Amazon settings as well as unique global public goods – and not simply the desires of small elites. An Amazon green economy will sustain:

- *forest peoples'* rights, needs and full inclusion in economic decisions and activities
- *local* needs for income and livelihoods; food, water and energy security; education and health; identity and other SDGs
- *national* needs for jobs and economic growth in forestry, farming, fisheries and tourism, as well as the clean water and air that intact forests provide to key economic sectors
- *global needs* for biodiversity, carbon storage and climate regulation

5.2 A new approach to decision-making based on lessons of transformative change

The transition to inclusive Amazon green economy will entail shifting from the business-as-usual 'deforestation economy'. This will be tough, and new tactics will be needed to overcome the underlying causes of the Amazon's problems (2.3). This proposal draws from FAS's and GEC's collective lessons of achieving success:

- *Value-based change: transformation takes off when it is based on what people most value.* In the past few decades, forests have been altered in ways which no longer deliver what most people value. Commodity- and consumer-driven approaches to the forest have delivered only a meagre income to most producers, while producing a major waste burden and disrupting communities and environments. With such losses, people are realising the many values intact forests provided that create real well-being *(buen vivir)*. Dialogue and communication of shared forest values and how best to realise them can improve the appetite to change things for the better.
- *Movement-based change: economic reform is the work of a broad 'movement'.* Lasting change comes from mobilising stakeholders of all kinds. Simply preparing a written policy risks producing an impotent 'planners' dream' that does not change behaviour. Unless people demand an inclusive green economy – as consumers, employees, voters, and civil society leaders – it will remain a top-down or intellectual idea. Embedded in genuine social movements, however, it will survive investment and electoral cycles. Such policy briefs are important to provide clear and solid message to collectives and movements -- but they are not enough. NGO, universities, think tanks and progressive governments shall foster discussion forums and learning groups to assess and improve the effectiveness and efficiency of public policies.
- *Evidence-based change: transformation is spurred through robust scientific and economic information as well as diverse local experience and knowledge.* Generic and moral arguments about 'saving the Amazon' are not enough. Interdisciplinary science is essential to keep a close eye on (a) interacting environmental, social and economic trends and tipping points and (b) the potential of well-managed forest capital. It is critical that the case for action is based on robust economic analysis from many angles; for example, cost/benefit/risk analysis and capitals assessments. There must also be a practical focus on promising economic activities -- such as inclusive and green SMEs and job-creating activities -

- while addressing fiscal matters like government revenue and expenditure, fiscal burdens and opportunities. In addition, it is crucial to engage traditional indigenous knowledge, which is proven over centuries and evolving, and yet under threat by modern hegemonies. It is vital to make effective connections between technical and traditional knowhow.

Recent evidence demonstrates what is now possible. Recent high-resolution macro-economic modelling has shown that farming and cattle rearing in the (Brazilian) Amazon are not better than sustainable use of forests in terms of stimulating economic growth. Furthermore, "even a zero-deforestation policy to meet Brazil´s climate targets would only lead to 0.62% losses of national GDP accumulated up to 2030. The losses would, however, be concentrated in the agricultural frontier and in low-skilled workers and poorer families. This calls for measures to achieve a just transition." (Ferreira and Poschen 2019)

- *Empowerment-based change: transformation comes about only when actors have the rights, powers, tools and resources to be part of the planning, the action and the assessment.* Indigenous and traditional forest-based groups have been claiming this for years, and now need to be supported by leaders, and practical financial, business and technical assistance. This demand is not just based on forest peoples' rights but on an economic-oriented approach, as an optimisation of resources. These peoples have been managing the forest for millennia. They know where the resources are; they know how to manage the land, achieve good harvests that avoid pests and diseases; they know how to produce within environment's capacity; and they are able to contribute immensely to global challenges with nature-based solutions. Therefore, including them within the decision-making is "smart for the businesses!"
- *Time-based change: economic reform will not be quick but requires a mix of urgent and long-term views.* The current sense of crisis and rising new opportunities can hasten action, but effective reforms are the work of generations. Solutions will be specific to the context and should be easy to adapt – it is not a question of rolling out a standard model. Any programme addressing economic reform will need a decade of concerted action but start with an inception period. With so many factors, stakeholders need to come together to plan.
- *Practical 'what works in the Amazon' approach to change*. To take off, reform needs to be confidence-inspiring and easily managed, where possible using proven approaches that also offer strategic and operational opportunities to be applied widely. Section 3 described much ongoing progress in the Amazon, including sustainable forest MSMEs and supply chains, indigenous people's progress in *buen vivir*, FAS's 'standing forest' programme, Brazilian state governors' and Brazilian banks' progressive intentions for sustainable development, and new scientific and business exploration of Amazon bioeconomy supply chains. Section 4 described international progress of relevance, some of which can support the Amazon. Many of the initiatives described will. They need to be recognised; their mandates, powers and resources explored further; and brought together.
- *Collaboration-based change: transformation cannot be achieved either by one organisation or by one government.* The challenges of any regional context demand regional solutions. An accepted forum is needed in which the stakeholders can interact within the region to agree those solutions, and to overcome the different power structures, disciplinary and sectoral silos that can make a systemic transition impossible. FAS has developed an 'institutional ecosystem' that works well with government and pioneered ways in which future institutions could serve an inclusive green economy. Several of these have inspired public policies, for example, Bolsa Floresta (Standing Forest Programme) and Early Childhood Programme. The GEC has focused on providing a convening platform, aligning the many

