GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

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DRAFT GEF-6 PROGRAMMING

DIRECTIONS Part II

(Prepared by GEF Secretariat)

SIGNATURE PROGRAMS

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INTRODUCTION

Integrated Approaches to the Global Environment in Support of Sustainable Development

Background

1. Over the course of 22 years, the GEF has built a solid portfolio of projects and programs in developing countries through the provision of $11.5 billion in grant resources destined for the protection of the global environment, involving a wide variety of agencies, governments, civil society organizations, private sector and other players. This collective body of investments has inspired the Scientific and Technical Advisory Panel (STAP) to articulate GEF's potential mission as one of "Securing the sustainable delivery of global environmental benefits through [investments in] collective action to sustain Earth's life-support systems, resulting in improved human well-being and social equity".

2. STAP further proposed a set of GEF initiatives that advance an innovative conceptual framework to "improve the relevance and effectiveness of the GEF in delivering support to the emerging post-2015 global sustainable development agenda". This approach would be cross-cutting in nature and directed at some of the underlying drivers of environmental degradation globally and within priority regions. These pilots would complement the GEF focal areas strategies in the upcoming GEF-6 portfolio, thereby promoting synergies and improving cost-effectiveness of the overall investments in the generation of global environmental benefits. Finally, this approach would seek to encourage early adoption and scaling up of projects and programs that overcome focal area silos and build on the necessary linkages that help achieve sustainable development goals.

Charting the Road Ahead

3. The UN Conference on Sustainable Development (UNCSD, or Rio+20) agreed that a new framework for sustainable development was urgently needed in order to achieve concrete action at multiple scales and across sectors. The consensus emerging from the Rio+20 outcomes document – The Future We Want – and from subsequent UN-led follow-up processes reveals that incremental gains and business as usual will not bring about needed transformative change, particularly when dealing with the global environmental system. Furthermore, despite significant progress in some areas, several prominent studies presented at the Planet Under Pressure conference in 2012, also associated with Rio+20, concluded that because the global environmental challenges are tightly interdependent, they require more systemic responses to solve them. Sector by sector or issue by issue approaches alone will not change the status quo or reverse some of the most worrisome trends for the global environment. This conference also embraced the framework of the "Planetary Boundaries" that define a proposed safe operation space for humanity over the next several decades against a set of pressure points deriving from overall drivers of environmental degradation.

4. The Framework for Action included in the Rio+20 outcomes document reiterated the original themes and the associated conventions established in the 1992 Earth Summit, and highlighted the role of the GEF in financially supporting these global efforts. But it also went further in identifying the remaining gaps that need to be addressed in order to build a truly transformative framework for sustainable development. An underlying principle that defines most of these gaps is the multi-disciplinary nature of both the threats to the global environmental commons and the solutions to them. The GEF operates across most of the priority themes and gaps identified in the UNCSD outcomes document, offering tremendous opportunities for GEF to become relevant to the post-2015 process while building on its existing comparative advantages.

Piloting a New Approach to Global Environmental Benefits

5. In order to strengthen the GEF as a prime financial mechanism mandated with the task of generating global environmental benefits, a new integrated approach consisting of a series of signature programs will support activities in recipient countries that, within the context of their sustainable development needs, can help them meet commitments to more than one global convention or thematic area by tackling underlying drivers of environmental degradation. Though GEF strategies are articulated by focal area, and draw closely on Convention guidance, innovative project design and implementation approaches can increasingly build on the existing inter-linkages and connections across the different focal areas, reflecting the multiple needs of recipient countries on the sustainable development front.

6. The synergies agenda is not being promoted by the GEF in isolation. The key environmental conventions, those that address the global environmental commons – United Nations Convention on Climate Change (UNFCCC); Convention on Biological Diversity (CBD) and the biodiversity-related conventions; United Nations Convention to Combat Desertification (UNCCD); the new mercury convention, and the non-binding United Nations Forum on Forests (UNFF) – themselves highlighted the inter-linkages that exist between their respective objectives, independently of the GEF. These conventions, many of which the GEF serves as a financial mechanism, recommended actions to promote complementarity and synergy in seeking multiple environmental benefits, while avoiding trade-offs between competing objectives or negative impacts arising from the lack of proper safeguards.

7. In summary, the GEF is arguably unique among multilateral funding mechanisms in being able to integrate various inter-linked and reinforcing objectives to promote cost-efficiency and higher impact of scarce resources directed at initiative with potential for transformational change. This, however, will require new ways for the GEF to conduct its business, including how it prioritizes and allocates financial resources.

Rationale for a Novel Way of Doing Business

8. STAP has recently recommended the scaling-up of projects and programs that can overcome GEF focal area silos and build on the respective inter-linkages that underpin focused action in the sustainable development arena. STAP goes further in recommending that while projects and programs within single or multiple focal areas must remain the foundation of GEF

operations, the overall delivery should also start seeking broader outcomes and address the key drivers of environmental degradation and not solely the pressure points. According to the STAP, a move towards an integrated approach to the environmental commons is bound to strengthen the relevance and effectiveness of the GEF in delivering support to the global sustainable development agenda. The GEF is uniquely positioned to leverage the existing inter-linkages between multiple thematic areas vital for the global commons, while making them more relevant to sustainable development.

9. This document proposes a series of signature programs to be initiated on a pilot basis as part of the GEF-6 programming, so as to begin delivering on integrated approaches that address significant but discrete challenges facing the global environmental commons. This new approach was conceived with the aim of identifying initiatives that could be selected through a filter that captured projects and programs possessing many or most of the following features:

(a) address key drivers of environmental degradation at the global or regional scales;
(b) address the time-bound nature of the concrete impact they seek to deliver, beyond which tipping points may be transgressed or the problems become too costly to revert;
(c) be able to build and improve on focal area synergies leading to GEF projects with greater and sustained impact;
(d) overcome some of the limitations of the country-by-country GEF programming modalities for projects and programs that require transboundary, regional and global scale interventions;
(e) let the GEF play a convening role by bringing key stakeholders upfront under a joint platform on a selected issue/theme;
(f) seek new modalities, incentives and opportunities for greater private sector engagement and enhanced financial leverage, thereby reinforcing GEF's catalytic role; (g) have direct relevance to the evolving post-2015 agenda and proposed Sustainable Development Goals (SDGs);
(h) improve evidence-based design and implementation to enhance learning and effectiveness of interventions.

10. Projects and programs that draw on these features can add significantly to the capacity of the GEF to generate global environmental benefits, in particular when the nature of the driver or threat cannot be dealt as effectively solely on a country-by-country basis. More importantly, by borrowing the mandate and legitimacy from its direct engagement with sovereign governments, from the environmental conventions they have committed to implement, coupled with the breadth of expertise residing of a comprehensive set of implementing agencies and partners, all point to the GEF as being uniquely well-equipped to play a key convening role in tackling systemic threats to the global environment. As it will become evident in the section describing the initial signature programs, GEF's convening role in this arena has already successfully been put to the test on many fronts – from regional cooperation focused on the future of the Amazon basin, all the way to bringing private sector, NGOs and governments together to clean the supply chain of commodities with a heavy footprint on forests and other native habitat.

Proposed Selection of Signature Programs

11. Drawing on these features, for GEF-6 five initial signature programs are proposed:

(a) Taking Deforestation out of the Commodities Supply Chain
(b) Rebuilding Global Fisheries
(c) Sustainable Cities - Harnessing Local Action for Global Commons
(d) Fostering Sustainability and Resilience of Production Systems in Africa
(e) A New Development Path for the Amazon Basin

12. Jointly tackling the issues of energy, water, and food – a major priority from the Rio+20 outcomes document - is essential for sustainable development. Therefore, two of the signature programs - *Fostering Sustainability and Resilience of Production Systems in Africa* and *Sustainable Cities* - build directly on the nexus between these themes for greater impact and efficiency in the overall investments. The latter program also offers a direct pathway to secure higher returns for the investment given that cities are now responsible for over 70 percent of carbon dioxide emissions globally. Some ecosystems are close to tipping points but the window of opportunity is still open for producing effective and targeted action. The programs on *Rebuilding Global Fisheries* and a *New Development Path for the Amazon* are good examples. The former will aim to produce the necessary reforms to rebuild coastal fisheries by leveraging significant investment for replication before coastal ecosystems become altered to the point of no return. The latter will look comprehensively at the development model for the region to enable a trajectory in which deforestation will not reach the level that can produce a systemic forest dieback, as envisioned in scientifically-robust modeled scenarios. Finally, the program designed to *Taking Deforestation out of the Commodities Supply Chain* will work with the private sector (producers) and consumers to tackle some of the principal drivers of forest loss in developing countries.

13. Interestingly, out of the five signature programs included in this proposal, four were also identified as priorities in the independently-produced study conducted by STAP (*Enhancing GEF Contribution to Sustainable Development*). This is a good indication of programmatic priority convergence that draws on the understanding of existing trends, potential for synergies and greater efficiency in project design and implementation.

Complementarity with Existing Focal Area Strategies

14. The proposed programs are not envisioned as substitutes for the suite of initiatives contained in the individual focal area strategies. Rather, the signature programs complement the focal area strategies and enhance the GEF's ability to fully meet their objective by bringing certain underlying drivers of environmental degradation under a sharper financial programming focus. The signature programs will build upon the synergistic approach that is being expanded in the programming of resources throughout GEF-5, particularly to promote the sustained flow of multiple global environmental benefits while ensuring that progress in a particular dimension of the global environment does not negatively affect other related objectives. Furthermore, they will seek to increase the cost effectiveness of GEF investments and ensure that global environmental benefits are resilient to climate change and other forces.

15. While there are risks involved in the implementation of more ambitious drivers-driven signature programs, they are not being proposed in a vacuum. A few GEF investments with integrated approaches to resource programming for higher impact are in the process of being tested through real-world implementation. During GEF-5, for example, the integrated approach to resource programming was reinforced by making the GEF a significant global funder of forest-related activities that deliver multiple global environmental benefits from the management of all types of forests, while enhancing resilience to a changing climate. By providing the links between the biodiversity, climate change mitigation and land degradation focal areas, the Sustainable Forest Management/Reducing Emissions from Deforestation and Forest Degradation (SFM/REDD+) incentive mechanism has supported the development of an integrated approach to forests within the GEF by offering a platform to maximize the opportunities for synergy between approaches and actors. This experience will serve well to the design and implementation of the signature programs.

Conclusion

16. In summary, the pilot signature programs offer the possibility of more targeted investments directed at reversing disquieting trends in the global environment, and to enable the GEF to address better the multitude of themes that defines its mandate now and into the future. In addition to the individual strategies developed to orient and prioritize GEF-6 investments in biodiversity, chemicals and mercury, climate change mitigation, international waters, land degradation and sustainable forest management, GEF is proposing to develop the appropriate incentives that can trigger the implementation of integrated signature programs. This combination of signature programs is, in no way, comprehensive to the extent of GEF's full potential to deliver discrete programs using this new approach. However we believe it is our responsibility to test this new approach and assess if this approach produces expected results needed to arrest worrisome degradation of global environment. We will have an opportunity to decide how to utilize the lessons learned for the future programing of the GEF.

COMMODITIES SIGNATURE PROGRAM

Summary

1. Global consumption of agricultural food and fiber commodities is an important driver of deforestation. As consumption of these commodities rises the impact on forest resources will be even more severe.

2. Production of beef, soy, oil palm, and pulp paper is responsible for 49 percent of the annual deforestation of primary tropical forests.[1] In addition to species and habitat loss, deforestation for these crops generates about half as many greenhouse gas emissions as all transportation globally each year.[2]

3. The program objective is to take deforestation out of the supply chains of these critical commodities by supporting action with producers, buyers, financial institutions, and national governments who are committed to this overall goal.

4. Activities are geared to produce results on the ground by sending clear market signals to reward primary producers who improve their performance and eliminate deforestation.

Vision

5. This signature program seeks to turn the sustainable production of key commodities from niche and specialized operations to the norm in each commodity sector. Success for this signature program will be the increase in supply of key commodities through means which do not lead to deforestation. Success will be identified throughout the commodity supply chains when each chain link produces, buys, or sells sustainable, deforestation-free products as a major part of their business model and that sustainable production, processing, and supply of these commodities is rewarded throughout the supply chain.

6. Success will be characterized by the following changes in behavior:
   - (a) Deforestation for the expansion of commodity supply is reduced and where commodity supply increases it does so through methods that are not predicated on deforestation.
   - (b) The area of sustainably managed land for commodity production and the quantity of sustainable commodities traded is increased in each commodity sector.
   - (c) Commodity supply chains are recognized and rewarded for being deforestation-free.
   - (d) Producers implement sustainable business practices that take due consideration of environmental, social, and economic perspectives.
   - (e) Investment in the production and processing of these commodities supports sustainable practices and avoids unsustainable practices and deforestation.

[1] Boucher, D. et al. (2011) The Root of the Problem: What's Driving Deforestation Today? Union of Concerned Scientists

[2] World Future Council (2007) The Sky Is the Limit! World Future Council Position on Energy and Climate Change

Problem Statement

7. The term agricultural commodity describes a class of goods that includes products such as barley, beef, canola, cocoa, coffee, corn, cotton, live cattle, oats, orange juice, palm oil, paper, pulp, rice, rubber, soy, sugar, and wool. Commodities are fully or partially fungible – the market treats all products as equivalent without regard to who produced them. The supply and demand for commodities is therefore heavily influenced by being a part of one global market and price is determined as a function of its market as a whole. One of the effects of commoditization is that the market can be volatile, quickly and heavily influenced by trends and predictions of future supply and demand. For example, both a rising global population and a sharp decline in food crop production in favor of a sharp rise in biofuel crops helped cause a sharp rise in basic food commodity prices.

8. Agricultural commodities are a key element of economic growth in rural areas of emerging economies. Agricultural commodities account for 10 percent of developing countries' gross domestic product. In 2010-11, the GDP of more than 100 countries grew by 5percent or more per capita (these countries include some 60 percent of global population).[3] Increased consumption of animal protein, especially beef but also dairy, pork, poultry, and seafood produced with aquaculture feed made from soymeal, is a major driver of regional deforestation and global climate change, and warrants greater policy attention. In the coming decades, the increasing world population, economic growth, and changing diets are expected to cause a sharp increase in the demand for agricultural commodities. Food production will need to double by 2050, yet agricultural production is threatened by numerous factors such as climate change, water scarcity, soil degradation, and competition for arable land.

9. Such growth in production has implications for the environment that must be managed in order to maintain the natural capital upon which this desired growth will be developed. The implications for food alone are staggering. Estimates for increased food demand suggest that it will be necessary to increase global production by 70-110percent by 2050 to meet increased demand for food, feed, biofuels, bioplastics, and personal care products.[4] Put into context, as much food will have to be produced in the next 40 years as has been produced in the last 8,000.[5]

10. Growing more food cannot come at the expense of ecosystem services that provide water, regulate the climate, and otherwise support businesses and human life. Today, the production of food and fiber is the largest single threat to the planet as we know it: it is the largest driver of habitat loss and uses twice as much water as all other human uses combined; and more chemicals than any other human activity. It is the largest source of pollution and the largest single source of greenhouse gas emissions.

[3] From World Bank online databank http://data.worldbank.org/
[4] WWF (2011) Theme 2.2. "Contribute to Food Security by Optimal Use of Water", Core Group Session Proposal, Final Draft, 6th World Water Forum
[5] WWF (2012) The 2050 Criteria Guide to Responsible Investment in Agricultural, Forest, and Seafood Commodities

11. The volatility inherent in commodity sectors, coupled with low barriers to entry and low start up investments, often results in expansion in locations where governance and technical capacity may already be limited and cannot match the demands arising from the rapid increase in commodity production. Impacts on natural resources and ecosystem services are therefore overlooked or left unaddressed. As commodity expansion often outpaces clear analysis and careful planning, the lack of environmental, social, and food safety protections pose significant environmental, development, and business risks. Business risks include less predictable raw materials supplies, diminished quality, interruptions in processing, reduced speed to market, and loss of confidence by a large and growing group of concerned consumers. However, it should also be acknowledged that over the past 23 years, precisely when the GDP of some two billion people has been doubled, more than 100 countries have downgraded protected areas or removed protection entirely.

12. Although agricultural commodities are grown in many places across the world, a small group is of particular importance for the GEF due to magnitude and significance of their impact. This is related to the source of the commodity and the rate of expansion of the area dedicated to it. Additionally, commoditization of some products has resulted in supply bases and chains in which relatively few actors control large portions of world supply. Where these actors are amenable to improving supply chain control and addressing supply chain impacts they have a latent potential that may influence a far larger portion of the commodity market. Hence, although many agricultural commodities are undergoing expansion, the GEF will target only a limited number that exhibit high environmental impact and the potential for high return on GEF investments in the form of sustained global environment benefits.

13. Within this context, global demand for soybeans for animal-feed and cooking oil, oil palm for cooking oil and biofuels, beef for domestic and international markets, and plantation pulp for paper, biorefining and bioenergy are at historical highs and will continue to grow as incomes and consumption increase globally. While the demand for commodities grows, the supply of available land continues to shrink. Since most of this expansion is concentrated in the tropical rain forests of Amazonia, Central Africa, and South East Asia with high levels of biodiversity, agricultural production must be reconciled with other societal objectives such as forest conservation, maintenance of ecosystem services, and climate regulation.

14. Expanded production of all four commodities is linked through dynamic, multi-national land use change driven by increasing population and affluence. The production of these commodities creates negative environmental and social impacts while also creating development opportunities for global rural communities. The current situation requires action to address the immediate impacts of commodity expansion, and identify the loci and implications of future commodity expansion and provide the basis for strategic interventions to ensure growth within a sustainable development pathway.

15. Although deforestation has decreased in the Brazilian Amazon since the mid- 2000's[6], the expansion of cattle ranching continues to drive deforestation in virtually all Amazon-basin

[6] Official data from National Institute of Space Research (INPE): http://www.inpe.br/ingles/news/news.php?Cod_Noticia=271

countries. During the last decade, the removal of many policies that stimulated deforestation was offset by increased influence of global markets. For example, the increased demand for soy meal for livestock and poultry feed plays a significant role in deforestation dynamics; directly by increasing conversion of forest for soy cultivation, and indirectly by displacing existing cattle production onto the forest frontier. Indeed, many cattle ranchers who own properties suitable for soy production have sold their holdings with significant capital gains, enabling them to expand their herds, and purchase even more land in forested areas where prices are lower. The time is right for GEF intervention because beef production is increasingly concentrated in a small number of large and increasingly market-sensitive producers. The sector is already sensitized and addressing sustainability through movements such as the Global Roundtable on Sustainable Beef, Brazilian Roundtable on Sustainable Livestock, and Argentina's National Grasslands Certification Program.

16. Cultivation of oil palm, the most productive edible oil crop in the world, has led to significant deforestation in tropical rainforests, particularly in Southeast Asia. Conversion of native forests for the establishment of oil-palm plantations to supply the global demand for cooking oil and bio-fuels has resulted in deforestation of biodiversity-rich natural habitats, loss of critically endangered species (i.e. orangutan, rhinoceros, tigers, elephants), and a significant increase in greenhouse gas emissions. The situation is aggravated when peat forest swamps (rich in soil carbon) are deforested and drained, increasing GHG emissions while becoming prone to fires. Expansion to the remaining forests in South East Asia as well as in the wetter regions of the Amazon and West and Central Africa is likely if productivity cannot be increased on existing lands and/or alternative lands identified for production. The potential impacts of such expansion are not clearly understood, but a window of opportunity exists to support expansion in a sustainable manner. Intervention is timely as the Roundtable on Sustainable Palm Oil (RSPO) is maturing into a credible process but is hampered by technical issues at source level and the absence of clear market demand despite increasing appreciation of the consequences of palm oil driven deforestation.

17. Soy is produced in both temperate and tropical regions and is a key global source of protein and vegetable oils. Soy is mainly used in two forms: soybean oil and soybean meal. Soybean meal is currently the largest source of animal feed in the world. Soybean oil is primarily used for cooking oil; however, its use in biodiesel production is rapidly growing. In 2011, Brazil, the US, and Argentina accounted for nearly 90 percent of global soybean exports.[7] China is currently the world's top importer of soy and is expected to expand purchases an additional 59 percent by 2020. The majority of the increase in soy production in the last decade has been in Brazil, an expansion that has contributed to deforestation in the Amazon, Atlantic Forests, and most significantly the Cerrado region. Soy production is also associated with negative social impacts in Brazil, Argentina, and Paraguay, as the concentration of farmland in the hands of a few landowners has pushed small producers and communities off the land, encouraging exploitation of workers. The Brazilian government estimates that CO2 emissions associated with conversion of the Cerrado are equivalent to more than half the total emissions from the UK for 2009.[8] The Cerrado also safeguards a large percentage of the water resources of Brazil and

[7] FAOSTAT. Food and Agriculture Organization of the United Nations
[8] WWF (2011) Soya and the Cerrado: Brazil's forgotten jewel

neighboring countries, and the further loss of remaining areas in the Cerrado poses a major risk to water supplies. Similar negative impacts from expansion are present in Argentina in the Gran Chaco, Pampas grasslands, and Yungas forests. Action by the GEF now is appropriate as the increasing demand for animal feeds and biofuels is expected to foster another wave of soy expansion.

18. Even as the concept of the paperless office has taken root, the reality is that the information age coupled with increasing incomes has resulted in per capita paper consumption that is nearly four times previous levels. Fortunately, nearly half of all paper globally is recycled, but even this does not keep up with increases in consumption. As demand has increased, production has shifted to plantations, particularly in Latin American and subsequently in Indonesia where pulp plantations are more productive. Unlike many Latin American countries, Asian countries do not have laws against clearing of forests to establish pulp plantations. This issue is exacerbated by large pulp companies that also buy wood illegally, including from protected areas. The case for GEF intervention acknowledges the existing frameworks in existence following two decades of forest certification that can be utilized and the landscape level links with other commodities through which sustainable landscapes and ecosystem services can be developed. In addition the advent of new biofuel technology is expected to result in increased demand for biomass from forests which if carried out through business as usual modalities could lead to additional pressure on natural forest resources.

Opportunity Statement

19. Many initiatives already deal with commodity production. Most of these, however, are limited in scope to individual commodities, individual supply chains, individual countries or specific supply chain links. Although often successful at the focus of their efforts, this fragmented approach has not managed to implement comprehensive change within entire commodity sectors and ultimately have been unable to reduce the rate of deforestation resulting from commodity expansion. A new approach is necessary, one that capitalizes on these individual efforts while addressing those roadblocks along value chains and within commodities that prevent the widespread improvement in commodity production.

20. The key to success is the level of inter-relatedness between the production, processing, and supply of these commodities. The same companies are often involved in their production and processing, and are often invested in by the same finance institutions. This means that improvement in sectors depends on working with the same groups of actors. At the moment the fragmented landscape of sustainable commodity initiatives makes it difficult for actors to focus and affect change. Similarly, it is difficult for these actors to improve one commodity supply chain while other parts of their business continue practices that they condemn.

21. A window of opportunity exists during which changes to commodity production pathways can still be made before irreversible damage to natural resources is made. Taking advantage of this opportunity depends on an integrated commodity approach that not only removes the barriers along single commodity sustainable supply chains, but also harnesses the potential synergy and multiplying effect of addressing these four major commodities in a combined approach.

22. An integrated commodities approach is a means to leverage the growing public and private sector interest in promoting sustainable commodities through the use of common approaches and pooled investment. Such an approach can identify shared approaches and economies of scale that can bring about change within the various actors through entire supply chains, within producing countries, and at the global level. Long-term sustainability within commodities depends on being able to link long-term national policy-making and programs for sustainable development with day-to-day supply chain management approaches.

23. The GEF's Commodities Signature Program cannot take on all the diverse sustainability challenges facing commodity markets and supply chains. An integrated commodities approach identifies the most effective and appropriate entry points for support, whether supply or demand side, public or private, policy or technical based on full comprehension of market and supply chain structures and corresponding sustainability pressure points along and between the chains.

Program Strategy

How to Use Market Levers

24. Voluntary market based approaches have shown some potential to establish a new paradigm for commodities. However, experience highlights the mismatch between the impact on the ground and the scale and nature of the challenge. Responses must address the multiple challenges that continue to face the mainstreaming of sustainability within commodities.

25. Working with voluntary multi-stakeholder certification and standards is key for getting trade and industry involved in creating market dynamics. Market demand and producer premiums have shown only limited results; moreover, civil society can only support a small number of fragmented and competing development or capacity-building projects. For example, while forest certification was created to address tropical deforestation, certified forest is located mainly in northern temperate regions with only 2 percent of tropical forest certified, and certification has had limited impact on deforestation rates of tropical forests.

26. Market-driven demand and development projects are not structural alternatives for good local governance, well-functioning legal systems, effective local extension service systems, accessible formal credit structures, national tax and incentive schemes or other public services. Responses must go beyond voluntary certification in order to systemize and scale up green commodity programs and initiatives to mainstream levels, and to help shift markets towards the production and sale of sustainably produced commodities. It is necessary to institutionalize the conditions for sustainable production by building capacities, increasing market access, and providing support for new innovative financial mechanisms and policies. Investment and development needs at any given location and within any commodity supply chain will vary depending on the local conditions demanding tailored responses. At the same time, a whole chain approach can work with national governments to create positive enabling conditions, link brands and retailers with national programs to benefit businesses, rural populations and supply chain actors to reduce deforestation and build sustainability throughout the chain.

27. This program will therefore seek to support action with four different sets of actors committed to this overall goal:

(a) Financial institutions investing in commodity value chains at national, regional, and global levels;
(b) Buyers (any or all of the following - traders, processors, brands, and retailers);
(c) Producers – at a range of scales from smallholders and SMEs to multinational companies;
(d) National governments – through developing the enabling conditions for sustainable practices.

Role of GEF in the Commodity Space

28. The GEF's global scope, long experience, and the ability to function across sectors puts it in a unique position to stimulate real change within the most important commodity sectors. GEF has the ability not only to convene across and within these sectors but also has the technical capacity to identify specific barriers to progress and the experience to formulate a cohesive approach that is unachievable through existing single project or program modalities.

29. This integrated commodities approach marks a paradigm shift for the GEF's operational modalities. This approach moves the GEF away from its normal model of support largely to national governments and develops one which reflects the range of actors involved in the production of the four key commodities. While governments play the principal role in setting policy and leading governance, in most countries the majority of activities on the ground related to commodity production (e.g. forest conversion, commodity husbandry, processing and financial services) are almost exclusively carried out by the private sector – although these may range from smallholders, micro- and SME, to larger national and multinational companies.

30. Adopting this approach widens the GEF's sphere of influence and allows it to engage, support, and partner with a breadth and depth of stakeholder groups far in excess what has so far been possible. It is the potential of engaging with these new partners and stimulating mutually supportive efforts both within and between commodities that presents GEF with the opportunity to catalyze the development of sustainable, business-smart solutions for global commodities.

31. This new operational modality also removes the barriers inherent in current allocation models within which the focus on national interests has limited the regional cooperative processes necessary to deal with global commodities. Additionally this approach recognizes that realigning commodities along sustainable development pathways cannot focus exclusively within the countries that produce the raw materials. The globalized nature of commodities means that only through engagement with the correct actors and stages – which may well be located in other parts of the world – will the true potential of a market based approach be realized.

32. In particular this approach would allow GEF to take innovative steps to engage with actors providing investment finance to these commodities, building on GEF's past experience in developing trust funds and supporting novel mechanisms for finance in natural resources such as payment for ecosystem services.

Supporting Convention Objectives

33. As finance mechanism to the UNFCCC, UNCBD, and UNCCD, the GEF plays an important role in supporting global forest management and conservation. The three Rio Conventions have made clear the importance of forests to achieving their individual objectives. This signature program will be able to address the common goal of reducing and avoiding the loss of forest resources, and will support the following objectives:

(a) Aichi Biodiversity Targets (CBD decision X/2)
    (i) Target 5. By 2020, the rate of loss of all natural habitats, including forests is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.
    (ii) Target 7 By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity
(b) REDD-plus elements (UNFCCC decision 1/CP.16)
    (i) Reducing emissions from deforestation.
    (ii) Conservation of forest carbon stocks.
(c) DLDD and sustainable forest management (SFM) (UNCC D decision 4/CO P.8)
    (i) Reinforce SFM as a means of preventing soil erosion and flooding, thus increasing the size of atmospheric carbon sinks and conserving ecosystems and biodiversity.

34. The signature program also contributes to the UNFF Global Objectives on Forests (E/2006/42 E/CN.18/2006/18): Reverse the loss of forest cover worldwide through SFM, including protection, restoration, afforestation, and reforestation, and increase efforts to prevent forest degradation.

Program Framework

35. This signature program therefore has two key elements:
(a) Commodity supply chain interventions that stimulate improved practice on the ground and avoid deforestation, and;
(b) Undertaking of the Global Commodities Outlook as a means of identifying the future trajectory of global commodities, their impacts, and strategic opportunities for improving sustainability.

Component One: Commodity Supply Chain Interventions

36. The complexity, depth, and length of commodity supply chains and the additional intricacies of crossed or combined supply chains across multiple commodities provides a wide range of intervention opportunities along each chain and across each commodity. The GEF will support the use of a wide range of tools within four main intervention approaches:

(a) Engage global and national financial institutions;
(b) Engage consumers;
(c) Strengthen the enabling environment; and

(d) Support the uptake of sustainable and biodiversity-friendly practices by producers.[9]

37. Current analysis indicates that the following opportunities offer the greatest potential return on investment on GEF investments:

(a) Strengthen the Enabling Environment and Support the Uptake of Sustainable Practices by Producers: Improving Land-use zoning and Strengthening Capacity of Producer Groups to Achieve Producer Certification In Commodities Production.
(b) Engage Consumers: Using the Leverage of Public Procurement.
(c) Enhanced Investment in Sustainable Commodities: Focusing Finance on Sustainable Commodity Management Practices.

38. As the program develops further analysis will refine and focus the approaches identified below.

(a) Improving Land-Use Zoning and Strengthening Capacity of Producer Groups to Achieve Certification in Commodities Production

39. The primary issues cutting across all four commodities are comprehensive land use zoning of go and no-go areas linked to producer organization to achieve improved production and group certification.

40. Production expansion for all four commodities is linked to dynamic, multi-national land use change driven by increasing population and affluence that drives food demand, as well as national biofuel mandates. The production of these commodities creates negative environmental and social impacts while also creating development opportunities for global rural communities. Multi-stakeholder initiatives are developing standards to address sustainability issues within each of these agriculture industries. The standards, however, can only be part of the solution and tend to focus on the specific commodity. The solution is to address the land use patterns of agriculture commodity production within and across national boundaries that lead to loss of habitat and increased greenhouse gas emissions. National policies based on land use zoning must be supported and linked to the private sector market pull of commodity certification.

41. Land use zoning based on well-developed maps can be embedded into national policy and the sustainable agriculture standards. The zones will identify go and no-go areas by recognizing degraded lands suitable for rehabilitation to agriculture or grazing, as well as areas onto which expansion is prohibited due to carbon, biodiversity, and other ecosystem and social values. The combined market pull and legal enforcement of these zoning delineations can create the framework for sustainable agriculture expansion that does not cause deforestation.

42. Creating policies and linking them to certification based on zoned maps will not stop deforestation or greenhouse gas emission. Producers must be engaged and supported to certify their commodities as well as expand production intelligently. To enable uptake of standards in which land use zoning legislation is embedded, significant effort must be undertaken to organize

[9] See Annex 1 for a full discussion of these various intervention approaches.

producers (large and small) into group certification schemes. Such efforts should organize producers to implement better management practices to increase productivity on existing land and guide producers to expand onto the "go" areas, which typically will be degraded lands. This organization of producers will require upfront investment to organize them, at scale, to understand and implement programs to achieve the high level of performance demanded by global standards. Technical support will enable the inclusion of biodiversity, land degradation, and climate change issues into commodity management techniques. Verified avoided deforestation through the land use zoning coupled with group certification can also be linked to payment for environmental performance.

43. This combination of efforts across these four key commodities will alter the future of agriculture expansion at national and international scales. The results will improve producer livelihoods and halt deforestation through a combined pull by progressive policies and market demands through certification. These activities will send clear market signals to reward primary producers who improve their performance and eliminate deforestation. The program will also support those institutions that foster change on the ground with producers of the targeted commodities.

(b) Using the Leverage of Public Procurement

44. The potential contribution of public sector procurement to sustainability is evident in the size of its expenditure. The purchasing power of public procurement could develop markets for more sustainable products that otherwise might not emerge. Government spending is, however, fragmented in two important ways. There is frequently geographic division into separate authority levels (e.g. federal, state, municipality), and within an authority level major parts of the budget are allocated to officers in specific departments, such as education or health. Existing innovative approaches to public school food procurement have been used at local levels to promote sustainable development objectives related to economic, environmental, and social well-being, and some have achieved notably positive results. However, such innovative approaches remain isolated and fragile, and their benefits are not universally accessible. There is already growing body of evidence that authorities can put together a range of tools to enhance their impact on sustainable commodities. However, studies found that while many authorities integrated environmental considerations into their procurement policies, these initiatives were only rated as moderately successful, with a perceived lack of priority at senior level.

45. While sustainable public procurement is not a panacea for sustainable commodities, in specific circumstance the enabling conditions are available to implement efficient activities. For example, within beef supply chains in Brazil policies concentrate public procurement within sustainable supplies. Support for the increased roll-out of public procurement policies and their implementation could develop a significant domestic demand for sustainable products which would expand sustainability requirements across parts of the supply chain that international sustainability-sensitive market demands do not reach.

46. Public procurement can play a role in supporting sustainable commodities as a soft policy that can increase market demand for sustainable products, and in supporting hard policy decisions such as legislation. This modality utilizes the global reach of the GEF by stimulati

coordinated responses along the value chain which may be remote from the location of primary commodity production, to harness the potential of both supply and demand side interventions in unison. GEF will pilot this approach in a limited number of countries with nascent green public procurement frameworks and will seek opportunities for including additional countries as experience is gained.

47. Sustainable public procurement can improve framework conditions for business to innovate. By making full use of demand side policy, public procurement can support the shift towards a resource efficient and low-carbon economy, e.g. by encouraging wider use of green public procurement, and improve the business environment, especially for innovative SMEs. Initiatives that the GEF could support include:

(a) Departmental adoption of a Sustainable Procurement Policies;
(b) Dissemination of procurement-related sustainability information;
(c) Sustainability risk assessment for key contracts;
(d) Procurement officer training in sustainable supply;
(e) Certification to ISO 14001 or EMAS.

(c)Focusing Finance on Sustainable Commodity Management Practices

48. As the growth of commodities production increases to meet future demand, the flow of capital into expansion activities is also expected to rise. This presents an opportunity for the GEF to work with partners with whom GEF has had relatively limited connection but who undoubtedly have the potential to have a major influence on the future development pathway for commodities. Finance will be a major facilitator of expanding commodities production – it has the ability to support business-as-usual investments leading to further deforestation. However finance could target sustainable commodity investments that avoid deforestation.

49. Not only is investment in sustainable practices a good outcome for GEF partners in terms of achieving the goal of this Signature Program, it also may make investment choices much easier and reduce investment risk particularly in a high impact sector such as commodities. This component will contribute to emerging sustainable investment frameworks and novel opportunities for financing sustainable commodity production. It will promote responsible finance by stimulating investment flows to sustainable practices, such as preferential lending and credit terms that are directed to responsible commodity expansion operations and avoid operations which would lead to further deforestation. The initial range of opportunities that could be supported by GEF includes:

(a) Encourage the development of financial services to support biodiversity-friendly practices by producers and all actors along the supply chain. This would include projects to support financial institutions in adapting their policies and procedures to encourage sustainable supply chains. Encouraging commodity development on degraded land is critical – few commodity production sites are being established on the estimated one billion hectares of degraded land available. Most producers still sell timber and pulp wood as a by-product of site clearance to finance new developments. Reducing upfront costs or delaying the repayment of loans could create incentives for producers to rehabilitate degraded lands for production. For example, the increased value in land (developed vs. degraded) might provide an

opportunity to cover investment costs, but this would require making a credible financial case to lending institutions.

(b) Develop the biodiversity offset framework. Biodiversity offsets are measurable conservation outcomes resulting from actions designed to compensate for significant residual adverse biodiversity impacts arising from project development after appropriate prevention and mitigation measures have been taken. The goal of biodiversity offsets is to achieve no net loss and preferably a net gain of biodiversity with respect to species composition, habitat structure, ecosystem function, and people's use and cultural values associated with biodiversity. Until now biodiversity offsets have been organized on a case-by-case basis. While this flexibility has resulted in some good biodiversity outcomes, there is generally no guarantee that the offset will be managed for conservation or that there will not be pressure to develop the land in the future. The RSPO already has a framework for this process for plantations on land cleared after the RSPO cutoff date. The Signature Program will support the development of a consistent, robust, and transparent approach for offsets which could also be utilized by other commodities in order to compensate for residual impacts. Establishing a biodiversity offset framework across commodities allows offsets to be more strategically located. This encourages participants to locate offsets on large parcels of land, in areas better for conservation that can compensate for a number of developments, rather than piecemeal efforts negotiated individually. This mechanism would also help complete the circle that is initiated through the Signature Program's work on enabling frameworks of policy and planning, particularly land use zoning.

Component Two: The Global Commodities Outlook

50. The commoditization of a number of agricultural products in recent decades has seen global market forces result in environmental impacts far removed from the location of demand. Commoditization has also led to the concentration of production clusters in certain countries and regions around the world where rapid and large scale land use change is having an effect not only at the local level but also at the global level through climate change and the disruption of other earth systems.

51. As all predictions of the future demand for global agricultural commodities show upward trends, understanding international economic activity related to commodities and the resulting environmental impacts and potential future developments is crucial to being able to promote improved sustainability. Commodity production is expanding into new regions and countries, many of which have high biodiversity, climate change, and ecosystem service values. The risk is that without clear understanding of the impacts this expansion will herald a new wave of deforestation with consequences as or more damaging than witnessed thus far.

52. The Global Commodities Outlook (GCO) will assess the consequences of current and predicted future increased production of agricultural commodities and will identify the range of response options through the use of an integrated commodities approach. An integrated approach is needed to enhance the sustainability of these commodities and support the conservation and sustainable use of affected ecosystems by national governments, commodity producer and user groups, private companies, investors, and the donor community.

53. The GCO is a series of activities designed to assess the environmental impacts and shared responsibilities of all actors within the key commodity supply chains. The GCO will synthesize information from the scientific literature and relevant peer reviewed datasets and models. It will incorporate knowledge held by the private sector, research centers, academia, NGOs, practitioners, local communities, and indigenous peoples. The GCO does not aim to generate new primary knowledge, but instead will add value to existing information by collating, evaluating, summarizing, interpreting, and communicating to public and private sector decision makers to help influence the development trajectories for commodities. The GCO will apply the judgment of experts to existing knowledge to provide scientifically credible answers to policy questions around the sustainable production of agricultural commodities. The GCO will be developed through five interrelated elements:

(a) Commodity supply chain framework. Commodity supply chains are often complex and long. A single primary agricultural commodity can be or be part of an array of different products. In many cases the primary commodity is often unseen in the final product, making it difficult to analyze. Understanding the length, breadth and scope of the chain and its constituent stages is important for subsequent analysis. It is also important for identifying points of impact with other supply chains.

(b) Commodity supply and demand. The analysis of supply and demand statistics can provide an indication of existing geographic location, magnitude, and significance of environmental impacts resulting from supply chain activity. The analysis of commodity market trends can predict where future environmental impacts are likely to develop and materialize. This analysis will focus on analyzing country-specific trade flow statistics to determine the importance of specific countries for individual commodities. This will also support identifying both the geographic distribution of impacts and the potential roles of specific stakeholders as forces for change.

(c) Commodity environmental impacts. This element will assess the environmental impacts of global commodities at the key supply chain stages. Potential impacts could include: Biodiversity (impact on forest coverage, species counts); Climate change(carbon sequestration, greenhouse gas generation, energy use); Land use and quality (area used, erosion, soil pollution); Water quality and use (biological oxygen demand, pollutants, acidification and irrigation volumes).

(d) Commodity control points and spheres of influence. This element will aim to identify the distribution of market power and decision making authority across the supply chain and across specific supply chain actors. This would focus on players participating in and/or influencing decision-making along the supply chain, including those involved in the key supply chain stages but also financiers, futures markets, traders etc. This analysis would also identify where key influencing pressures lie or could be brought to bear for sustainability improvement, and may include potential market concentration, market leaders e.g. in standards setting and other governance initiatives. In addition this analysis will consider the international and national legal framework governing production, trade and consumption of the commodities.

(e) Commodity analysis and recommendations. This element will provide key policy recommendations for how public and private sector decision makers can improve

the sustainability of the agricultural commodities. In particular, it will identify key tools and methodologies and leverage points for stimulating changes in supply chain management and enabling more effective policy intervention to improve the sustainable production of agricultural commodities.

Implementation Plan

54. The Commodities Signature Program is envisioned to have two, four-year phases spanning GEF-6 and GEF-7.

55. In the first phase, the Signature Program will investment in specific stages of the commodity value chains that have been prioritized using criteria such as their potential to generate significant global environmental benefits, threat and opportunity profile, among others. A full implementation plan, along with outcomes, outputs, and associated targets will be determined during program development (September 2013 – June 2014). The first phase will also include the development of the Global Commodities Outlook, which will provide the platform upon which the strategy for the second phase of the Signature Program would be based.

56. As the Signature Program is cross-sectoral and multi-national, it would be necessary to develop a Signature Program steering committee that would include the GEF Secretariat. At the level of program interventions, the responsible parties would range from producers at site level (private sector), and Government for policy, zoning and land-use planning activities.

57. The Signature Program is being developed in association with a range of potential partner organizations. Although implementation arrangements are yet to be developed, WWF has considerable experience within the field of sustainable commodities and market based interventions and will play a role in the implementation of the Signature Program.

58. As the Signature Program develops there is potential to include participation of other GEF agencies depending on the final content of the program and what level of government agency engagement is required for the Signature Program's implementation. As the sustainable financing of commodities has already been identified as a major element of GEF involvement it would be necessary to involve one or more of the MDBs.