players with which it needs to work and has helped reach global agreement on the principles for inclusive green economy.

5.3 Towards a new Strategy and Programme for Inclusive Amazon Green Economy

This section outlines a *strategy* that will be developed during 2020-21. Following a decade of learning and best practices, FAS and GEC have been able to identify key milestones highlighting the shifts from 'deforestation economy' to an 'inclusive green economy' – and the elements of the transformative strategy needed to make the shifts. This has been explored in this paper and is summarised in Table 1 below.

The outline strategy in this first paper will be finalised and supplemented by a more detailed *collaborative programme* of action in a second paper, following consultation with potential partners and close stakeholders later in 2020.

- *What will we aim for?* A sea-change in how Amazon economies are shaped and governed. This will involve rewiring policy, business, technical and financial conditions to lay the foundations for a significant expansion of people-centred activities that make forests worth more standing than cut.
- *What work will we do?* A coherent set of work streams will be designed, based where relevant on FAS and GEC precedents, and each involving a mix of research, engagement, empowerment, MEL, and communications. They will be scoped through an inception year of dialogues, diagnostics, and learning. They might include:
    - *'Barometers'* describing progress, barriers and trends towards inclusive green economy for Amazonas, Brazil and/or the Amazon region, similar to GEC's baselines for other regions.
    - *MSME support programmes* in the field to grow the many kinds of MSME that would use indigenous biodiversity as a basis for inclusive 'bioeconomy' value chains, and potentially to support restoration projects.
    - *Multi-stakeholder dialogues and platforms* to assess and design policies, laws, standards, fiscal regimes and investment incentives, and to generate support for reform from businesses and civil society. The initial focus would be to accelerate inclusive bioeconomy activities. The ultimate ambition would be to shape governance reform.
    - *'Trackers'* of policy commitments, to improve transparency, accountability and learning.
- *Where will we work?* The programme's geographic focus would be scoped in the first year. The criteria for selection may cover timeliness and opportunity for 'quick wins', scope for significant learning among stakeholders, potential for scale-up and major long-term impact, and high political and financial leverage. So, for example, the inception year would look at cooperation with other initiatives, for example, UN-PAGE in Mato Grosso (including a state-wide social Accounting Matrix) and the work of the GEC Hub in Peru. It is expected that the programme will eventually support at least one major programme at each of four levels (the descriptions below are illustrative only):
    - *Amazonas State* – to learn from and extend the good progress made to date through the FAS partnership with the state government; to support the state government and ABio as bioeconomy leaders; and to facilitate exploration of governance reform towards an inclusive green economy. Within Amazonas, there may be focal areas e.g. expanding FAS' work beyond the 16 areas where it currently works; a big scale-up of MSME support for different value chains; support to green fiscal reform; and work in Manaus as an urban centre influencing the forest economy.

- *Brazilian Amazon* – to support exchange of learning and dialogue across Brazilian states, the development of FAS-like programmes in other states, and policy reform to eliminate deforestation in supply chains and support sustainable MSMEs.
- *Wider Amazon region* – to network and learn from inclusive green economy initiatives within the region with the aim to present good evidence and policy options for dialogue at regional level. A big focus on better economic evidence to add to environmental evidence and to shape the case for 'what is in the national interest of all Amazon countries'.
- *Global* – a way will be found to meet growing demand for exchanges of knowledge, ideas and learning on sustainable economic models for major forested region, perhaps with Southeast Asia and/or the Congo Basin. In addition, many countries are actively looking at 'beyond GDP' measures of economic success, and so much could also be gained from both technical and cultural exchanges on well-being (*buen vivi*r) issues in forest economies. Finally, the macro-economic constraints and benefits associated with national green economies will be brought into dialogue in international fora that shape global economic 'rules of the game'.