Funding

59. The GEF grant of $50 million will be specifically programmed according to the proposed intervention strategy, incremental to baseline investments from the partnering financial institutions, which are estimated at $150 million over the five years. Participating countries, in which the program will engage target consumers are projected to generate an additional $250 million in co-financing based on capital deployed to certified commodity product flow and through legislation that supports financial incentives and helps remove subsides and perverse incentives. Total co-financing is thus expected to be about $400 million, a leverage ratio of 1:8 of GEF funding.

Results Framework

Based on the problem and opportunity analysis, the Commodities Program will be implemented under the framework presented below.

Commodities SP Table 1 - Global Commodities Program Framework

Program Goal Sustainable production of key global commodities
Program Objective Remove deforestation from the supply chain of four key global commodities
Impacts Reduced area of deforestation linked to the expansion of key global commodities
Indicators Area of key commodities under certification. Quantity of key commodities traded as certified products increases. National frameworks for expanded commodity production consider sustainability issues.

Program Components	Expected Outcomes and Indicators	Outcome Targets	Core Outputs
Component One: Targeted Commodity Supply Chain Interventions	Outcome 1.1 Enabling environment conducive to supporting sustainable value chains in commodity production. *Indicator 1.1 Polices and regulations governing commodity production that integrates biodiversity conservation as recorded by the GEF tracking tool as a score.* Outcome 1.2. Increase in area of commodities produced using sustainable certified practices. *Indicator 1.2: Landscapes certified by credible internationally or nationally recognized environmental standards that incorporate legality and sustainability considerations in commodity production as measured in hectares and recorded by GEF tracking tool.* Outcome 1.3 Decreased rate of deforestation by commodity production *Indicator 1.3 Hectares of deforestation avoided*	1.1 Countries successfully create enabling conditions required (regulations and enforcement and monitoring mechanisms in place) to support the implementation of sustainable value chains in commodity production 1.2 Significant increase in area of commodity production certified. 1.3 Significant reduction in deforestation caused by commodity production.	Output 1.1 Policies and regulatory frameworks for commodity production (number). Output 1.2 Certified production landscapes (hectares). Output 1.3 Forest cover maintained (hectares). 1.4 Capital deployed to certified commodity product flow

Program Goal Sustainable production of key global commodities
Program Objective Remove deforestation from the supply chain of four key global commodities
Impacts Reduced area of deforestation linked to the expansion of key global commodities
Indicators Area of key commodities under certification. Quantity of key commodities traded as certified products increases. National frameworks for expanded commodity production consider sustainability issues.

Program Components	**Expected Outcomes and Indicators**	**Outcome Targets**	**Core Outputs**
Component Two: Global Commodities Outlook	Outcome 2.1 A global outlook of pressures, conditions, trends, scenarios, and response options related to the expansion of commodities is produced *Indicator 2.1 The GCO report is published* Outcome 2.2 The published findings of the GCO are widely distributed and used by key target audiences *Indicator 2.2 The summary for policymakers has been widely circulated. A web site is being widely used. Findings of the GCO are being quoted in the media by researchers and by national ministries and international environmental conventions.*	2.1 Findings of the GCO are used by global, national, and local institutions 2.1 Institutions adopt GCO methodology for use in commodity value chains other than those directly involved in the GCO.	2.1 Adoption of the findings by the relevant international, regional, national, and local authorities, NGOs and private companies (number) 2.2 Development of implementation strategies (number)

Annex 1: Main Intervention Approaches for the Commodities Signature Program

1. Engage global and national financial institutions. The GEF will work with a range of financial institutions (domestic and international banks, funds, asset managers and owners) that have leverage and interests in promoting more sustainable production and trade in the selected commodities. There is significant evidence that this community is growing and becoming more influential in the finance sector.[10] Creating a common set of risk management tools and commitments (i.e. policies, checklists, and procedures) across different financial sectors will help reduce capital flow to companies involved in deforestation. In parallel, the GEF will support testing of new financial products and services that create investment and financial returns as well as biodiversity (and wider environmental and social) benefits (for example, supply chain finance products, investment strategies and funds that create sustainable agriculture funds with higher returns.)[11] Governments could use this program to formally recognize and incentivize financial and economic benefits of more sustainable production (that could create revenue flows from new ecosystem service opportunities). The ultimate goal is to shift financial flows at scale and with speed to support the adoption of deforestation-free commodity production in the production, trade, and processing of the selected commodities, moving certified products from niche to norm in trade.

2. Engage consumers. The GEF will facilitate engagement with the ultimate drivers of deforestation: consumers of food and fiber commodities (and their derivatives) in both developed countries and emerging economies. Considering that income and consumption will continue to grow in the foreseeable future even if population stabilizes at between 9 and 10 billion, it is imperative to address overall consumption by engaging the consumer in the markets where consumption is growing most quickly: China and India for palm oil and paper; China, the US, the EU and Japan for soy (and as animal feed); and China and the US for beef. The GEF could build on existing initiatives to address this issue at the global, regional, and national levels. The goal should be to target key commodities and key consuming regions. The effort should be concentrated, informed by professionals, and aimed at sending consumer signals to multi-national retailers and brands. In the end, however, the goal of this program is to ensure that all products (starting with a few commodities and then transforming systems) on the shelf are certified as sustainable.

3. Strengthening the Enabling Environment. The GEF will support the development and implementation of an enabling environment to enhance the adoption of more biodiversity-friendly incentives throughout value chains. The enabling environment includes sufficient policies, laws, and regulations as well as national and international multi-stakeholder dialogue groups (roundtables) to foster changes in the value chain. The GEF-funded Biodiversity and Agricultural Commodities Program has engaged the private sector through commodity round

[10] For example, the work of the Banking Environment Initiative (which has aligned its commitments to create consistent investment policies that preclude deforestation in lending activities where the selected commodities are involved), the UNPRI Palm Oil Investor Working Group, and the work of a range of Central Banks globally to create domestic requirements that govern environmental and social performance of the banking sector (China being pre-eminent in this discussion).

[11] Some asset managers are already testing these markets, but the business case is not sufficiently clear or compelling to capture the interests of most mainstream asset managers. GEF support could help clarify the business case(s) and accelerate adoption/ uptake.

tables such as the RSPO and the Roundtable on Responsible Soy (RTRS). The proposed program will help strengthen the ability of producers to be certified against these standards, thereby ensuring certified production, reduced deforestation, and the legality of products that enter local and global markets. The GEF work could also support the development of approaches to certification that would allow producers to improve their performance one step at a time. In this sense, the first step to address would be legal compliance. The data suggest that many of the target commodities from the countries in question are not produced legally, e.g. the concessions are not legal, producers are not in compliance with regulations about deforestation and riparian area protection, or other basic laws and regulations in the countries in question are not being followed.

4. Support the uptake of sustainable practices by producers. The GEF will support the testing, documentation and adoption of Better Management Practices (BMPs) at the production level. These practices may be related to land use (i.e. biodiversity set-asides, integrated planning and management of palm-oil, agro-ecosystems, etc.) or input use (i.e. integrated pest management, rational use of water and fertilizer, no-till agriculture, rotational grazing, etc.). The GEF will also support zoning and land-use planning for the protection of high-conservation value habitats to prevent the expansion of cattle ranching and agro-business into inappropriate areas. In addition, the GEF will support efforts to rehabilitate degraded and underperforming lands in order to reduce pressure to expand plantations onto forested areas. These degraded and underperforming lands hold the potential to be more economically viable (e.g. higher internal rate of return and return on investment) for commodity production than clearing natural forests and high-conservation value habitat. GEF will support efforts to identify and map areas where production can be encouraged on rehabilitated lands that will be financially viable and take pressure off forests and high-conservation value habitat.

5. These biodiversity-friendly practices can come from the Biodiversity, Sustainable Forest Management, and Sustainable Land Management tool-boxes, making this an ideal place for synergies across the GEF. In addition, two other innovations could be supported in this space open source databases and cell phone extension services. The work could support the creation of commodity-specific, open-source databases where producers would be allowed access to information about how others improved performance, the investments or changes involved, the overall costs, and the payback period. The goal would be to make this a pay-to-play system, where in exchange for the information new producers get from the database, they are expected to provide information on their own experiences. The second innovation would be the development of extension services that can be accessed with cell phones. This system has been experimented with in Madagascar and the Sub-continent where millions of calls are handled each year. The goal here would be to focus on beef, soy, palm oil, and pulp.

Annex 2 Commodity Briefing – Soy

Commodity Production Profile

1. Soy is a globally traded commodity, produced in temperate and tropical regions. It is major source of protein and vegetable oils. Total world production reached 267,606,000 metric tons grown on 108,710,000 hectares in 2012.[12] Soy is available in three forms: the whole soybean and two derivative products, soybean oil and soybean meal. Soybean meal is the largest source of animal feed in the world. Soybean oil is primarily used for cooking oil; however, its use in biodiesel production is rapidly growing. Other nonfood uses are increasing and include paints, inks, waxes, and soy-based foam and plastic products.

2. Between 1970 and 2011, the area planted to soy rose by 249 percent to 102,993,246 hectares.[13]This growth is fueled by increased livestock production in domestic and export markets. The US, Brazil, and Argentina account for 90 percent of the world's soy exports. China is the world's lead soy importer, as it purchases approximately 57 million tons on the global market. By 2020, Chinese soy imports will increase by 59 percent. Latin America is meeting this demand by expanding soy production area. Brazil and Argentina have rapidly expanded production in the past decade.

3. To address concerns, including land use change, stakeholders created the RTRS as a mainstream sustainability standard. Currently, 2-3 percent of global soy production, or 1 million tons, in Brazil, Paraguay, and Argentina is certified to the standard. India is in the process of certifying approximately 15,000 metric tons. Bolivia, Uruguay, and China are in the process of developing RTRS National Interpretations.

4. Increased soy production, has directly and indirectly converted areas of natural forests, grasslands, and other habitats. This conversion is acute in the Brazilian Cerrado, where over 50 percent of the landscape had been cleared by 2005 for cattle and crop production.[14] [15]Savannah woodland, the Cerrado is a biodiversity hotspot larger than Mexico, and the Brazilian government estimates that CO2 emissions associated with conversion of the Cerrado are equivalent to more than half the total emissions from the UK for 2009. Significant habitat conversion occurs in forest and grassland biomes of other Latin American nations; such as conversion of the Gran Chaco, Pampas grasslands, and Yungas forests in Argentina; the Chacos and Atlantic forests of Paraguay; and the Cerrado, Pantanal, and Amazon forests in Bolivia. Soybean expansion in Brazil, Argentina, and Paraguay is also associated with land tenure and labor conflicts, as large landholders have pushed small producers and communities off the land and labor is exploited on some farms.

[12] PSD: Production, Supply, and Distribution Online. United States Department of Agriculture Foreign Agriculture Service.
[13] FAOSTAT. Food and Agriculture Organization of the United Nations.
[14] Brannstrom, C. (2009) South America's Neoliberal Agricultural Frontiers: Places of Environmental Sacrifice or Conservation Opportunity? *Ambio* 38 (3): 141-149;
[15] Klink CA and RB Machado. (2005) Conservation of the Brazilian Cerrado. *Conservation Biology*.

Dynamics of Land Use Change Driven by Cattle and Soy Production

5. Soy expansion drives area conversion both directly and indirectly through cattle production. This indirect relationship with cattle has evolved over time as market forces incentivize soy farms to replace existing cattle pastures, and these displaced ranchers then move into the agriculture frontier and clear forests for new pastures. The history of land use change in the state of Mato Grosso in Brazil illustrates the soy-cattle relationship in driving land use change. From 2001-2005, increased soy production occurred through increased growing area; 74 percent of the new soy farm area was established by converting cattle pasture, and 26 percent of the soy farmland expansion occurred through direct conversion of natural forests. From 2006-2010, 78 percent of production increases were due to expansion (and 22 percent due to yield increases) with 91 percent of expansion was on previously cleared land. Therefore, soybean cultivation may still be one of the major underlying causes of deforestation in the Legal Amazon.

6. Approximately 16 million hectares of forest was lost in the Amazon between 2000 and 2010. This land mass is nearly equivalent to the area of pasture converted to soy farms in the Cerrado Biome. However, also during this period, the cattle herd increased in both the Amazon and Cerrado biomes by about 50 million head, indicating that the linkage between the expansion of soy and deforestation was also dependent on cattle stocking rates and the evolving technology of beef producers, particularly the growing role of feedlots that add value to agricultural production by turning corn and soy into beef.

7. There are a variety of production practices, however, that soybean producers can implement to improve its greenhouse gas footprint, from optimization of agrochemical use and cultural practices to adoption of conservation tillage techniques, restoration of degraded areas, and improved crush operations and logistics.

GEF Responses

8. Soy production will increase with demand for soy meal and oil. Growth, however, can occur without direct and indirect conversion natural grasslands and forests through investment in 1) existing, underperforming production systems and 2) degraded or underproductive pasture lands. For example, the Brazilian Ministry of Agriculture projects a 5 million hectare expansion of soy plantations by 2018/2019. This expansion is projected to be met by an annual increase in productivity of 2.43 percent and an annual increase in production area of 1.95 percent in the Cerrado and Amazon biomes. Responsible expansion will not occur on its own and targeted investment in producer extension services for improved productivity must be done in conjunction with zoning policies, which allow soy to only be planted in appropriate areas or on degraded lands.[16]

9. Zoning policies for Latin American production countries can be created akin to the Brazilian Sugarcane Zoning Law. Zoning exercises will identify the relative productivity potential of land, and degraded lands, as well as their carbon and biodiversity value. The results will lead to clear go and no-go areas. The map will then guide investment policies by Brazilian

[16] RTRS (2011) Mapping Project: Rethinking soy expansion in Brazil through a multi- stakeholder process.

and international investment institutions. These investment institutions can then support producers in achieving the level of performance called for by international multi-stakeholder standards.

10. To facilitate producer compliance with go and no-go areas as outlined above, they can be organized into a group certification scheme that rewards them for implementing better management practices to increase yields and only enables expansion onto degraded lands. Extension support to organized groups of producers will also attain sufficient volume of certified product which will meet growing international demand for RTRS certified soy. An initial investment to facilitate this group certification will overcome one of the biggest impediments to RTRS certification, which is the up-front cost associated with implementing BMPs and compiling the documentation to demonstrate legal compliance with relevant regulations. Producer associations participating in the RTRS can provide the vehicle to create group certification. Research has demonstrated that the economic benefits of BMPs should provide an adequate return on investment over the medium-term due to increased productivity and improved efficiency.[17] The financial services and technical support envisioned in this type of investment model should be designed to overcome the resistance to certification by decreasing the cost and exploring avenues to scale-up the certification process itself.

11. A parallel investment strategy could take a jurisdictional approach that would coordinate with existing initiatives organized by civil society, such as the Green Municipalities Program. Resources could then be distributed through pay-for-performance payments channeled to state institutions in sub-national jurisdictions. These resources could also be used to support infrastructure improvements, extension services, technical training, and monitoring programs that seek to reduce the drivers of deforestation and forest degradation.

[17] KPMG (2012) Responsible Soy: Cost / benefit analysis of RTRS certification in Argentina and Brazil.

Annex 3 Commodity Briefing – Beef

Commodity Production Profile

1. Beef is the world's third most consumed protein source. Global production reached 57,527,000 tons in 2012. It is produced in nearly every country, and production systems vary greatly depending on geography, breed of cattle, infrastructure development, access to capital, public policy, and other factors. Globally, beef is a $500 billion industry, and it is a particularly fast-growing sector in Brazil and other South American countries – production in the largest producing country, Brazil, grew from 6,520,000 tons in 2000 to 9,307,000 tons in 2012. Due to spoilage, weight, trade policies, and potential cold chain failures, only 14 percent of beef is traded internationally. Brazil, India, and Australia account for over 50 percent of exports

2. The beef supply chain typically involves a cow-calf production and finishing feedlot or a system where the cow lives entirely off grass before being sent to a processor. A majority of producer countries process beef domestically. There are generally two types of beef processors; large multi-national firms (Cargill, JBS, Marfrig) and small-medium sized, domestically owned firms. For countries where beef production is associated with deforestation and area conversion, almost all cattle are raised on grazing or rain-fed mixed farming systems. Beef production is increasingly concentrated with a few more concentrated in a few large producers who capitalize on economies of scale on grasslands. Meanwhile, in forest regions, cattle ranchers are typically smallholders, who are the primary agents of deforestation. Land clearing is often motivated by the desire to acquire land tenure rights. These rights are not readily available and it is difficult for major meat processors to work with smallholders to improve their stocking rates as well as acquire land tenure, let alone rehabilitate degraded lands to avoid deforestation.

3. To address many of the sustainability concerns pertaining to beef production, the Global Roundtable on Sustainable Beef (GRSB) is developing a sustainability standard. The GRSB and its standard are linked to national initiatives including The Brazilian Roundtable on Sustainable Livestock (GTPS), Argentina's National Grasslands Certification program, and Standard for Sustainable Cattle Production Systems developed by the Rainforest Alliance/Sustainable Agriculture Network.

Environmental Issues

4. Forest clearing to create cattle pastures is one of the most profound land transformations in Latin America over the past several decades. The conversion of forests to cattle ranches is the leading cause of deforestation in the Brazilian Amazon and the adjacent Cerrado Biome. In Colombia, cattle ranching is the major driver of deforestation in the Amazon and leading cause of degradation across the Llanos savannas. Since the 1990s, cattle ranching, couple with soy production, is the leading cause of conversion in Bolivia's Amazon and Chaco forests. Meanwhile, in Ecuador, cattle ranching closely ollows infrastructure development in occupying recently cleared forests. Cattle production directly leads to greenhouse gas emissions. Cattle digestion and manure decomposition emits methane. As a primary driver of deforestation in many Amazonian countries, beef production is responsible for 25 percent of global Land Use, Land-Use change, and Forestry emissions.

GEF Responses

5. Beef production will increase as demand grows. This demand can be met by developing innovative supply chain processes coupled with land use zoning that rehabilitates degraded lands and increases production levels without causing further deforestation.

6. Country by country mapping should identify forests that should be prohibited for use as cattle ranching as well as areas that can be used for ranching, especially degraded lands. This effort can leverage existing mapping efforts in countries like Brazil and create new initiatives in countries where they do not exist. After identifying degraded lands, the beef industry, associated government agencies, and other stakeholders should document and create management practices to rehabilitate those lands. With the zoning maps and degraded lands rehabilitation techniques, the private sector and government can collaborate to create a cost-share program to provide land tenure title and improvement support to ranchers (especially smallholders).

7. Two primary investments are needed. The first is detailed mapping of degraded lands by country and state. The second is support to transition ranchers from drivers of deforestation to an industry that rehabilitates degraded land.

8. Transitioning cattle production from land clearing to land rehabilitation will require a focus on supply chain intensification and transparency rather than the status quo of intensification and supply chain opacity. The intensification will occur through implementation of pasture and cattle management better management practices. Transparency will be brought about by creating better information management systems that give the end users and processors the ability to trace cattle from the pasture to the slaughterhouse to assure that animals do not come from recently cleared land. This will not be entirely revolutionary program, as similar types of systems already exist to manage outbreaks of zoonotic diseases, like hoof and mouth. This traceability scheme should integrate spatial mapping of go and no-go areas, land tenure, and certification to create a situation wherein public and private sector policies to eliminate deforestation mutually reinforce one another.

9. Development of better management practices to rehabilitate degraded lands in the “go” areas to pastures that can support intensive grazing requires capital. A cost-share program with value chain members (especially smallholders on the agriculture frontier) coupled with low interest loans from national and international development can guide producers away from deforestation to ranching degraded lands. This investment will jump start rancher certification, reclamation of degraded lands, and avoided deforestation.

10. The group certification of ranchers can also occur through a jurisdictional approach which would coordinate with existing initiatives organized by civil society, such as the Green Municipalities Program. Resources could then be distributed through pay-for-performance payments channeled to state institutions in sub-national jurisdictions. These resources could also be used to support infrastructure improvements, extension services, technical training and monitoring programs.

Annex 4 Commodity Briefing – Palm Oil

Commodity Production Profile

1. Palm oil accounts for 35 percent of global vegetable oil production. Indonesia and Malaysia are the largest producers, accounting for of 53 percent and 35 percent of total volume, respectively. The remaining 12 percent of production occurs predominantly in Thailand, Colombia, Honduras, Costa Rica, Brazil, Nigeria and several other West African nations.

2. Smallholder farms account for 40 percent of Indonesian, 38 percent of Malaysian, and 95 percent of West African production. Productivity on smallholder farms in Asia averages 3.4 metric tons of oil per hectare versus 3.9 metric tons on commercial farms. Processing and trading palm oil is highly concentrated in Indonesia and Malaysia, while it is fragmented in West Africa. Indonesian and Malaysian companies, however, are beginning to begin to expand to West Africa.

Environmental Issues

3. Palm oil production has led to significant deforestation and therefore created concern by the global community. The RSPO was created in 2004 to develop sustainable production practices with the active participation of key producers, civil society, the financial sector, as well as consumer goods companies and retailers. Today, 15 percent of global production is certified to the RSPO standard, primarily in Indonesia, Malaysia and Colombia. The Indonesian and Malaysian governments have launched their own versions of sustainable production criteria, and Indonesia is in the process of implementing mandatory criteria (legal compliance) as part of an effort to address critical concerns.

4. The global land area of mature oil palm increased from 3.5 million hectares in 1990 to 13.1 million hectares in 2010; more than 90 percent of this expansion occurred in Malaysia and Indonesia.[18] By 2009 in Indonesia, oil palm plantations covered a total of nearly 8 Mha, making the country the world's largest oil palm estate holder and leading producer of crude palm oil (CPO). This growth has been achieved by between 37 percent and 56 percent of Indonesia's oil palm plantations expanding onto natural forest.[19, 20] In Malaysia, expansion of palm oil production occurs primarily on logged-over, secondary forests and on former rubber and coconut plantations,[21, 22] while in Indonesia natural rainforest (37 percent) and peatland (22 percent) have been converted for palm oil production.[23, 24]

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5. This conversion of natural habitat has significant climate change impacts. The conversion of forests and peat makes Indonesia one of the top five greenhouse gas emitting countries during dry years when there is extensive burning of peat formations. In Indonesian Borneo (Kalimantan), the expansion of oil palm from 90,300 hectares in 1990 to 3,164,000 hectares in 2010, with 13 percent on peat, has led to the emission of between 300to 1,000 million tons of carbon dioxide when accounting for land use change, peat oxidation and peat fires[25, 26]. In addition, burning forests and peat lands have severely impaired air quality in Indonesia and neighboring countries.

6. Oil palm plantation area is expected to continue expanding globally. Indonesia has introduced a 4-year moratorium on new plantation leases covering forest lands. But oil palm expansion is still expected to occur at the expense of existing forest in Indonesia, Malaysia, Papua New Guinea, and West and Central Africa, with the prospect of expansion in Brazil, Colombia and Peru.

GEF Responses

7. Solutions are needed to halt the expansion of oil palm plantations into forest landscapes, while meeting the demand for palm oil for food and biofuel. The conversion of forests and peat lands occurs as a result of inadequate regulatory systems, compounded by poor governance, as well as a mindset within industry and government that does not value the biodiversity and carbon sequestration benefits of these lands. There are opportunities for two major types of interventions, which will be more effective if linked by explicit measures to ensure coordination. Immediate prospects for effective action seem the greatest in the new oil palm frontier of West Africa, where development is at an early stage and policy interventions or investment decisions can influence the future trajectory of the industry.

8. The first option is to improve land use zoning based on above and below ground carbon stocks to prevent expansion onto peat land and forests, which should be combined with mapping protocols to identify low carbon, degraded lands that can be rehabilitated. These maps can then be incorporated into regulatory frameworks and lending priorities by financial institutions that conserve biodiversity and high carbon stock landscapes. Conservation of high biodiversity and high carbon stock areas can be fostered by performance-based climate change mitigation funds (available in Indonesia, Brazil, and parts of West Africa), and backed by robust measurement, reporting, and verification systems.

9. The second option would be to identify no-go zones, based on carbon storage and biodiversity. Conservation should be linked to parallel initiatives that support smallholders, in

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order to improve their productivity and enhance their livelihoods. This goal is to organize producers to achieve RSPO certification through the implementation of better management practices and ensure legal compliance with environmental and social regulations and safeguards, while introducing high yielding varieties to improve productivity and incomes. Improving productivity of smallholders and promoting expansion on degraded lands can meet the growing demand.

Annex 5 Commodity Briefing – Pulp and Paper

Commodity Production Profile

1. The world's remaining forests occupy 4 billion hectares. More than one-third of these forests are primary, with over half designated as "production" or "multiple use forests". Each year, more than 3.4 billion cubic meters of wood is extracted from forests, approximately half of which is used for wood fuel (firewood or charcoal), and the remainder to make timber and paper products. World wood pulp consumption in 2012 reached 172 million tons. Within this amount, graphic paper (newsprint and printing and writing paper) remains the largest consuming grade, accounting for 47 percent of wood pulp consumption. Packaging followed at 40 percent, tissue at 10 percent, and fluff pulp (for absorbent applications) at 3 percent.

2. Forestry can broadly be divided into harvesting within natural or semi-natural forests, and farmed production on plantations. Many of the environmental challenges of tree plantations resemble those of row crops, with the greatest risks stemming from conversion or degradation of natural forest with associated effects on ecosystem services, displacement of or impact on local populations, and use of chemicals such as herbicides and pesticides. Tree plantations made up only 7 percent of total forest cover in 2006, but provided 50 percent of industrial round wood. A growing proportion of these can be described as intensively managed plantations, with a rotation of 5 to 25 years. Intensively managed plantations have expanded in recent years primarily in Asia, Oceania, and South America and yield far more wood per hectare than natural forests. Improvements in landscape planning and planting techniques could potentially boost productivity even more. If further expansion of tree plantations can be focused on a proportion of existing degraded land, while safeguarding the rights and livelihoods of indigenous peoples and local communities, the productivity benefits of plantations can be realized with minimal social or environmental costs.

3. Market and demographic trends are expected to give rise to increased demand for pulp and paper globally, driven by increased industry capacity, and rising consumer demand in developing nations, especially in Asia, where demand for paper products is steadily rising. The OECD expects pulp production to increase by 2.3 percent per annum to 2030. The growth in industrial round wood demand is expected to rise from 1.55 billion m3 in 2010 to 2.15 billion m3 in 2020. The growth of paper and paperboard products will depend on how much market share will be lost to electronics, plastics and other substitutes for paper. The risk of this technology growth gap growing larger is significant, particularly in the graphic paper grades. Adoption of the latest mobile technologies such as the iPad is progressing faster than any other major technology introduced in the past. Movement of advertising dollars away from print media to these new technologies could actually accelerate compared with past trends. However, the impact of technology on some markets such as packaging and tissue is not as significant, and these grades will drive the strong world demand growth for paper and board.

4. Industry data forecast that the worldwide demand for containerboard will grow an average of 6.5 million tons every year through 2027. During 2012-2027, 55 percent of the growth in world containerboard demand will occur in China alone. The second major category to drive world demand growth is tissue. Like containerboard, tissue is very closely related to

economic development and disposable personal income. Consequently, demand is growing fast in developing countries around the world. There are very few substitutes for tissue, electronic or otherwise, and demand is forecasted to be highest in Asia. World tissue demand is forecasted to gain 4.1 percent per year through 2027, resulting in gains of 1.7 million tonnes every year on average.[27]

5. Public perception of the industry is changing, as many paper products manufacturers, responding to societal and environmental pressures, are adopting global standards for supply chain transparency and embracing sustainability as a core operating principle. High-profile conservation and carbon mitigation initiatives are casting the industry in a more favorable light among global purchasers and consumers. However, sustainability continues to be a defining trend, and change has not been universal. Import regulations, changing consumer preferences, pressure from some NGOs, and limited natural resources are leading paper producers to increase their reliance on responsibly sourced resources like pulpwood plantations and forests that are certified. Paper product manufacturers are forming multi-stakeholder alliances with governments, companies, NGOs, and community groups to meet conservation and resource management goals.

Environmental Issues

6. The 2012 global mix of paper products by source was 51 percent recovered paper (adjusted for converting losses), 43 percent wood pulp, and 4 percent nonwood fiber; with the remainder fillers and coatings. Recovered paper will continue to be an alternative to wood pulp in the furnish mix, but at a much slower pace than in the past 15 years. Nonwood fibers alternatives though are increasing in share, and there is general interest from different paper grade producers in increasing its use, especially bamboo, kenaf, and fiber resulting from agricultural crops waste, such as bagasse and wheat straw.

7. Wood pulp can come from natural forests and tree plantations. Harvesting from natural forests represents a spectrum of practices that can range from destructive clear-cuts to better practices such as the careful removal of selected trees via “reduced impact logging” ensuring that the wider forest maintains diversity of genetics and age. Well-managed production in natural forests can potentially maintain many of the biodiversity values of a natural forest over time. Poor logging practices include overharvesting (clear-cuts larger than the recommended for the landscape), natural forest degradation or conversion to other land uses, or planting of previously diverse natural landscapes with single and/or exotic species. The key direct impact of unsustainable logging is usually the degradation of habitat rather than outright loss. Historically the pulp and paper industry has sourced the majority of its wood fiber from temperate and boreal forests, but increasingly production is shifting to more southern and tropical regions. Forest regeneration by use of a single/exotic species can lead to greater homogeneity, causing biodiversity loss and greater vulnerability to diseases and climate change.

8. In tropical and boreal forests, degradation is responsible for significant greenhouse gas emissions, the drying of forests, and loss of wildlife. In some countries, wood harvesting and

[27] RISI (2012) World Pulp and Recovered Paper 15 Year Forecast.

infrastructure serves as a precursor to full forest conversion for agriculture. As a result, land use, land use change, and forestry, also known as LULUCF, produces 17.5 percent of global greenhouse gas emissions, making the sector the world's third largest emitter. In addition to global costs associated with climate change and biodiversity loss, plantation development, and forest fragmentation has in the past been associated with a range of practices damaging to local benefits derived from ecosystem services such as the protection of watersheds and production of non-timber forest products. Land acquisition and plantation management in areas with unclear or unenforced property rights has also resulted in the displacement of local communities and indigenous peoples.

9. A significant increase in wood demand (including as a feedstock for bioenergy) is projected to occur over the coming decades, even with increased recycling, reuse and efficiency. The WWF Living Forests Model suggests this demand can be met by a combination of enlarging the portion of the world's natural forests that is sustainably managed for production, and establishing new tree plantations. The environmental and social impact of any new logging concession or tree plantation will vary according to local context, management practices, safeguards applied and how revenues are distributed. This makes it difficult to draw blanket conclusions about the respective merits of expanding production in natural forests or more plantations as a means of increasing the global supply of wood pulp. However, market trends point to an increased use of fiber from plantation. Independently of the forest type, if responsibly managed, the market for wood pulp can motivate good forest stewardship that safeguards a critical resource and protects forest values.

Responses by Civil Society

10. Forest certification has arisen, initially as a means to address tropical forest loss, but now as a means to foster improved management of forest resources including plantations. A number of certification schemes are in existence. Key schemes include that of the Forest Stewardship Council, and the Programme for the Endorsement of Forest Certification Schemes. For producers and processors who are not yet certified, an option is participation in one of a number of stepwise schemes with timelines and milestones to improve practices, leading to certification. Stepwise programs that move producers through a continuous improvement program include WWF's Global Forest & Trade Network, The Forest Trust, the Smartwood Smartstep Program, the Rainforest Alliance TREES Program, and the FSC Modular Approach Program.

11. Uptake of forest certification will increasingly be driven by regulation, such as the recently amended US Lacey Act and the European Union Timber Regulation, which came into force in 2013. Over the next five years, similar legislation will continue to close major markets to trade in illegally produced or obtained forest products.

GEF Responses

12. Solutions are needed which ensure that pulp and paper expansion is not based on the further harvesting of natural forest and the subsequent replacement of these areas with fast growing exotic species. Improved landscape level approaches which include zoning will avoid the location of plantations in high conservation value forests. In addition, landscape level approaches offer the potential for forests – both natural and plantation – to provide the

framework within which other land uses can be developed within a mixed land use matrix that maintains forest ecosystem services on which other land uses depend. Planted forests can be environmentally sound sources of fiber, renewable energy and industrial raw material. Covering 264 million hectares worldwide, they can support rural livelihoods, help communities raise their standard of living, and advance sustainable development. Planted forests contribute to maintaining ecological processes, to mitigating climate change, and to restoring degraded lands. In many countries they have emerged as a substantial component of natural resource use and will continue to become an increasingly important part of the landscape, given their critical significance for local economies, forest industry and products, energy and the environment. The successful use of fiber from plantations will depend on the uptake of credible forest certification and incentives for the use of degraded lands.

13. The increase in biomass demand presents an opportunity for GEF in both supply and demand dynamics. Where standards are being developed for biomass production, the GEF can support their formulation to include the avoidance of deforestation and link these to national frameworks for land use planning. On the supply side, the GEF could support the ground level implementation of sustainable production through support – in particular of small scale producers.

14. In pulp and paper production, there has been a trend toward decentralization and SME and community-owned forest management. This new ownership base requires significant new investment in training, and technologies such as forest certification of a group of small landowners, to enhance livelihoods and sustainability and to ensure steady supply. The investment in these will require considerable financial investment. The GEF can work with the investment community to understand and address the risks and economic costs associated with operations which are predicated on further deforestation and offer mechanisms through which these operations can be avoided or performance improved.

REBUILDING GLOBAL FISHERIES

Summary

1. Coastal waters support the majority of marine biodiversity. These waters include extremely productive habitats and upwelling zones that are critical for spawning, rearing, and growth of marine plants and animals. Restoring the health of the coastal waters is a global challenge that can be met and would make an essential contribution to ending poverty. Ending overfishing –the biggest threat, along with pollution and habitat loss, to ocean health – is a critical step to restoration.

2. The institutional weaknesses that have fueled overfishing, or failed to stop pollution and habitat loss, can be addressed effectively. As part of the Global Partnership for Oceans (GPO), this Signature Program will pursue better management of the world's coastal fisheries in order to increase food security, improve livelihoods, and restore marine biodiversity in developing countries. The Program will mobilize the 50in10 group's network of expertise and investment (including civil society, seafood industry, philanthropic and donor representatives) behind a proven theory of change, in order to support a coordinated set of developing countries in designing and implementing the reforms needed to rebuild their coastal fisheries and leverage significant investment for replication. As such, rather than try to address fisheries challenge individually or country-by-country, this Program will support a network of expertise and demonstration efforts to rebuild coastal fisheries around the world, and link them to the wider array of finance tools and to efforts such as the GPO. This will provide a coordinated response to the challenge of rebuilding the world's fisheries, with global environmental benefits.

Vision

3. The Program has created an irreversible momentum toward sustainable fisheries management. The new dynamic has created opportunities for sustainable fishing systems to be supported by private capital. Global coastal fisheries produce good yields sustainably and generate equitably shared benefits, while protecting biodiversity and ecosystem function.

Desired outcomes in 5 and 10 years

(a) By 2018, incentives to create irreversible momentum toward sustainable fisheries are in place.
(b) By 2020, key coastal fish stocks are recovering.
(c) By 2020, 10 developing countries have engaged in reforms of their fisheries policies toward sustainable approaches.
(d) By 2025, 50 percent of coastal fisheries in developing countries are under sustainable management.

Outcomes are indicative at this stage and will be fully determined during program development.

Problem Statement

4. The global economy and hundreds of millions of people are dependent on the ocean. Without a healthy ocean, we cannot end poverty or reach the global economy's potential – efforts to target these two challenges must be dealt with in conjunction. Without a healthy ocean, the pressures on land-based resources will only increase. To further exacerbate this pressure, the natural systems underpinning the health of the ocean are changing at an unprecedented rate, largely due to overfishing, habitat loss, pollution, climate change, and ocean acidification. Of these, overfishing is the most immediate threat. Some 30 percent of the world's assessed ocean fisheries are currently overexploited, depleted or recovering from depletion (up from 10 percent in 1970), and more than another 50 percent are fully exploited (FAO, 2012). The vast majority of these overexploited fisheries is found in developing coastal and island states whose waters also harbor the majority of the world's marine biodiversity.

5. Most of this ocean's biodiversity is concentrated in near-shore waters because they include extremely productive habitats that are critical for spawning, rearing, and growth. For example, 32 of the 34 known animal phyla (Wilkinson, 2002), 25 percent of all fish species, and up to 12 percent of the world's commercial fisheries are associated with coral reefs (Spalding et al., 2001). Many wildlife species prey on schools of fish that live in coastal waters. Coastal upwelling regions cover only about 1 percent of the ocean's surface, but account for roughly half of the world's fishery landings (Gaines and Airame, 2012).

6. Coastal fisheries[28] are disproportionately important for local and national food security. Overall, coastal fisheries landings in 2006 comprised 87 percent of global landings, valued at 83 percent of total global fisheries value. In contrast, the total amount of high seas landings in 2006 accounted for 13 percent of global landings (SeaAroundUs, 2006). Coastal fisheries employ close to 100 million people. For each fisher in small scale-sector, an additional four people (on average) are engaged in related land-based activities. In total, more than half a billion people depend on fisheries for their livelihoods.

7. In addition to the devastation wrought by overfishing, the natural resource limits of many coastal regions have been reached, and ecological changes are widely reported: approximately 35 percent of mangrove area has been lost or converted and approximately 20 percent of coral reefs have been destroyed globally. Coastal wetland loss in some places has reached 20 percent annually. The survival of numerous species, including marine mammals, turtles, and seabirds is threatened.

8. One of the most powerful drivers of the declining health of the ocean is the inability of markets to manage open-access resources in a sustainable manner (Fujita et al., 2012). Recent studies estimate that market failure in fisheries is resulting in the loss of 10 million tons of food

[28] There are many different type of "coastal fishery" including very near-shore artisanal, commercial, and recreational fisheries, continental shelf fisheries within the jurisdictions of sub-national entities such as states or provinces, and continental shelf/slope species with the jurisdiction of nations (usually to 200 Exclusive Economic Zone Boundary - EEZ). For the Signature Program, we will define "coastal fishery" to mean fisheries that are conducted over continental shelves and slopes within EEZs.

and an annual global economic loss from unsustainable fishing of more than $12 billion per year with an estimated net present value of $2.2 trillion. Furthermore, $15–$30 billion a year in subsidies helps sustain an inefficient fishing industry, adding to the unsustainable trends (Sunken Billions, World Bank and FAO). The impact of market failures is especially strong in coastal fisheries.

9. Command and control strategies for coastal fisheries in developing nations, such as regulation and enforcement, are often ineffective because of resource and institutional constraints. Scientific assessments are also generally lacking, resulting in poor management and anemic fishery outcomes. Overexploitation appears to be substantially worse in smaller fisheries than in large scale, industrialized fisheries (Costello et al 2012). As the vast majority of both marine biodiversity and small scale fisheries are found in developing coastal states, efforts to help rebuild coastal fisheries in developing countries are central to both to restoring ocean health and to ending poverty.

Opportunity Statement

10. Continuing business-as-usual in developing coastal and island nations may in the worst case scenario lead to multiple negative impacts on local and national livelihoods and to further detrimental impacts on the health of the ocean. Positive impacts of individual investments may still appear as they have in the past, even though much more sporadic and in a less coordinated way. National fisheries management authorities in developing countries would continue to set fishing rates without the ability and willingness to bear the short-term social and economic cost of rebuilding fisheries. Further, ad-hoc initiatives with fishermen at local scale would continue to be supported, but un-coordinated initiatives could not address all of the more than 10,000 fisheries in the world. The world's coastal fisheries would continue to be poorly monitored and assessed, leading to mismanagement and thus the depletion of coastal fish stocks and subsequent degradation of marine ecosystems. Finally, international financial institutions, national banks, and other financial institutions would continue to support top-down approaches only (e.g. supporting national fisheries reforms) without benefiting from the lessons in providing the necessary enabling environment for transformational change on the ground. With the continuing lack of incentives and growing market demand for fish, the private sector could fail to engage as an active partner towards sustainable fisheries management.

11. There is a growing momentum for a coordinated effort to help restore the ocean to health, exemplified by the recently formed Global Partnership for Oceans (GPO). Within this effort, fisheries are one of the ocean's assets with greatest opportunity for improvement, in terms of more sustainable fish supply for global food security, generating more profits for coastal communities, and helping to protect ocean biodiversity and habitat.

12. Coastal fisheries comprise the largest category of ocean fishery, with more individual fisheries, more people employed, and higher levels of biodiversity impacted than any other. Coastal fisheries are also essential for both local and global food security, especially in developing countries, where reliance on fish for animal protein is high and where the demand for animal protein is expected to grow over the next decade. The trend in these fisheries is one of

decline throughout the world. If this trend continues, the average stock will be in dramatically worse shape in a decade, exponentially increasing the complexity and time needed for recovery.

13. Fortunately, there are proven reforms, such as recognizing or allocating tenure rights to fishing grounds in order to empower local users, harnessing market demand for sustainable products, and creating incentives for the private sector to invest in sustainable practices. All of these approaches, often used in coordination with one another, have helped to improve fisheries management, stabilize or rebuild fish stocks, create jobs and increase access to stable supplies of seafood.

14. Some of the biggest fleet states, such as Canada, the United States, and the European Union have adopted fisheries policy reforms with high standard practices. These include: setting and enforcing science-based catch limits; promoting an ecosystem-based approach to management; and aligning fishing fleet capacity with resource availability, including through right based management. Such efforts by Canada, the US, and the EU influence many other nations through their distant water fleets and access agreements.

15. Moreover, as major seafood importers, the US and the EU in particular foster the shift to sustainable fisheries by demanding sustainable harvests of imported seafood. Demand for sustainable seafood is powerful leverage for improved management of fisheries. For over 15 years consumer and retailer demand for sustainable and environmentally friendly seafood in developed countries have driven incentives further down the value chain, leading some of the world largest fisheries to make needed changes to become certified as sustainable. This trend is expanding to food service and restaurant companies. For example, McDonald's' commits to source from certified sustainable fisheries and Quick, the European fast food chain, serves only MSC-certified sustainable whitefish. However, fisheries in developing countries face difficulties in achieving and proving sustainability. Currently, less than 1 percent of the MSC-certified sustainable global landings come from developing-world fisheries.