5.4 Combining institutional strengths, facilitated by two catalysts for change: FAS and GEC

- *Who will be involved?* The partners, and their roles, responsibilities, relationships and rules will be firmed up in an inception year. It is already clear that the changes required cannot be achieved by one organisation alone. Many institutions with different mandates, assets and powers need to come together and/or be influenced to build an inclusive 'Amazon green economy institutional ecosystem' that itself pioneers ways in which future institutions could serve an inclusive green economy.
- *How will the stakeholders come together?* FAS and GEC have been at the heart of, respectively, Amazon and global progress in inclusive green economies. Together they can offer the convening platform required. FAS has operated as a 'meso' institution brokering between governments, communities and businesses, and providing a means to learn. GEC was set up as a convening organisation to provide a level playing field between different government departments with varying degrees of political power, civil society, and business. FAS and GEC both believe that sustainable development can be achieved through the right kind of economic activity, often through MSMEs. They each have compelling communications, knowledge management, and influence with political and financial authorities. Both see ways to turn the Amazon crisis around, and are ready to expand their geographical work to include the wider Amazon. FAS has a proven track record in Brazil's Amazonas State, it has attracted major regional and international funders, and faces many demands to help other Amazon states and countries. GEC's work with support from foundations and multilateral donors, is proven in seven countries/regions. It now wishes to support a new Amazon Hub to help shape economic activities and economic governance for a very high-profile region to foster an inclusive Amazon green economy. Together, FAS and GEC will support:
    - *A new Inclusive Green Economy Hub for Amazonia:* FAS will host the Hub, which will be staffed early in the process, similar to other regional/country hubs in GEC's network. The GEC Global Hub in London will facilitate international exchange and learning with other Hubs.
    - *A well-networked 'Amazon green economy institutional ecosystem':* An inclusive partnership will evolve over the programme's lifetime. It will bring together those who can contribute in different ways, for example, indigenous people and other local communities investing in their own assets; business leaders and companies investing in finance and technology; civil society groups pressing

for reform towards inclusion and sustainability; state governments investing in enabling policy, fiscal instruments and infrastructure; economists and scientists investing their knowledge and research time; and an 'outer circle' of national and international funders and service providers who can support them.

"Today, we stand exactly in a moment of destiny: The tipping point is here, it is now. The peoples and leaders of the Amazon countries together have the power, the science, and the tools to avoid a continental-scale, indeed, a global environmental disaster. Together, we need the will and the imagination to tip the direction of change in favor of a sustainable Amazon."

(Tom Lovejoy and Carlos Nobre 2019)

REFERENCES:

- Amend, M., Gascon, G. and J. Reid. 2007. Beneficios economicios locais de areas protegidas na regio de Manaus, Amazonas. Megadiversidade 3: no 60.
- Bass et al 2016 – Pro-poor, inclusive green growth
- Butler R, 2019. The Importance of the Amazon Rainforest. Mongabay.
- CBD, nd. Biodiversity and the 2030 Agenda for Sustainable Development: Technical Note
- CEPAL, 2013
- Davidson, E., de Araújo, A., Artaxo, P. et al. The Amazon basin in transition. Nature 481, 321–328 (2012). https://doi.org/10.1038/nature10717
- Elias F, J Ferreira and 11 others (2019) Assessing the growth and climate sensitivity of secondary forests in highly deforested Amazonian landscapes. *Ecology*, 16 December 2019.
- Ellison, David, et al. "Trees, forests and water: Cool insights for a hot world." Global Environmental Change 43 (2017): 51-61.
- FAS Relatórios de Atividades 2016, 2017, 2018
- FAS Dez Anos (2018)
- Feldpausch, T. R., Lloyd, J., Lewis, S. L., Brienen, R. J., Gloor, M., Monteagudo Mendoza, A., ... and Alexiades, M. (2012). Tree height integrated into pantropical forest biomass estimates. Biogeosciences, 3381-3403.
- Ferreira J and P Poschen. (2019?) About trees and people: what works for development, employment and the environment in the Brazilian Amazon? Revista De Estudios Brasileños Vol 6, No 11
- Garcia J *et al* 2019. Mid-Term Evaluation Report on the Effectiveness of the Amazon Fund 2008-2018
- GEC Barometer
- GEC tracker
- GEC Principles, Priorities and Pathways
- Giannini, T.C., Cordeiro, G.D., Freitas, B.M., Saraiva, A. M. and V.L. Imperatriz-Fonseca. 2015. The Dependence of Crops for Pollinators and the Economic Value of Pollination in Brazil. Journal of Economic Entomology 108 (3): 849-857.
- Halle, M. 2010. An Agenda for the "Super Year for Nature". GEC Insights
- Jauregui et al 2011
- Jenkins, C. N., Pimm, S. L. and Joppa, L. N. 2013. Global patterns of terrestrial vertebrate diversity and conservation. Proc. Natl Acad. Sci. USA 110, E2602–E2610.
- Kunert, Norbert, et al. 2019. A revised hydrological model for the Central Amazon: the importance of emergent canopy trees in the forest water budget." Agricultural and Forest Meteorology 239 (2017): 47-57.
- Lapola, D. M *et al* 2018. "Limiting the High Impacts of Amazon Forest Dieback with No-Regrets Science and Policy Action". PNAS 115
- Lima L 2019 – Governança em Unidades de Conservação: desenvolvimento sustentável como combate a pobreza e desmatamento
- Lovejoy TE and Nobre C (2019) Amazon tipping point: Last chance for action. *Science Advances* 20 Dec
- Marques, José, Eneas Salati, and Jesus Marden dos Santos. "Cálculo da evapotranspiração real na Bacia Amazônica através do método aerológico." Acta Amazonica 10.2 (1980): 357-361.
- McSweeney, R. 2015. "Amazon Rainforest Is Taking Up a Third Less Carbon Than a Decade Ago". Plants and Forests. 18 March 2015.
- Moutinho, Paulo and Schwartzman, Stephen. (2005). Tropical Deforestation and Climate Change.
- Nobre, A.D. 2014. The Future Climate of Amazonia: Scientific Assessment Report. ARA: CCST-INPE: INPA. São José dos Campos, SP, Brazil
- Nobre I and C. Nobre. 2019. Amazon 4.0 Project: Defining a Third Way for the Amazon. *Futuribles em Português* nº 2, September 2019
- OECD. 2019. Greening development cooperation: Lessons from the OECD Development Assistance Committee. The Development Dimension, OECD Publishing, Paris

- Ometto, JP, A Aguiar and L Martinelli. 2019. Amazon deforestation in Brazil: effects, drivers and challenges. *Carbon Management* Volume 2, 2011 - Issue 5
- Otsuki 2013
- Paca et al 2019
- Portela, R. and I. Rademacher. 2001. A dynamic model of patterns of deforestation and their effect on the ability of the Brazilian Amazonia to provide ecosystem services. Ecological Modelling 143: 115-146.
- Principles for Responsible Investment and Ceres (2019) Investor statement on deforestation and forest fires in the Amazon
- PRI, UNEP Finance Initiative and UN Global Compact. 2019. The Amazon: a critical climate tipping point
- RIVAS, A.; MOTA, J. A.; MACHADO, J. A. C. (org.). (2009). Instrumentos Econômicos para a Proteção da
- Amazônia: a experiência do Polo Industrial de Manaus. Curitiba: Editora CRV.
- Salati, Eneas, et al. "Recycling of water in the Amazon basin: an isotopic study." Water resources research 15.5 (1979): 1250-1258.
- SDSN data and graphics e.g. https://www.sdsn-amazonia.org/ptamazonia
- UFRJ, 2018
- UNDP (2018) Environmental and Social Assessment of Brazil's Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAm)
- Vanderbroek et al 2014
- Verweij, P., Schouten, M., van Beukering, P., Triana, J., van der Leeuw, K. and S. Hess. 2009. Keeping the Amazon forests standing: A matter of values. WWF Netherlands.
- Viana, V 2010 – Sustainable Development in Practice: Lessons Learned from Amazonas. IIED
- Viana, V 2018 – Promovendo soluções participativas para o desenvolvimento sustentável na Amazônia
- Viana, V 2019: Caminhos para uma Amazônia Sustentável Página 22 - December 5, 2019
- Walker WS *et al.* 2020. The role of forest conversion, degradation, and disturbance in the carbon dynamics of Amazon indigenous territories and protected areas, *Proceedings of the National Academy of Sciences*
- World Economic Forum. 2020. The Global Risks Report 2020
- World Wildlife Fund. 2019. Amazon Facts
- World Wildlife Fun. 2016. Living Amazon Report 2016
- Zanon, 2. (2019) Antonio Donato Nobre: "The forest is sick and losing its carbon-sequestration capacity" Mongabay 23 December 2019