16. Several large foundations are already functioning as pioneer investors, supporting NGO initiatives to reduce information asymmetry and risk. The Sustainable Fisheries Partnership (SFP) is improving access to information that allows companies to directly engage with suppliers of natural resources. Improved access to information reduces the barriers to action by industry.

17. A few private entities (e.g., Shorebank Enterprise Cascadia and the California Fisheries Fund-CFF) are investing in fisheries reforms as well. The CCF, for example, lends and provides business planning and financial services to sustainable fishing businesses. Today it has a zero-default record; loan recipients pay interest rates of 5.5 percent to 6 percent, demonstrating that transitioning the fishing industry can be a good investment. Many fishers and fishing companies, including large businesses, are also moving toward sustainability.

18. Several major seafood buyers such as Wal-mart and Carrefour have purchasing protocols that put a premium on fisheries sustainability. Wal-mart is identifying high-risk fisheries and initiating Fisheries Improvement Projects, in line with its sourcing policy that requires all wild seafood supplies to become third-party certified and uncertified fisheries to be actively working toward certification.

19. Recently, the MSC has developed a simpler method for developing world fisheries to become certified. The Risk Based Framework methodology is a less data-intensive assessment method, which will help certify fisheries that often operate with less information about the health of fish stocks.

20. Most major NGOs working on marine biodiversity conservation now agree that sustainable fisheries management will be a key element of marine ecosystem recovery. Among the international organizations, FAO is developing an international standard for securing sustainable small-scale fisheries, which will provide a common global basis of development. Overall, the World Bank's fisheries portfolio has been steadily growing since 2005, from practically zero to an active portfolio of more than $500 million each year (excluding habitat conservation investments, which often do contribute to sustainable fisheries). The focus of this portfolio has shifted away from the traditional development of fisheries to one of sustainable management and governance. Finally, a new coalition – 50in10 - was launched with the 10-year goal of bringing 50 percent of the world's fisheries under sustainable management, while increasing economic benefits by $20 billion annually.

21. Fisheries reform has moved out of the innovation phase into the early adopter phase. The Fisheries Signature Program will take advantage of the growing momentum to launch actions, and will bring together most of these actors in a concerted approach. Implemented under the GPO and the 50in10 coalition, the Program will address the constraints to private sector engagement and global scale reform.

Role for the GEF

22. Knowledge and Experience. Engagement by private sector actors (investors, fishing firms, fishing associations, and major seafood buyers) in fisheries reform and sustainable practices is constrained primarily by a perception of excessive risk, and a failure to understand the value proposition associated with fisheries reform. The GEF, in drawing upon successful experiences, will address these constraints by transferring information about fisheries and the reform value proposition to the private sector, and by demonstrating the value and the reliability of return from supporting fisheries reform at the relevant scale.

23. Skilled for a Scalable, Global Approach. Some companies within the seafood supply chain support fishery improvement projects and it is anticipated that there will be numerous such projects in place within the next two years. The model of having NGOs developing and implementing fisheries improvement projects individually has worked well with larger fisheries and few suppliers, the GEF will support this growing momentum by offering a platform of coordination and capitalization of experiences. Furthermore, extending the approach globally is the only way to create irreversible momentum toward sustainable fisheries. This will require working with smaller fisheries and those with more diffuse and complicated supply chains. The GEF, as a global multilateral funding mechanism, is uniquely positioned to coordinate demonstrations and to bring successful models to scale in order to rebuild coastal fisheries across multiple geographies and contexts. The GEF will build on the experiences of the 50in10 coalition, and work with the World Bank and other partners in the GPO to provide coordinated

support to developing countries to rebuild coastal fisheries, and then scale up these examples widely as a key aspect of the global environmental effort to restore ocean health.

24. Skilled for Coordinated Global Initiatives. Every step in the value chain has a potential role to play, including individual fishers; buyers; seafood processors; and major institutional catering chains. The GEF, with its global mandate, will establish strategic fishery targets on which those actors will be able to focus energy and resources in a coordinated way to create faster ecological and economy recovery, The GEF will thereby bridge the gap between all the stakeholders involved in coastal fisheries. The GEF will bring early adopters (mostly NGOs, several fishing industry firms, some countries, and some private sector philanthropies and lenders) and groups of key actors that will start to create a social norm around fisheries reform in developing countries (large fishing firms, major seafood buyers, pioneering private investors). Through demonstrating successes in target fisheries, these early-adopters will trigger additional reforms and the early majority that will build irreversible momentum toward global-scale reform and impact in the developing world. While the nature of fisheries requires a global approach, it is equally critical that fisheries improvement projects are country-driven and tailored to specific circumstances. For example, the government (central and local) action in policy reform, science development, and capacity building will guarantee a project's sustainability. GEF is unique among partners as a mechanism supporting national efforts to protect global goods. GEF can help ensure that these global projects integrate country priorities and processes into implementation. Equally important, GEF is the partner for countries engaging in projects to protect global goods, and thus can play a key role in making sure that where the reforms are necessary for fisheries to recover, implementation is properly embedded in policy and planning at the relevant level.

25. Mandated for Global Environmental Benefits. There are important economic and food security gain to be achieved by rebuilding coastal fisheries. Only some of the actors are focused on biodiversity outcomes. For example, those focused on poverty alleviation might be tempted to over-invest in developing fisheries further, letting short term interests in a higher catch outstrip long term risks of overfishing. The GEF, with its mandate to address global environment issues, can play a key role in ensuring that fisheries recovery is undertaken with an ecosystem approach, and that biodiversity and the ecosystem services it supports remain at center stage. GEF will bring to the dialogue a focus on the global targets of the conventions within its mandate to help align fishery recovery efforts with international agreements.

26. Overfishing is a pervasive global challenge, and country-by-country efforts are unlikely to be successful on the scale needed. Improving the management of global fisheries requires a global initiative that will coordinate and guide the numerous actors from all levels in such a way that it attracts private sector financing. Further, the global initiative needs to stimulate national uptake and replication of successful management methods. A signature program will provide support for a network of expertise and demonstration across a number of countries and fisheries, as a key piece of a global partnership to restore ocean health. Given the limited pool of expertise available to support countries to develop and implement policy reforms that empower communities to help rebuild coastal fisheries, the Program will mobilize the 50in10 coalition's network of expertise from civil society, foundations, and the private sector in a coordinated

program to support demonstration in developing countries, that are aligned to the GPO's wider efforts and financing instruments to help restore ocean health for poverty reduction.

27. Traditional ocean interventions within the GEF mandate primarily focusses on assessed fish stocks, where transboundary interventions will effect changes in fisheries management at regional scales. The signature program will address smaller coastal fisheries, where the anthropogenic pressures brings the coastal ecosystems to the tipping point of severe biodiversity loss, at which point restoration will be much more demanding. Therefore, while the GEF traditional intervention will address the multi-country governance reforms and investments on a long time horizon, the signature program will support rapidly replicable improvements in coastal fishery management on a far shorter time scale. The signature program's success at the coastal level will complement the long-term governance reforms of Regional Fishery Management Organizations that also depend on implementing and enforcing rights-based management regimes on a far broader geographic scale for highly migratory species. The coastal fishery reforms envisioned by the signature program will demonstrate success and build a constituency for analogous approaches on the RFMO scale.

28. Furthermore, the Program will identify and address drivers of change wherever they might originate – on the coast, in the capital, or in distant markets. The Program aims at simultaneously reversing global drivers of change, unleashing incentives necessary to enable widespread adoption of new behaviors at the scale of the fisher and working upwards from there. For example, in a project focused on a coastal fishery in SE Asia clarification of rights for coastal fishers is a part of the solution, but some of the drivers of change might actually be located far away in markets in Europe and North America. Buyers of the fish can create powerful incentives for managing the fishery differently. However, they might only be able to engage in the discussion if the changes impact sources in multiple, sometimes distant national jurisdictions. Working toward this change, one country at a time, would be too costly, time-consuming, and fragmented, making it difficult to engage the global actors, especially the private sector leading to global transformation. The Program will trigger a range of simultaneous reforms in selected archetypal fisheries that can consolidate successes and trigger the sort of uptake that has cascaded through fisheries in the developed world.

29. Finally, a scalable global approach, promoting fast broad adoption of tested methods of sustainable coastal fisheries management would not be possible drawing solely on GEF country allocations. A bottom-up, top-down framework will be more suitable. This Program therefore allows for a targeted and coordinated global contribution to rebuilding coastal fisheries, which can be linked to the wider 50in10 initiative in order to leverage replication and substantial additional financing.

Support for Convention Objectives

30. The priorities addressed under this Program are reflected in the UN Rio+20 "Future We Want" Resolution programs, especially through its commitment to achieve sustainable fisheries.

31. The Program will directly address one of the most critical of the five drivers of biodiversity loss: overexploitation and unsustainable use of living marine resources. The

Program is targeted primarily at achieving Aichi Targets 6, 10, and 14 by developing a scalable model of sustainable management of coastal fisheries, toward the achievement of sustainable management of world's fisheries within a decade. Specific contributions include:

(a) Target 6: This Program will result in a scalable model to achieve sustainable management of fisheries that is based on the ecological requirements of the system.
(b) Target 10: This Program is designed to change human and institutional behaviors that contribute to the greatest threat to marine ecosystems – overfishing.
(c) Target 14: Eventual scale of this Program is intended to result in greater productivity and capture of benefits from marine ecosystems that provide a climate resilient protein source for one billion people and employment for over 200 million.

32. The proposed methodology will assure significant contributions to a number of additional Aichi Targets as well. The development of the Program is particularly important for ensuring contributions to:

(a) Targets 2 and 4: The Theory of Change relies on bringing all stakeholders engaged in a particular fishery together to identify the key areas of intervention needed for sustainable production and consumption. GEF financing will help ensure that government engagement ties these more holistic approaches to national strategies and plans.
(b) Target 11: The management systems developed through this program will increase the amount of marine protected area both declared and under improved management.

33. The Program follows the guidelines of UNCLOS and will respect the agreement on the conservation and management of straddling fish stocks and highly migratory fish stocks. The FAO Code of Conduct for Responsible Fisheries (CCRF) will guide the implementation of this Program.

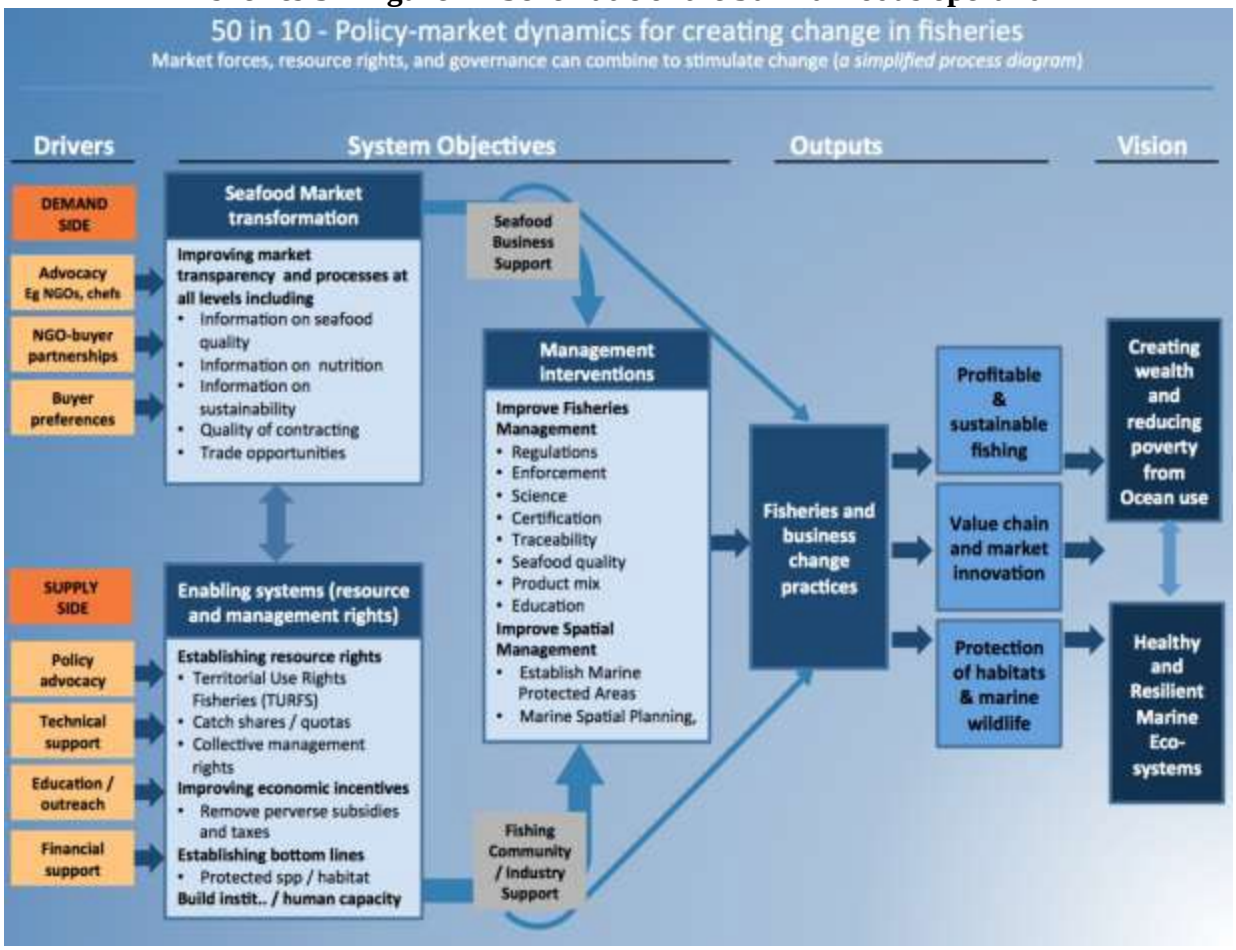
Program Framework

34. The Program will be part of two major global initiatives on oceans, the Global Partnership for Oceans (GPO) and the 50in10 coalition. The GPO will be the overarching umbrella, and 50in10 will be one of the GPO's arms under which the Program will be implemented.

35. The Program will directly contribute to GPO component 1 (Sustainable seafood and livelihoods from capture fisheries and aquaculture) and component 2 (Critical coastal and ocean habitats and biodiversity).

36. Under the 50in10 framework, the Program will support at least five pilots that will contribute to the three objectives of the 50in10; (i) Improved sea food market standard, (ii) enabling systems (resource rights, business skills, community organization) and, (iii) management intervention (see Figure 1).

Fisheries SP Figure 1 - Schematic of the 50in10 modus operandi



The Program will operate with a large number of partners, including bilateral donors, philanthropies, private sector actors, and NGOs for whom sustainable fisheries is a key strategic theme.

37. Combining diverse leverage points for change results in a synergistic, multi-dimensional approach. Such an approach: removes obstacles to grassroots reform; improves buy-in and reduces conflicts between the catching sector and related stakeholders; and establishes strategic fishery targets on which multiple sectors can focus energy and resources in a coordinated way to create faster ecological and economic recovery.

Stakeholders.

38. The Signature Program will engage multiple actors and stakeholders associated with fisheries to identify leverage points for change and to apply their support and expertise to transform the fishing system more rapidly and permanently.

39. For example, leverage points on the demand side (increased market demand for sustainability) will be used by private sector partners in the seafood value chain, as well as on the

supply side through government (central and local) policy reform, science and management technical support and capacity building. Through its diverse partnerships, the Program will also use additional leverage points identified from a broader social and security perspective (community development, gender, etc.). Potential partners include:

(a) Coastal fishing communities gain greater autonomy over their resources.
(b) Governments deliver on social and economic goals.
(c) Seafood businesses reduce supply risk, reduce costs, boost value and shared profitability.
(d) Multilateral and regional development banks accelerate poverty alleviation.
(e) Bilateral development organizations and aid agencies assist in improving the livelihoods of hundreds of millions of people who rely on the oceans for food and income.
(f) Philanthropies spur social and environmental innovations at a much greater scale.
(g) Environmental NGOs ensure a healthy, more resilient and biodiverse ocean.

Barriers

40. There are three fundamental and interrelated barriers to solving the global fisheries crisis. These barriers exist in one form or another in all failing fisheries.

(a) The first is the lack of sound economic incentives for fishers and fishing communities. The lack of secure rights of access has created across global fisheries a tragedy of the commons. The ensuing race to fish contributes to overexploitation of fish stocks, loss of value and economic output for fishing communities and in many instances creates unsafe fishing conditions and environmental harmful fishing practices.
(b) The second related barrier is weak governance or the lack of effective management systems based on sound science. . Lack of capacity for science-based decision- making, and weak monitoring, evaluation, and enforcement capacity contributes to overfishing and excess pressure on stocks.
(c) The third barrier is the lack of appropriate financial investment opportunities that encourage long term management strategies incorporating sound business planning strategies for fishers and fishing communities. Government subsidies have for too long encouraged the race to fish and now the cost of this unwise over-investment is evidenced in the lack of economic benefits to the fishermen and the degraded status of global fisheries resources.

41. Buyers groups working with small scale coastal fisheries have demonstrated their ability to leverage their market power to achieve improvements in fishing practices.. The Program will cultivate new Buyers Groups – in some cases doubtless working with the same processors and wholesalers who have engaged in such collaborations already either independently, or through their trade associations – to scale up the power of sustainably-minded purchasers.

42. The Program will address these fundamental barriers at the national, regional, and global scale. At the national level, the Program will provide advice on design of rights based

management approaches working with the government, the private sector, and other stakeholders to define the economic and environmental goal of the system. It will also provide assistance in developing sound Return on Investment (ROI) analyses that make the economic case for reform. [29] At the regional level, the Program will provide learning opportunities and develop tools and materials to scale country level programs. Lastly, given that these barriers are fundamental to fisheries around the world, national reform and success in meeting economic and environmental performance standards will move quickly into the mainstream. The Program will harness economic, scientific, and design expertise across multiple countries to demonstrate the leveraged approach combining public and private investments with necessary policy reforms, and getting buy-in from industry and NGOs.

43. The Program will build on the on-going demonstrations developed by 50in10 partners. Early projections show promising results in term of fisheries recovery, increase of revenue, and biodiversity restoration. Examples are provided in Annex 2.

Activities

44. The Program will feature three main components as GEF interventions:

Component 1: Support prototypes that include fisheries policy reform.
The Program will support the development of at least five prototypes. These prototypes will be full-scale, functional designs for managing fisheries, and will be intended to be copied rapidly. The prototypes will be developed in countries/regions meeting the criteria defined above. They will demonstrate the economic, social, and environmental value resulting from sustainable fisheries. Annex 2 presents some of the approaches and tools that will be promoted and developed by the prototypes.
The Program will work with stakeholders to design appropriate incentives for sustainable fishing, and will build organizational and business-management capacity of fishers and other local stakeholders. The program also will support the fisheries authority /government in removing policy and resource management capacity barriers to fisheries improvement.
To facilitate the rapid dissemination of lessons and successes, each prototype will fit within a category or archetype of similar fisheries. Fisheries that produce similar products, use similar gear, are organized in similar ways and fish in similar ecosystems will more readily exchange lessons. Because these archetypes will include fisheries from around the world, this approach will generate global benefits more rapidly. Moreover, in this way the Program will use its resources more efficiently and ensure the maximum return on investment.

[29] For example, 50in10 is developing models demonstrating the potential for fisheries reform to be self-financing. Preliminary analysis on Return on Investments for fisheries recovery in the Philippines is being developed into a more rigorous financing model by 50in10 partners. The first draft analysis has been developed in 6 provinces and focuses on coastal coral habitat only. The initial draft projections have estimated the cost of fisheries recovery of about US$114 million over 10 years. An illustrative example based on the draft model projects a loan issued to fisheries organizations with an initial investment of US$75 million could be repaid in 10 years. The early projections show potential that fisher income could raise from US$179 per year to nearly US$1,296, in 10 years. This model will be refined and replicated in per prototype investments.

Component 2: Private sector partnership to replicate, scale-up efforts.
Based on the lessons from the prototypes, the Program will work with the private sector to adopt common standards and milestones towards reform and apply them to fisheries around the world. The Program will assist companies in the seafood value chain to form buyer groups for key products. These buyer groups will be based on the archetypes so they can encourage the other fisheries they source from in different parts of the world to adopt fishery improvement projects based on the lessons from the prototypes, thus creating a multiplier effect. Individual fishery improvement projects are often initiated and funded by major retailers, seafood brands, and other buyers. As more industry-led improvement projects start up, the Program will work to integrate additional partners to these private sector initiatives. Funding mechanisms catalyzed by the GEF could also facilitate the growing number of multi-sector partnerships.
The Program will only succeed if it promotes learning among all demonstration prototypes and shares experience across the Program, as well as with consortium members and the general public. Such knowledge management and dissemination practices will strengthen and catalyze replication to enhance the efficiency and effectiveness of the national/ regional demonstration investments projects. A global platform of technical assistance will be developed to support the prototypes as well as promote cooperation, information sharing, and partnership.

Component 3: Financing mechanisms and investment
The Program will facilitate the creation of innovative schemes, such as a Trust Fund, with public and private partners to expand access to financing for other prototypes. The Program will develop tools to help fisheries (specifically sustainable fishing and seafood businesses in fisheries) attract investors as they adopt reforms.
The Program will link with private capital seeking socially responsible investments. Investment in these fishing systems will be one way to accelerate and scale-up the success of the Program. For example, 50in10 partners are working with the Prince of Wales International Sustainability Unit to identify what makes a fisheries reform strategy of interest to both public and private investors. The methodology the 50in10 partners are developing will make it possible for more traditional investors to understand the business model for fishery reform and its potential for recouping and rewarding investment.
By bringing these different types of investors into the mix, 50in10 will demonstrate the global applicability of this approach. A blended approach to financing will allow public and private resources to be leveraged into one investment strategy driving towards and rewarding sustainability rather than acting independently of each other.

Countries

45. The Program will support activities at the local level (development of prototypes), national level (policy reforms), and global level (sharing knowledge, scaling-up prototypes, partnership with suppliers). For the initial round, the Program will support at least five prototypes for implementation (from on the field implementation to policy reform, and private sector engagement). GEF will consider additional countries as demand for the Program grows.

46. GEF will choose prototypes according to the screening criteria stipulated below and according to their ability to serve as models for future efforts.

47. The screening criteria for selecting the prototypes will be:

(a) The fishery operates in and impacts a globally outstanding marine ecosystem or habitat type.
(b) The fishery fits within an archetype, and its path to recovery is broadly relevant to many other fisheries and/or regions of the world.
(c) The fishery is of exceptionally high ecological importance and can demonstrate ecosystem, social and economic improvement in a relatively short time span (3-5 years).
(d) The relevant local, provincial and/or national government is willing to implement the needed policy and agency reforms and build needed capacity to carry them out.
(e) The catching and processing/buying sectors are sufficiently organized to engage in constructive dialogue and coordinated action.
(f) The market has demonstrated its willingness to support reform (e.g. a retailer/major buyer has begun to invest or signaled willingness to invest in an improvement project or to commit to purchasing sustainably harvested stocks)
(g) Scientific data on the ecology of the stock and ecosystem are available or easyto collect.

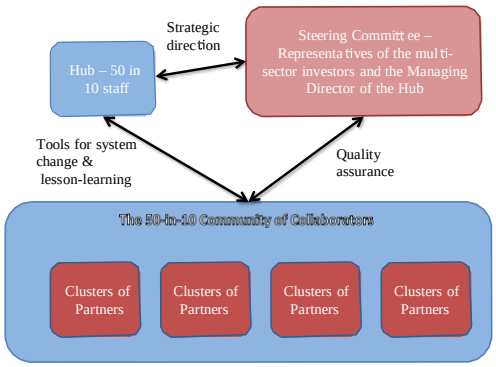
48. At this stage, five to ten prototypes are under exploration. Annex 1 lists prototypes where the preconditions exist or could be rapidly generated.

49. For the additional countries (in a potential second round), the criteria for selection would remain mostly unchanged save for additional criteria that would include fisheries similar to previous archetypes (scale) or additional archetypes (prototypes).

Key Partners

50. A wide range of organizations are working on coastal fisheries issues. FAO plays a critical role in setting standards and the provision of technical assistance, NGOs are actively involved in smallholder fisheries and coastal management, and development banks provide support for structural reform. All those actors will be key partners of the Program.

Fisheries SP Figure 2 – 50 in 10 Architecture



51. The Program will be implemented by the World Bank under the umbrella of the GPO and 50in10 coalition. The GEF is a member of the GPO Blue Ribbon Panel and is involved in the GPO technical working groups. The GEF will also be part of the 50in10 steering committee. This partnership will enable faster progress at scale in those parts of the world still needing systemic innovation.

Funding

52. The Fisheries Signature Program is envisioned to have two phases of four years, spanning GEF-6 and GEF-7. In the first phase (GEF-6), the requested funding is $75 million. The Signature program will invest in prototype development and scaling-up. Each prototype may access $10 to $ 20 million of GEF resources. The Signature program will develop global platform of knowledge and assist companies in the seafood value chain to form buyer groups. Total funding for these activities will range from $5 to $10 million. These numbers are indicative at this stage and will be fully determined during the program preparation. The Program is being developed in association with a range of potential partner organizations, under 50in10 coalition. Although implementation arrangements are yet to be developed, robust co-financing and leveraging is anticipated.

53. The requested funding for this signature initiative is $100 million. At this level of funding, each prototype may access $15 to 25 million of GEF resources. Robust co-financing and leveraging is anticipated.

Result Framework

Fisheries SP Table 1 - Provisional Result Framework for Fisheries Signature Program

Objective	Outcomes and indicators	Outputs
Objective 1: By 2020, # of developing countries' coastal fisheries are under sustainable management up from #	Outcome 1.1: a diverse set of # of globally relevant coastal fisheries are successfully recovering, inspiring replication in similar fisheries around the world *Indicator 1.1.1: # of developing countries engage in a reform of their Fisheries Policies toward sustainable approaches* *Indicator 1.1.2: # of target communities fishers/vessels who/that adopt an improved locally managed fisheries management regime with sustainable fishery and biodiversity objectives* *Indicator 1.1.3: # of targeted communities fisheries with clear and enforceable rules that align the economic interest of fishers with the long-term health of the fishery resource and broader ecosystem* *Indicator 1.1.4: # of target communities (fishers and other coastal users) who comply with locally managed fisheries regulations* *Indicator 1.1.5: # of targeted globally outstanding marine ecosystems have increase in biomass and species richness* *Indicator 1.1.6: # Seafood buyers invest in supporting fishery improvements while continuing to commit to purchase fish as long as progress is made.* *Indicator1.1.7: # of investments made by private capital to in target community fishers another related businesses that reinforce sustainable fishing practices.*	Increased capacity of regional and national institutions demonstrated Net economic benefits to coastal communities Healthy coastal ecosystem
Objective 2: By 2020, the prototype success inspire # replications in similar fisheries around the world	Outcome 2.1: The replication and up-scaling of demonstrations are successfully driven by private sector, and supported by public sector *Indicator 2.2.1: # of private sector buyer groups that form to extend lessons and best practices from prototypes to other similar fisheries around the world* *Indicator 2.1.2: # of Public Private Partnerships to support sustainable fisheries development up from #.* *Indicator 2.1.3: # of developing country governments that adopt policies to extend successful models nationally*	Global depleted fisheries progressed towards sustainable harvest levels. Healthy coastal ecosystems

	Indicator 2.2.4: # of Local and national best practices and knowledge products disseminated through local sources as well as through global platforms. *Indicator 2.2.5: the amount of private capital specifically destined to support socially responsible and sustainable fishing up from x.*	

Annex 1 – Examples of Successful Private Sector Engagement

1. Private sector engagement linked to successful reform is found in Mexico's Corvina fishery: Mexico's corvina fishery was open access and suffered from an intense race for fish by commercial and artisanal fishers. Corvina to spawn in a narrow channel at the head of the Gulf of California, where a marine protected area has been established. However, the race for fish was so intense that the MPA borders were almost completed disregarded – most of the landings in fact came from the MPA. The resulting supply glut often resulted in price collapse during the fishing season, but fishers intensified fishing in response to declining prices, resulting in massive discards and probable overfishing. Assessments indicated near total mortality of most adult fish in the spawning aggregation, with the fishery being supported almost entirely by newly mature, small fish that escaped the gillnets. The recent collapse of a related fishery for Totoaba, which shares many life history and ecological attributes with Corvina, emphasizes the risk of fishery collapse.

2. In 2012, a total allowable catch limit was put into place that would have restricted catch to about half of recent levels. In response to opposition by fishers, NGOs helped broker market agreements between harvest cooperatives made up of fishers and the major buyer in the region. These agreements guaranteed a price floor in exchange for a commitment to stabilize harvest and supply. The cooperative association implemented the agreement by creating a catch share system which allocated shares of the catch required by the buyer to each cooperative and monitored catch with the help of NGOs. As a result, fishers complied with the catch limit, prices did not collapse, and revenues remained stable or increased despite the dramatic drop in catch.

3. ***The Crab Council – A Private Sector Coalition Influencing National Reform***.The Crab Council was created in 2009 by the National Fisheries Institute, an organization made up of seafood wholesalers, suppliers, and trade associations and is dedicated to the sustainability of blue swimming crab. The Crab Council's membership includes (as of 2013) 17 member companies involved in supplying blue swimming crab to the marketplace in the US. The Council adopts sustainability measures, such as ensuring that its participating companies include a minimum size in their sourcing policies and that they support controls to limit the purchase of egg-bearing female crabs. They also charge members a quarterly assessment based on the quantity of crab they import, and use these assessments to fund fisheries improvement efforts in Indonesia, the Philippines, and Vietnam. While primarily self-funded, the Council has received support from the World Bank and the Walton Family Foundation. By combining forces, the Crab Council's members – who compete with one another for market share on supermarket shelves – form a united front in setting and enforcing sustainability standards that can drive industry practice due to the volume of their collective demand. The effectiveness of these joint industry standards is evident in the recent action in the Philippines: on July 16, 2013, the Philippines' department of agriculture, department of interior and local government (DA-DILG) approved a crab management plan to conserve and regulate blue swimming crab. Their Joint Administrative Order – the first state-sponsored crab conservation initiative in Asia – implements sustainability policies, including controls on minimum catch size, responsible fishing gear, closed crabbing seasons and the protection of berried female crabs, that the Crab Council establishes for its suppliers. The Council in turn has called the Philippines' action a "crucial event in the fishery's sustainability movement."

4. The Crab Council model of industry-driven and conservation group- and foundation-supported standard setting is one that has potential to be adapted for a wide variety of species that are fished by coastal fleets in developing countries.

5. ***The International Seafood Sustainability Foundation (ISSF*)**. One example of value chain engagement is the International Seafood Sustainability Foundation (ISSF). The ISSF was launched in 2009 by industry purchasing/processing leaders, NGOs and scientists concerned about the future of the skipjack, yellowfin, bigeye and albacore tuna fisheries (the main species that make up the massive canned tuna trade, which was a $7.5 billion/year business in 2008, the last year for which data are available, and determined to make tuna fishing more sustainable. The membership of ISSF includes a number of major tuna processing and selling companies with global name recognition; participating companies have a presence in at least 60 countries and territories, that being a mix of processing plants and consumer markets. ISSF's stated mission is to" undertake science-based initiatives for the long-term conservation and sustainable use of tuna stocks, reducing by-catch and promoting ecosystem health." One of their key objectives is to improve tuna fisheries so that they are sustainable, as measured by standards developed from FAO Guidelines.

6. Led by a Board that includes scientists, a major tuna company, a major global NGO and the managing director of 50in10, ISSF works with Regional Fisheries Management Organizations and adopts resolutions guiding the behavior of its member companies on such issues as the requirement that the vessels they buy from carry unique vessel identifiers and fly flags of RFMO cooperating nations; support for enhanced data collection and improved research, and active engagement in the work of the RFMOs that establish the management rules for tuna fisheries In international waters. ISSF also has a scientific advisory committee and an environmental stakeholder committee to provide guidance and recommendations. It is funded by private corporations, philanthropic foundations, Allfish (which includes the World Bank and FAO), and one of the tuna RFMOs. By joining forces to press for better RFMO governance, better adherence to IUU fishing controls, measures to curb fishing overcapacity and bycatch, enhanced scientific data and research into improved gears, ISSF is raising the bar for the global canned tuna trade.

Annex 2 – List of Exemplary Fisheries

1. The Program portfolio will include representative fisheries from the following categories:
   (a) Governance type: low central governance capacity;high central governance capacity; sovereign nation EEZ; compacts of association; access agreements (i.e. coastal fisheries where third countries have obtained access to some portion of the catch within, or adjacent to, the EEZ);
   (b) Market type: centralized with few buyers; decentralized with many buyers;
   (c) global; regional;
   (d) Geography: industrialized coastal; small scale coastal tropical;
   (e) Fishery type: small scale demersal, small scale pelagic; sedentary/shellfish
   (f) Ecological impact: top predators; low trophic level; mid-trophic level; high biodiversity bottom, ecological engineer, at or near an ecosystem tipping point;

1. Example of a potential archetype, and of how the private sector can help achieve scale: Lobster and conch fisheries of the Western Atlantic

2. Spiny lobsters are caught in near-shore tropical reef ecosystems of the Western Atlantic Ocean from Brazil to the Bahamas. The vast majority are traded internationally. In 2010, Belize's commercial lobster and conch industry generated U.S.$10.6 million in export revenue, and was a direct source of employment for 3,000 Belizeans, with a further 12,000 people dependent on the sector. According to a 2007 World Resources Institute report, "reef and mangrove associated fisheries have an estimated direct economic impact of U.S. $14 to $16 million per year." The persistent decline in Belize's fisheries due to overfishing and the deteriorating health of the Mesoamerican Reef are therefore a threat to the economy, food security and livelihoods, in Belize.

3. The Territorial User Right for Fisheries system (TURF): The Government of Belize, in particular the Fisheries Department, recognizes that the commercial fishery is fully exploited and in some cases over-exploited, and is implementing additional management interventions to address the high level of exploitation. Included within these interventions is a national expansion of no-take replenishment zone reserves (RZs) from 3 percent to 10 percent of territorial seas. To complement these RZs, NGOs are conducting a national zoning process that will contribute to a design of national territorial user rights for fisheries to be adopted by the Government of Belize with support from fishing cooperatives. This unified vision for the country in achieving a productive and sustainable fishery will create TURF Reserves for over half of Belize's fished areas by 2015.

4. The proliferation opportunity: There are a large number of similar fisheries in the tropical Western Atlantic as well as elsewhere around the world. Therefore, this fishery may represent a useful archetype. The success of fisheries reform in Belize could be easily disseminated and adapted to these similar fisheries in the region and beyond.

5. The market driver: A lobster/conch buyer group made up of companies committed to working together to improve the fisheries from which they buy could greatly accelerate the transfer of lessons throughout its network of supplier fisheries. 50in10 will help establish buyer

groups for this and similar fishery archetypes. The buyer group builds on existing models, such as the International Seafood Sustainability Foundation (for tuna) and the Crab Council (for blue swimming crab).

2. Prototype linking coastal communities and regional shared fisheries management: Western Central Pacific Fisheries

6. The existing GEF International Waters engagement under the Areas Beyond National Jurisdiction Project seeks to build the policy and capacity of regional agencies and coastal states to secure and enhance tuna management systems in the Pacific. A World Bank investment will support capacity building for regional and country level engagement in regional shared fishery management and use (with a focus on tuna fisheries) and provide limited support to coastal fisheries management and development at a country level. The Program will enhance community level engagement in management of coastal fisheries but also establish integrated linkages between coastal communities and regional shared fisheries management by establishing explicit community level interests in regional shared fisheries (e.g. explicit rights to regional vessels / days will potentially be allocated to target coastal countries of the Program communities). Target countries of the Program will be aligned to the World Bank project priorities to enable synergies between World Bank investments and Program engagements. Likely initial priorities will be the Solomon Islands, Tuvalu, the Marshall Islands, and Kiribati, depending on country level demand and opportunity to align existing activities. The overall objective for GEF engagement will be to catalyze community level engagement in shared local and regional fisheries to realize improved biological sustainability (i.e. integrated management between industrial and local fisheries) and community economic resilience (i.e. economic benefits derived from regional fisheries will be captured nationally and locally).

3. Prototype: Cooperative TURFs creating secure tenure, ending overfishing and seeing a rapid response from the market.

7. Initially an open-access resource, the clam fishery of Ben Tre province in Vietnam faced increased pressures towards the end of the 20th century. In 1995, the government began to create cooperatives to protect the natural resource and delineate fishing areas for management. However, fishers themselves were unrestricted, and further stock declines led to the establishment of area rights to restrict fishing in 2006. These further efforts proved successful, and the fishery was Marine Stewardship Council (MSC) certified in 2009.

8. The certification brought significant benefits to the fishery, both social and economic. Eight months after full assessment, the price of the clams increased by 20-30 percent. Wages have increased five-fold since 2007. Because of these economic benefits, 13,000 households are now supported by the fishery, compared to less than 9,000 in 2007. As a result, more people are now able to pay for their children's school fees, and support them through vocational training, boosting their chances of a better future. This has been one of the lasting benefits of transitioning this fishery to sustainability.

Annex 3 - Principles and Tools promoted and experimented by the Fisheries Signature Program

Ecosystem Based Management:

1. FAO Principles of ecosystem approaches to fisheries:

   (a) An ecosystem approach to fisheries strives to balance diverse societal objectives, by taking into account the knowledge and uncertainties about biotic, abiotic and human components of ecosystems and their interactions and applying an integrated approach to fisheries within ecologically meaningful boundaries.

   (b) A primary implication is the need to cater for human as well as for ecosystem well-being. This implies conservation of ecosystem structures, processes and interactions through sustainable use. Inevitably this will require considering a range of frequently conflicting objectives where the needed consensus may not be readily attained without equitable distribution of benefits. In general, the tools and techniques of Ecosystem Approaches to Fisheries will remain the same as those used in traditional fisheries management, but they will need to be applied in a manner that addresses the wider interactions between fisheries and the whole ecosystem. For example, catch and effort quotas, or gear design and restrictions, will be based not just on sustainable use of the target resources, but on their impacts on and implications for the whole ecosystem.

2. The Program will implement Ecosystem Based Management in the ocean in several ways.

3. First, the Program will address the lack of stock assessments and meaningful fisheries management, by applying new methods of management suitable for data poor fisheries. Second, the Program will work at the sub-regional, country, regional, and international levels, so that it matches the scale of management to the scale of the target species' distribution in the ecosystem and, where necessary, across political jurisdictions. Finally, the approach will, by aligning economic incentives with sustainable fishing practices, actually leverage human behavior rather than work at cross purposes to it, which is a key feature of EBM.

Marine Protected Area:

4. Marine protected areas (MPA), are regions of the sea in which human activity has been placed under some restrictions in the interest of conserving wildlife, habitats, and any cultural or historical resources that may require preservation or management. MPAs sometimes include areas from which all harvesting is prohibited; these areas may be called No-Take Marine Reserves.

5. Natural or historic marine resources are protected by local, state, territorial, native, regional, or national authorities and may differ substantially from nation to nation. This variation includes different limitations on: coastal or harbor development; fishing practices; fishing seasons; catch limits; moorings; or bans on removing or disrupting marine life of any kind.

6. The Program will support MPA goals by creating new or supporting existing MPAs when relevant for the prototype development.

Rights-Based Management:

7. Under the GEF strategy, Fisheries Right Based Management refers to any system of allocating fishing rights to fishermen, fishing vessels, enterprises, cooperatives or fishing communities; which ensure the sustainable management of the targeted marine resource and its ecosystem The legal empowerment that comes with rights based approaches to fisheries management is a function of four key characteristics: security (or quality of title to the right), durability (how permanent it is), transferability, and exclusivity. Some rights based management systems have their roots in centuries of traditional practice in communities from Japan to Italy to Fiji.

8. Under rights-based management, fishermen may be able to use the anticipated value of their share as collateral to attract capital investment. One potential risk is that shares used as collateral might be lost to the fishery if a borrower defaults. And if shares are transferable, which is sometimes favored to help reduce the number of fishing boats or to enable fishersn to retire or move to another profession, there is a risk that they could become too concentrated in a few hands. Safeguards have been devised to prevent an over-concentration of shares, and to prevent the transfer of shares out of the community. For example, concentration 'caps' have been set in many communities, other fisheries have established a requirement that the owner of a vessel be on board when fish are caught, to ensure that shares are held only by active fishermen and not transferred to 'absentee captains.' And cooperative shares can simply be held and managed by a community fishing organization to which they revert upon a fisherman's leaving the business. The Program will watchful to the establishment of these safeguard into the prototypes.

SUSTAINABLE CITIES

Summary

1. The Sustainable Cities Signature Program seeks to foster the development and demonstration of innovative models of cleaner, more efficient, resilient, and prosperous cities with positive impacts on the global environment. Urbanization in developing countries is occurring at an unprecedented rate, and is one of the mega-trends that drive global environmental degradation. The GEF recognizes both significant opportunities for engagement to help put cities on the right development pathway, as well as risks of not acting now.

2. This Signature Program will help cities and countries address the rising urban demand of goods and services, and rising consumption of resources, all of which are contributing to global environmental degradation. At the same time, the urban demand for energy, housing, infrastructure, natural resources, land, and other urban services can be supported by facilitating integrated planning and management frameworks, thus contributing to a green economy while leveraging local benefits. The GEF engagement can facilitate pilot initiatives that produce both GEF-relevant global environmental benefits and local benefits. In addition, the initiative will seek alignment with broader, overarching development goals, including those of the post-2015 Development Agenda.

3. The Program will support innovative financial mechanisms and models to help catalyze large scale financing with public and private sector partners, along with support for partnerships to facilitate effective mechanisms for knowledge sharing, including dissemination of lessons learned and replication. This initiative is in line with GEF's role as a pioneer in testing innovative solutions for the global environment, making use of its partnership-based approach, and building on its unparalleled global experience and expertise in a number of relevant thematic areas. Moreover, the GEF is uniquely positioned to identify innovative initiatives that leverage multiple environmental benefits in a cost-effective manner in the urban setting, having unparalleled experience in financing urban projects in support of a number of global environmental conventions and focal areas. Further, this approach is consistent with the GEF6 Focal Area Strategies and supports objectives of multiple focal areas.

(a) Where: Cities in four to five countries facing rapid urbanization challenges

(b) Who: Municipal governments, national governments, partner institutions active in urban management

(c) Why:

(i) Cities are connected to the natural environment and rural areas.

(ii) Significant global environmental degradation will originate in cities in the future

(iii) The built environment and services that cities provide are dependent on or affected by environmental conditions. These include resilient housing, water, sanitation, waste management, efficient energy and transport, urban food security, public health, and others. Cities need to ensure safe environmental quality (air, water, etc.), efficient land and resource use, and integrate climate and disaster

resilience into investments and standards. They may also aspire or commit to low-carbon energy and climate-smart land use.

(iv) Cities control policies and vital systems related to global environmental conditions, such as system-level management of infrastructure development, natural resource management, resilience to environmental shocks, and setting environmental standards. For example, most cities have control over building codes and many can also mandate energy efficiency standards. Nearly 75 percent of cities have direct control over their transit system, and nearly 80 percent have control over roads. More than 80 percent of cities control residential waste collection. About 60 percent of cities control water supply and wastewater treatment. [30] Cities create the largest demand for food, which requires extensive cultivation, processing, packaging, distribution and storage. Many cities manage such systems and thus tend to be agile in decision making and action on the ground.

(v) The political will for engagement is present, considering that city governments are under pressure to address urbanization challenges, and are eager to introduce promising solutions.

(vi) Faster decision making process at the city level can help reach faster results on global environmental benefits in a situation where urgent action is becoming more important. Well-managed cities can generate greater levels of development and well-being at lower rates of resource use and greenhouse gas emissions.

(vii) Cities are incubators of innovation, and present unique opportunities for generating and disseminating technological, social, and cultural ideas and innovations.

(viii) The time is right for a GEF initiative to focus on the urban nexus of its core focal areas. Although urban projects have been eligible for GEF support, a critical set of conditions necessary to undertake catalytic action is only now emerging. This includes awareness of the challenges presented by urban development, as well as of the urgency and potential opportunity to address these challenges at a lower cost now than in the future, recognition of growing threats to cities posed by environmental problems, emergence of integrated, optimized solutions that address multiple problems in a synergistic manner, growing interest and political will of cities to engage on this issue, and the unique potential to generate significant global environmental benefits while providing local development benefits.

(ix) The traditional model of support by the GEF may limit the possibility of achieving an integrated urban-focused approach due to competing demands for resources at the national level, and due to limited coordination among institutions at the local and national level and across sectors. A special initiative to pilot integrated urban management support helps overcome this limitation.

[30] Global Environment Facility (2013). Presentation on GEF-2020 Update. Accessed at: http://www.thegef.org/gef/sites/thegef.org/files/documents/Naoko%20Ishii%20Presentation%2018%20June%202013.pdf

(d) How: Local, national and global components are envisaged. The planning and actual implementation of policy and technical measures for sustainable cities will take place in a select number of cities. National level planning and enabling policy environments are also crucial for individual city-level initiatives to have collective impacts at national scale, with a common set of outputs on the global environment.

At the global level, the GEF, together with the Agencies and partners, will seek to enhance coordination of ongoing and planned urban programs, to monitor and report on the direct and indirect global environmental benefits (as well as trade-offs), to promote South-South and North-South cooperation, as appropriate, and to share knowledge and lessons learned. The goal is to enhance flexibility for engagement at the appropriate scales of action.

The Signature Program will seek partnership as well as to help establish North-South and South-South cooperation by facilitating cooperation with institutions active in urban management. A robust knowledge sharing mechanism will be devised in order to maximize the information benefits generated through this effort, and the use of innovative information and communication technology (ICT) applications will be explored.

Vision

4. By focusing on the multidisciplinary nature of urban problems, the Signature Program enables cities and countries plan and prioritize action towards sustainable urban management, establish enabling policy frameworks, pilot promising approaches, and establish systems for monitoring and tracking performance. In five to ten years, the GEF-supported pilot cities are recognized as leading examples of sustainable urban management, with clear and quantified global environmental improvements and local benefits that are scalable and integrated into national level sustainable development strategies, and with well-established knowledge-sharing mechanisms for further promoting transfer and scaling up.

5. Cities adopt performance frameworks for generating and monitoring environmental and socio-economic benefits, and will promote resilience to climate change through public investments. Example of such benefits include:

(a) Greenhouse gas (GHG) emission reduction from urban sources established and achieved, e.g., percent of renewable energy sources, percent use of public transit, and others;

(b) Maintained or improved flow of agro-ecosystem services sustaining the livelihoods of local communities;

(c) Improved governance of shared water bodies, including integrated management of surface and groundwater through regional institutions and frameworks for cooperation.

6. An overarching integrated platform, with models of sustainable cities at different stages of development, with a common set of indicators is adopted and/or adapted in different partner institutions.

(a) Urban government leaders and officials in developing countries have the expertise and policy- and financial means to address global environmental concerns with local action.
(b) National governments create favorable policy environments to enable local governments to address global environmental concerns at the local level as a key element of national strategies.
(c) Partner institutions promote integrated urban development and management strategies with local benefits that help meet commitments/objectives of multiple global conventions.
(d) Successful financial mechanisms are developed and adapted to city level integrated action for global environmental benefits.
(e) The merits of addressing drivers are recognized as successful approaches among different Conventions, leading to more integrated initiatives at the country/regional levels.

7. Ultimately, the success of this Signature Program depends on national and local leaders and stakeholders having a shared vision for sustainable cities, and taking action to make this shared vision come true.

Problem Statement

8. Cities face unique challenges and opportunities in addressing global environmental concerns. Cities represent the multidisciplinary problem facing the entire globe, but in a most acute way. Their challenges are only increasing, with the growing concentration of people and assets, and impacts on terrestrial and marine ecosystems. The exposure of cities to risks from climate change is growing, thus necessitating a growing need to consider resilience in any approach to urban challenges.

9. More than half of the world's population lives in cities, even though urban areas occupy less than 5 percent of the world's landmass. Urban areas produce 80 to 90 percent of the global gross domestic product (GDP).[31] Almost all of the global population growth in the next two decades is expected to be in cities in the developing world. The urban population in the developing countries increased an average of 1.2 million persons per week in the last decade. This weekly growth rate compares to the annual population growth in European urban areas.[32] The share of the urban population is also expected to grow

10. Meanwhile, around 360 million people, 13 percent of the world's urban population, reside in urban coastal areas that are less than ten meters above the sea level, including almost two thirds of cities with over five million inhabitants. With sea level rise, increased storm activity and larger storm surges, these low-lying urban areas are likely to be at an increasing risk

[31] World Bank (2012). Planning, Connecting, and Financing Cities—Now. World Bank report. Washington D.C., USA. http://www.worldbank.org/en/results/2013/04/14/urban-development-results-profile
[32] United Nations Habitat (2012). State of the World's Cities 2012/2013, Prosperity of Cities State of the World's Cities. UN-Habitat. New York, NY, USA.

of coastal flooding. In addition, the risk of flash floods is exacerbated in urban areas because of a greater proportion of impermeable surfaces. Other risks from extreme weather events include physical damage to infrastructure, compromised water and food security, heat waves, health-related effects, and others.

11. Cities currently consume over two-thirds of the earth's energy supply, and are responsible for over 70 percent of carbon dioxide (CO2) emissions globally.[33] The average per capita GHG emissions for Asia grew by 97 percent from 2000 to 2008, versus 18 percent for the world, with most of the emissions coming from urban areas. Concentrated energy use, with emissions from transport, households, and industries, often leads to air pollution with significant impact on human health. Higher densities of people can magnify the risk of exposure to chemicals and other pollutants. In Asia, air pollution contributes to half a million deaths a year, with 67 percent of Asian cities failing to meet a key air quality standard for particulate matter (PM10).[34]

12. In particular, urbanization in China is happening at a historically unprecedented speed and scale. The largest movement of citizens from rural to urban areas in human history occurred in China in the past four decades, with an increase of half a billion urban residents. By 2030, China's urban population is expected to reach one billion, meaning one in eight people in the world will live in a Chinese city.[35] With over 160 cities with a population over one million persons, the country's challenges and opportunities to address the impacts of urbanization on the environment are significant.

13. Cities also put a significant strain on the rural and urban ecosystems, from the physical expansion of urban areas, as well as production and consumption to meet the needs of the urban population, including food production, energy provision, water usage, construction, manufacturing of goods and provision of services, and waste management. Higher concentrations of the urban population may generate chemical management risks and challenges, such as chemical safety, safe building materials, waste management, fuel storage, handling and disposal of chlorinated solvents, pesticide application for public health and vector control, and urban run-off. Increased production for cities also requires more raw materials which increase extractive industry, organic synthesis of basic molecules, etc.

14. Preferred locations for cities have been coastal areas and river deltas, with 14 of the world's 19 largest cities located in port areas. Such areas may face more significant impacts of environmental degradation, highlighting in particular the need for climate adaptation to enhance resilience. There is also inadequate coordination among institutions that address issues with impacts on the urban environment and development.

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[33] C40 Cities (2012). CDP Cities 2012 Global Report. Accessed at: https://www.cdproject.net/cdpresults/cdp-cities-2012-global-report.pdf

[34] Asia Development Bank (2012). Key Indicators for Asia and the Pacific 2012. Accessed at: http://www.adb.org/sites/default/files/pub/2012/ki2012-special-chapter.pdf

[35] World Bank (2012). Sustainable Low-Carbon City Development in China. World Bank. Washington, D.C., USA; World Bank (2013). Concept Note; China-World Bank Flagship Program: Making Urbanization Efficient, Inclusive, and Sustainable; McKinsey (2009). Preparing for China's Urban Billion. McKinsey Global Institute.

Opportunity Statement

15. The projected urban infrastructure development needs in the next 20 years present a window of opportunity for the GEF to help partners manage such development wisely from the planning and design phase. This Signature Program will facilitate upstream planning and sustainable and resilient design to demonstrate models that avoid locking in conventional urban forms that would then be difficult and/or expensive to change. Furthermore, there are many large metropolitan areas in developing countries that are already suffering from the lock-in effect. Devising sustainable solutions for these challenges is another challenge where the GEF is uniquely positioned to help address.

16. Cities also offer effective and attractive entry points to counter global environmental degradation. For instance, the concentration of population and institutions enables economies of scale in the provision of greener infrastructure and services, such as transit, sustainable energy, water, sanitation, and waste management. Urban productivity also tends to be higher, enabling more efficient output with fewer resources. In Asia, urban productivity is more than five times higher than in rural areas.[36] This Signature Program recognizes how efficiently concentrated population centers use space and resources, and provide basic services and infrastructure.

17. Furthermore, the local benefits that can be leveraged through initiatives whose goal is the achievements global environment benefits, as well as adaptation benefits, are numerous and substantial in the urban setting: energy, transport, land-use planning and urban development are areas where the GEF can assist in generating global environmental benefits, while using, as an entry point, the resulting substantive benefits to the city.

18. Sustainable urbanization could catalyze innovation in technologies and management practices, as well as markets for their implementation. This process would be further aided by the nature of cities themselves, as sites of innovation, allowing for the emergence and dissemination of sustainable and resilient solutions to the environmental challenges.

19. While many sustainable, cities-related initiatives are emerging, current approaches to address urbanization as a driver of global environmental degradation tend to be fragmented, often focusing only on a handful of sectors. The Signature Program, on the other hand, will focus on the multidisciplinary nature of urban problems, and will help the participating cities/countries look at the full range of risks and act in an integrated way. Some GEF Agencies, such as the World Bank, Asian Development Bank, and the African Development Bank, have recognized the urbanization challenge and have begun to contemplate flagship programs to address the subject. [37]These initiatives and other bilateral efforts, however, do not uniformly address the key global environmental concerns. The current situation offers significant potential for GEF engagement to ensure that the Sustainable Cities initiatives incorporate global environmental benefits more systematically and consistently, with harmonized set of indicators and monitoring/reporting.

[36] Asian Development Bank (2012). Ibid.

[37] Asian Development Bank (2013). Urban Operational Plan 2012-2020. Asian Development Bank, Manila, Philippines; World Bank (2013). Ibid.

Role of the GEF

20. The GEF, as a pioneer of innovation through grant financing, is well suited to support the testing and demonstration of models of integrated urban management. GEF has already extensive experience in supporting urban area projects in various focal areas. The proposed Signature Program is based on two observations that increasingly point to the benefit of GEF's engagement at the urban level. First, the GEF can offer more effective solutions to urban leaders by focusing on the multidisciplinary nature of urban problems drawing on focal area expertise. For instance, while various initiatives are supporting urban management in Asian countries, their sectoral coverage and scope remain fragmented. Local and national stakeholders have sought deeper GEF engagement to facilitate a more coordinated approach with a harmonized set of global and local indicators and with consistent performance tracking. This is particularly significant given the interconnected nature of the risks and the possibility to optimize solutions, specific to the context, to achieve the desired outcomes.

21. The second observation is the need for urgency. The access of the GEF and its Agencies to all levels of government, including city level, ensures the necessary political and technical support for this type of program. Leadership at the municipal level tends to be quicker in decision making. Local constituencies tend to provide more immediate feedback and put pressure on city leaders. Such pressure elicits quicker action, and quicker action has generated growing interest among city leaders to explore new partners, including the GEF. The grant financing offered by the GEF facilitates the development of innovative projects by addressing risks that could otherwise slow down the project. The growing number of urban initiatives currently planned or implemented by GEF Agencies and bilateral institutions also offers timely opportunities to catalyze action, with GEF incremental financing to enhance global environmental benefits more consistently.

22. Various Conventions for which the GEF services as the financial mechanism are increasingly recognizing the role of cities and urbanization both as drivers of global environment degradation and as key players in addressing Convention objectives. For instance, a large proportion of GHG emissions come from cities, and the importance of engagement of cities in the United Nations Framework Convention on Climate Change (UNFCCC) is gaining recognition. The GEF can help develop and implement efforts in a more coordinated manner to enhance effectiveness and address common drivers that the Conventions seek to address. GEF will also report results and lessons learned on generating global environmental benefits for individual Conventions, to inform Parties as they consider the role of cities and urbanization in the Convention context.

23. The GEF is well-positioned to partner with other global initiatives that focus on a multisectoral approach to urbanization, reaching out to and leveraging existing initiatives. Addressing multidisciplinary issues at the local level may also be beneficial due the comparative ease of coordination among urban level institutions, compared to national level coordination with multiple ministries and levels of governance.

24. The ability of the GEF to mobilize financing to address concerns in multiple focal areas is a unique advantage. The GEF therefore has a strong leadership role to partner with key countries and cities as well as relevant GEF Agencies and bilateral institutions. In addition, GEF's grant funding in of itself serves as a mechanism to support promising innovative activities, helping to lower the risk to clients and other investors. Finally, the potential for impact per dollar invested by the GEF, considering the rate and scale of urbanization in the cities/countries potentially selected and availability of baseline projects, is extremely high.

25. The unifying thread of this Signature Program is that the urban context serves as a nexus of highly interconnected issues that are normally addressed under distinct focal areas of the GEF. Addressing the urban dimension in the focal area strategies in parallel, rather than in a Signature Program, would to some extent continue a silos approach. The Signature Program also presents an opportunity to seamlessly address a multidimensional, geographically-defined challenge, overcoming the barriers to integrating the objectives of various focal area strategies.

26. Development of integrated urban management initiatives within the current GEF framework may face two additional limitations. The first is that local government projects may not be prioritized among a wide array of national priorities proposed to the GEF. The second is that integrated urban planning requires coordination of capacities that may exist in different sectors within Agencies and local governments. Projects targeting a single sector may be considered easier to design and therefore prioritized. In this context, without a specific program to support integrated urban initiatives, there is a risk that only a limited number of such projects may be developed and implemented.

27. Another difference at the program level is the commitment to expedite action. The intent is to have the Signature Program ready for launch by July 2014, with actual implementation to start shortly thereafter so that initial results and impacts can be realized by the end of the GEF-6 period. All supported initiatives including individual participating cities will monitor, report, and verify global environmental benefits generated by the GEF support.

28. Finally, programming for urban projects through GEF will continue through the standard GEF modalities under the Focal Areas in response to national priorities and as appropriate.

Supporting Convention Objectives

29. The international Conventions for which the GEF serves as a financial mechanism are increasingly recognizing the need to involve subnational governments, and city level government in particular, in the dialogue and actions necessary to reduce the degradation of global environmental benefits.

30. Within the UNFCCC, Decision 1/CP. 16[38] recognized the need to engage subnational and local governments. Numerous decisions clearly identified a role for these subnational stakeholders and governments: in climate change education, training, and public awareness

[38] http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf

(Decisions 11/CP.8[39] and 9/CP.13[40]), in the dialogue on long-term cooperative action to address

climate change (Decision 1/CP.11[41]), in adaptation plans and strategies (Decision 1/CP. 16[42]), and in Nationally Appropriate Mitigation Actions (NAMAs) (Decision 2/CP.17[43]). Decision 37/CMP.6 [44] from the Conference of the Parties (COP) and the Meeting of the Parties (MOP) also identifies the possibility of city-wide programmes in Programme of Activities of the Clean Development Mechanism. Furthermore, the role of subnational governments to engage in the UNFCCC process is being discussed within the framework of the "Friends of the Cities," among interested parties and institutions.

31. The Convention on Biological Diversity (CBD) has recognized the potential impact of urban development on biodiversity since its COP 3. Decision IX/28[45] of the CBD COP 9 went further and recognized the need to involve cities in biodiversity strategies and action plans. This recognition led to Decision X/22[46] of CBD COP 10 to define a Plan of Action on Subnational Governments, Cities and Other Local Authorities for Biodiversity. Subsequently, in 2012 the CBD launched the "Cities and Biodiversity Outlook (CBO)," which consist of a global assessment of the links between urbanization, biodiversity, and ecosystem services.

32. The CBD also (i) set up a Cities for Life Summit (city and biodiversity summit), in parallel to the official CBD-COP, to engage local and subnational authorities to integrate biodiversity in the urban agenda, and (ii) created the Global Partnership on Cities and Biodiversity, a platform for promoting cooperation and strengthening local-national dialogue, to support cities in the sustainable management of their biodiversity resources, to assist cities to implement practices that support national, regional and international strategies, plans, and agendas on biodiversity, and to learn from existing initiatives. A number of cities have initiated Local Biodiversity Strategic Action Plans in partnership with national governments.

33. The United Nations Convention to Combat Desertification (UNCCD), within its COP 10 Multi-year Work Plan 2012-2015, identifies migration as one of the important variables and hence considers cities strongly interlinked with what the Convention aims to achieve, through their potential role and impact on migration.

34. While the Chemical Conventions do not explicitly mentions cities in their decisions, cites are major users and producers of chemicals. The demand for construction materials, heating and cooling, every type of consumer product requires increasing the production of chemicals and the generation of waste. Article 6 of the Stockholm Convention and article 11 of the Minamata Convention deal with the management of waste that contains persistent organic pollutants (POPs) or whose poor management leads to the production of such chemicals, in a situation

[39] http://unfccc.int/files/national_reports/non-annex_i_natcom/submitted_natcom/application/pdf/8_cp.11.pdf
[40] http://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf#page=37
[41] http://unfccc.int/resource/docs/2005/cop11/eng/05a01.pdf
[42] http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf
[43] http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf
[44] http://unfccc.int/resource/docs/2010/cmp6/eng/12a02.pdf
[45] https://www.cbd.int/decision/cop/default.shtml?id=11671
[46] http://www.cbd.int/decision/cop/default.shtml?id=12288

where cities are the main stakeholders to handle and collect such waste and dispose of them in environmentally sound manner. Moreover, cities also have a key role in the management of a number of the new POPs, such as flame retardants and chemicals in insulation foams, and paints, which are widely used in the construction sector, are relevant to clean and sustainable cities, and in the availability of health care systems.

35. The role of cities, among different levels of government, as implementers of a sustainable development agenda has long been recognized in documents such as Agenda 21 and multiple internationally agreed commitments. Most of these commitments lack specific targets and delivery dates. However, some commitments and agreements are emerging in areas of direct relevance for the GEF. In particular, the Rio+20 process confirmed the importance of the subject of "sustainable cities and human settlements." For instance, in a recent survey, member states of the United Nations identified this topic as one of the top 15 priorities to be addressed in the discussion on the Sustainable Development Goals.[47]

36. The results, as well as lessons learned, from the Signature Program approach on addressing global environmental benefits will be compiled and reported to relevant Conventions.

Program Framework

37. The overall goal of this Signature Program is to foster the development of sustainable cities that are cleaner, more efficient, resilient, and prosperous with positive impacts on the global environment. To achieve this goal, the Signature Program has two objectives as follows:

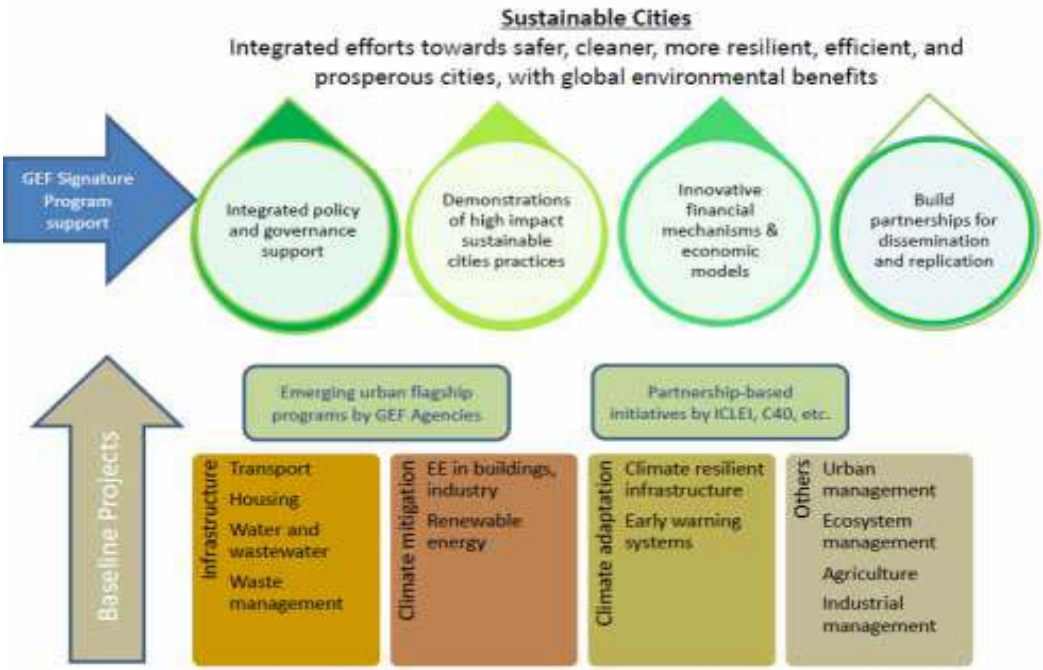
(a) To demonstrate innovative models of sustainable urban management through integrated policy and governance support, pilot implementation of high impact options, and development of financial mechanisms, and

(b) To foster replication of sustainable cities models through partnership and sharing of lesson learned.

38. A GEF Agency will take the lead in implementing this Signature Program. The lead Agency will then manage and be accountable for the program. Additional GEF Agencies may implement parts of the Program. A Program Steering Committee will also be formed with representation of the GEF Secretariat, participating cities and countries, partner institutions, and relevant GEF Agencies.

[47] http://www.un.org/ga/search/view_doc.asp?symbol=A/67/634&Lang=E

Sustainable Cities Figure 1 - Schematic of Sustainable Cities Signature Program



39. This Signature Program will target municipal governments as well as national governments to facilitate policy and institutional coordination.

40. Urban development presents a financial challenge that needs to be addressed at both the national and city level. Upfront capital expenditures and maintenance are significant, with central governments often providing 70 percent or more of upfront costs of major infrastructure projects such as subway systems.[48]

41. On the other hand, cities control policies and systems related to global environmental conditions, such as energy efficiency codes, transit systems, waste management, and water and wastewater management. As many cities are engaged on such system management, cities tend to be agile in decision making and action on the ground.

42. The engagement of the private sector is also important, as that sector supplies and supports urban services, provides innovative technologies and management practices, and implements programs to reduce environmental degradation.

43. Citizens are the key stakeholders in urbanization. Cooperation will also be strengthened with institutions such as ICLEI, C40, World Resource Institute, as well as bilateral institutions active in urban settings. With their wide networks and existing expertise, the GEF will seek to

[48] ADB (2012). Ibid.

build a robust platform to enhance partnership for sustainable cities, to develop a common set of indicators, including global environmental benefits of relevance to the GEF from which to monitor and report, and to share information.

Barriers

44. There are multiple barriers limiting the sustainable development of cities to reduce their potential impact on the global environment and improve their climate resilience.

45. The first barrier is linked to the limited ability for urban dwellers to afford sustainable housing or infrastructure, impacting demand. The demand for new cities and expansion of cities stems from the need to house more people. This often results in construction using cheaper materials and construction practices, since new urban dwellers may not have the resources or insight to demand sustainable homes and urban infrastructure. Without sound economic incentives or demand, investors will not build and finance more expensive sustainable urban options without a population willing to pay. Without viable demand, and support for incremental cost, the construction and expansion of cities will continue to be unsustainable.

46. The second barrier concerns limited coordination among various initiatives that support sustainable urban management. Despite a growing number of institutions and efforts, current approaches remain fragmented, many of them focusing only on a handful of sectors. Global environmental concerns are often not addressed.

47. The third barrier concerns political risks. The goals of sustainable urban programs may not be understood or prioritized by the local population who may be more concerned about improving local conditions rather than global environmental degradation. Local leaders embarking on such program may face adverse unanticipated reactions if program benefits, and support to generate global environmental benefits, are not communicated and accepted by the population.

48. The fourth barrier concerns the challenges posed by the simultaneous engagement of civil society, business community and the government agencies. Key members of the civil society and academia can have an adversarial relationship with officials, and working with both sides may prove to be time consuming. The risks of lengthy processes may then push stakeholders away from such initiatives.

49. The fifth barrier concerns the institutional capacity constraints that are often present at the city level, restricting replication and upscaling.

50. The Signature Program will address these barriers at the local, national, and global scale. The GEF has a role to play in providing the incremental cost to address global environmental benefits, through policy and governance advise, demonstrations, and support to develop financial mechanisms and economic models. The Program will address the coordination challenges through partnerships and engagement of the Agencies, and by managing results and impacts with performance indicators that incorporate global environmental benefits. The Program will address the need for knowledge sharing and capacity building activities and project design that

accommodates capacity growth. Appropriate communication strategies at local, national, and global levels will be developed.

Program Components

51. The Signature Program will feature four main components:

(a) Develop three concept models of sustainable cities with harmonized performance indicators, including global environmental benefits. Provide policy and governance support to facilitate integrated urban design, planning (including production sector), and management that lead to sustainable, resilient development and sound ecosystem management. Share a common vision of sustainable cities.

(b) Support demonstrations of high-impact sustainable cities initiatives, including performance-based urban management pilot projects, climate smart agriculture, urban agriculture, sound management of chemicals and cleanup of the production supply chain for safer and healthier cities, and other elements. Establish analytics to monitor a harmonized set of global environmental and local indicators, and technical assistance to raise capacity for sustainable city program design and implementation.

(c) Develop innovative and replicable financial mechanisms/economic models to build the demand for sustainable cities.

(d) Build partnerships to facilitate dissemination of lessons learned and replication, including facilitation of knowledge management, engagement with partner institutions for replication, and sharing of best practices.

52. The GEF will consider working with partners to promote smarter and more resilient development of new cities as well as retrofitting of existing urban systems and infrastructure (such as buildings, transport systems, and water and energy grids, chemical and waste management, productive sector), and promote policy and strategy measures to facilitate new urban development in a sustainable fashion.

53. The initiative will build on experiences in supporting urban level projects in synergy within individual focal areas, such as climate change adaptation, climate change mitigation, chemicals and waste, land degradation, biodiversity, and international waters.

54. The GEF will not directly invest in large scale infrastructure projects. Infrastructure financing may be done through a multilateral development bank or bilateral loan packages as co-financing, or leveraged financing from countries or cities.

Country Participation

55. This Signature Program will support activities at the global, national, and city levels. Global activities will be made available to all interested countries.

56. A select number of countries (four to five countries and up to three cities per country) will be selected to implement in-depth activities. Alignment will be sought with flagship urban initiatives that are being developed and/or implemented by key GEF Agencies to enhance

complementarity and impact. While all countries are eligible, priority will be given to countries in the regions facing most significant urbanization challenges. The urbanization trend is most pronounced in Asia, followed by Africa. Asia currently accounts for approximately two-thirds of the demographic expansion of all urban areas in the world, and this trend is expected to continue. Also, Africa's urban population is expected to outgrow that of Europe and Latin America by 2025. Given these trends, targeted initiatives will prioritize Asia and Africa regions.

57. The GEF will support the articulation of three sustainable cities models, ranging from advanced mega-city model, mid-level model, and emerging city model. Each model will have a common set of performance indicators including those for global environmental benefits. The three-level model is expected to provide prototypes that are relevant for cities under different economic, developmental, societal, and environmental stages of urbanization. Participating cities can then select the model that is most relevant for their context, and monitor the common set of indicators. Results and lessons learned, at the city/country level and at the Program level, will be analyzed and shared. Impacts of the Program approach on addressing global environmental benefits will be compiled and reported to relevant Conventions.

58. As the focus of GEF's work is on the interface of its core mission in the focal areas and urban systems, the following are some of the possible criteria for selecting cities for engagement and partnerships:

(a) Commitment to national and local policies, programs, and incentives for sustainable, low carbon, and resilient urban development;
(b) Rapid rate of development and growth, with significant implications on natural resource management;
(c) Implications for sustainability, particularly environment as an economic resource and a common global responsibility;
(d) Implications for issues of global commons, such as climate change, biodiversity, and integrity of ecosystems, chemicals, etc.;
(e) Adaptation–resilience and development. Issues of how development affects all aspects of climate change, including hazard (for example, increased floods, landslides, droughts and water shortages, etc.), exposure as assets are concentrated, and vulnerability as migration and weak construction make populations vulnerable;
(f) Understanding of ecosystem-based adaptation
(g) Existence of urban and peri-urban agriculture as a dimension of food security and climate change with a possible linkage to GEF's Signature Program on Food Security;
(h) Diversity in terms of representation, including regions, scale, development stage, and thematic priorities (transport, ecosystem-based adaptation, energy efficiency, resilient planning, etc.);
(i) Replication potential within country and/or subregion; and
(j) Commitment to implement, monitor, and report back on innovative solutions and their impacts.

Partners

59. A number of institutions are working on cities, with a wide range of ongoing efforts. The GEF will seek partnership opportunities with organizations active in the area of sustainable urban management, including ICLEI, C40, and others, to learn from and build on their experiences and further promote innovative approaches to address the common challenges in the urban context. The GEF may offer new insights to complement the ongoing efforts, by building on its focal area experiences and by exploring innovative options for financing. Partnership opportunities among the national and local government institutions will also be sought. In particular, the GEF may forge a partnership with a select number of cities whose leadership has expressed interest in working with the GEF.

60. Furthermore, a number of GEF Agencies have been active in implementing urban management initiatives, particularly the World Bank and regional development banks. Coordination will be sought with these Agencies.

Implementation Plan

61. This Signature Program will be launched at the start of the GEF-6 period. One GEF Agency, possibly the World Bank, may take the lead as the implementing Agency. Executing partners are expected to include other GEF Agencies, ICLEI, and other institutions active in urban management. Preparations for the Program will commence in 2013, building on existing work on sustainable urban development within GEF-5, including articulation of the following:

(a) Study of eco-city models–advanced, medium, basic levels of development; (b) Policy analysis;
(c) Analysis of South-South cooperation opportunities on eco-city and eco-civilization models;
(d) Stakeholder dialogue and partnership building; and
(e) Capacity building and sharing of lessons learned.

62. The preparatory work is expected to clarify possible models of sustainable cities; means to improve global environmental benefits and monitor/report on them; private sector engagement opportunities; possible modalities of South-South cooperation; as well as needs for knowledge management.

63. Other key activities and timeframes are shown below:

Sustainable Cities Table 1 - Other Key Activities and Timeframes

Activity	Timeframe
Signature Program conceptual development and refinement	April–December 2013
Mission to China and consultations with national/local institutions, and preparatory work to develop urbanization models and to identify South-South cooperation opportunities	May and July 2013
Mission to Africa and consultations with national/local institutions	July–September 2013
Mission to Asia and consultations with national/local institutions	July–September 2013
Consultation with potential partner institutions, cities associations and organizations, and GEF Agencies with established key cities programs to articulate coordination and cooperation opportunities	May–September 2013
Coordinated communications strategy development for all Signature Programs	May 2013–
Development of GEF Secretariat team (including cross-support arrangements, etc.)	April 2013–
Organization of CEO forum on partnership and innovation, with partner institutions, mayors, and national representatives. Organized with ICLEI at World Mayors Summit on Climate Change (Nantes, France)	27-28 September 2013
Participation in a select number of high-profile events and forums on cities and urbanization to nurture partnership opportunities	Ongoing
High level side event at UNFCCC COP 19	November 2013
Meeting of the Parties of the Montreal Protocol	To be confirmed
Development of participating country and city list for the first phase of Signature Program	First quarter 2014
Individual project concept development	First and second quarters 2014
Launch of Signature Program	Third quarter 2014

64. A preliminary list of meetings for potential consultation on the Signature Program development is as follows:

(a) Eco-Civilization Forum, Guiyang city,18-20 July 2013. The GEF CEO participated in this forum, where Excellency Zhang Gaoli, the Vice Premier, convened and addressed global leaders about the eco-civilization approach. The relevance of the eco-city program, also within the context of the eco-civilization approach, was confirmed by political leaders.

(b) World Mayors Summit on Climate Change, Nantes, France, 27-28 September 2013. Organized by the City of Nantes (European Green Capital in 2013) and ICLEI-Local Governments for Sustainability, directly following the EcoCities Summit in Nantes.

Convened by the French Prime Minister, the summit is considered one of the preparatory events for the UNFCCC COP in 2015 in Paris, France. The GEF will organize the CEO's partnership forum as part of the Mayor's Summit, in cooperation with ICLEI.

(c) Local Climate Solutions for Africa, Dar es Salaam, Tanzania, 30 October - 1 November, 2013. The Local Climate Solutions for Africa 2013 Congress, convened by ICLEI–Africa in partnership with host city Dar es Salaam, will provide a key opportunity to strengthen the sharing of global good practice and locally appropriate solutions and technologies towards accelerated climate action on the ground.

(d) World Urban Forum 7, Medelin, Colombia, March 2014. Colombia's second largest city will convene a forum of international experts on urban development to showcase urban planning opportunities. There may be a number of regional preparatory workshops.

65. There is emerging work in some eco-city initiatives, such as the Tianjin Eco-City project in China supported by the GEF, to establish performance indicator frameworks, with both quantitative and qualitative indicators. Building on this work, the Signature Program can work with individual participating cities/countries to develop a consistent menu of performance indicators to choose from, set ambitious yet achievable targets, and to track them. These indicators will include GEF-relevant ones on global environmental benefits across the focal areas, as well as key socio-economic and policy categories.

66. Furthermore, program-level performance indicators are needed to assess the Signature Initiative approach, particularly the timeliness of intervention to achieve results and replication. We suggest that the various Signature Initiatives discuss what these program-level indicators would be to maintain consistency.

Funding

67. The requested funding for this Signature Program is $100 million. At this level of funding, each participating country may access $20 to $25 million of GEF resources. Robust co-financing and leveraging will be anticipated.

Results Framework

Sustainable Cities Table 2 - Preliminary Results Framework

Objectives	Outcomes	Outputs
Objective 1: To demonstrate innovative models of sustainable urban management through integrated policy and governance support, pilot implementation of high impact options, and development of financial mechanisms	Outcome 1.1: Models of sustainable cities designed and implemented with harmonized performance indicators, including global environmental benefits Indicator 1.1: Number of GEF-supported pilot cities recognized as leading examples of sustainable urban management, with quantified global environmental improvements monitored across the different focal areas Outcome 1.2: Policies and governance structures set in place to facilitate integrated urban design, planning and management Indicator 1.2: New policies and governance structures developed or existing ones strengthened facilitating integrated urban design, planning and management (quality of policies and governance structures expressed as a qualitative rating 1-10) Outcome 1.3: Successful financial mechanisms implemented at city and national level for global environmental benefits Indicator 1.3: Volume of investment mobilized at city and national level for global environmental benefits Outcome 1.4: National level sustainable development strategies developed that facilitate the implementation of sustainable cities models generating resilience and global environment benefits Indicator 1.4: New strategies developed or existing ones strengthened that facilitate the implementation of sustainable cities (quality of strategies expressed as a qualitative rating 1-10)	Output 1.1: Common vision of sustainable cities shared among local and national stakeholders Output 1.2: Models of sustainable cities that account for different stages of development articulated for implementation Output 1.3: Analytics to monitor a harmonized set of global environmental and local indicators developed Output 1.4: High-impact sustainable cities practices demonstrated (e.g. for clean energy, water management, peri-urban agriculture, green zones, transport infrastructures) Output 1.5: Capacity of urban government leaders, officials, and institutions developed in developing countries for sustainable city program design and implementation Output 1.6: Integrated policies and governance structures for sustainable cities design, planning, and management developed Output 1.7: Innovative and replicable financial mechanisms/economic models designed to build the demand for sustainable cities

Objective 2: To foster replication of sustainable cities models through partnership and sharing of lessons learned	Outcome 2.1: Knowledge-sharing mechanisms established for promoting transfer and scaling up of successful sustainable cities models Indicator 2.1: New knowledge-sharing mechanisms established or existing ones strengthened that promote transfer and scaling up of successful sustainable cities models (quality of mechanism expressed as a qualitative rating 1-10) Outcome 2.2: Partner institutions promoting integrated urban development and management strategies with local benefits that help meet commitments/objectives of multiple global conventions Indicator 2.2: Number of partner institutions promoting integrated urban development and management strategies that help meet commitments/objectives of multiple global conventions	Output 2.1: Platforms for regional or cross-regional cooperation established in partnership with the GEF Agencies Output 2.2: Knowledge management systems supported Output 2.3: Partnerships build to facilitate dissemination of lessons learned and replication Output 2.4: Experiences, lessons learned, and relevance to meet Convention objectives shared through high-profile events

Annex 1: List of Possible Activities Eligible for Support

1. Specific activities that could be supported within the Sustainable Cities Signature Program include the following:

- (a) Policy and governance support to facilitate integrated urban design, planning and management
  - (i) Support the development and implementation of smart urban growth strategies
  - (ii) Implement policy frameworks, incentives, and mechanisms for environmentally sustainable and climate-resilient urban development
  - (iii) Foster institutional and human capacity for urban governance and national-local coordination
  - (iv) Support the development and application of tools to analyze synergy and trade-offs of options for sustainable urban management
  - (v) Develop comprehensive approaches to achieving equitable environmental health conditions in urban areas: providing safe drinking water to population, providing transportation options, reducing air pollution, reducing heat stress due to global warming, reducing exposure to harmful chemicals, and promoting sound waste management and sanitation systems
  - (vi) Formulate prevention and response measures to mitigate environmental and health impacts of emergencies involving chemicals.
  - (vii) Clean up the supply chain that provides inputs into cities through cleaner production, recycling of materials to reduce the need for extractive industry and green chemistry.
  - (viii) Address regional air pollution concerns as well as short lived climate forcers, and address transport measures (local, national, air, and maritime)
- (b) Demonstrate large-scale, high-impact initiatives
  - (i) Implement performance-based urban management pilot projects with synergistic global environmental benefits, including housing, transport, energy services, etc.
  - (ii) Support rehabilitation and expansion of urban infrastructure, including ports, water ways and others, to enhance their sustainability and resilience
  - (iii) Integrate no-regrets 'green infrastructure' measures
  - (iv) Facilitate the planning for and development of new sustainable cities
  - (v) Demonstrate peri-urban climate smart agriculture and designation of green zones to reduce carbon footprint and address the urban heat island effect
  - (vi) Pilot supply chain management options to enhance sustainability of urban-based consumption and ecosystem service valuation
  - (vii) Facilitate phase-out of ozone depleting substances, with energy efficient and low greenhouse potential options
  - (viii) Facilitate the use of materials that do not contain harmful chemicals including brominated flame retardants, mercury, other heavy metals and PFOS.
  - (ix) Support piloting of integrated management of ports and water infrastructure, including energy efficiency measures, renewable energy

promotion, water quality management, chemical management (including notification procedures for incoming and outbound shipments of chemicals controlled under the Rotterdam Convention), and resilient buildings

(x) Design and implement integrated water resource management strategies that address climate change mitigation and climate resilience objectives

(xi) Demonstrate the USCO (Urban Service Company) models, expanding the ESCO (Energy Service Companies) concept to other urban services

(c) Develop financial mechanisms to enable replication

(i) Develop innovative financing schemes in partnership with national and local financial institutions (both public and private) to expand access to financing for sustainable urban development

(ii) Enhance fiscal performance through technical assistance and training

(iii) Establish mechanisms for attracting and directing pro-environment and pro-resilience private sector investments

(d) Build partnerships to facilitate dissemination and replication

(i) Establish a global program of technical assistance as well as platforms for regional or cross-regional cooperation in partnership with the GEF Agencies

(ii) Facilitate knowledge management to enable information sharing and cross-learning among partners

(iii) Engage with leading NGOs, foundations, and institutions promoting sustainable cities to enhance collaboration and speed resource delivery

(iv) Encourage twinning arrangements among cities and other measures of South-South cooperation

(v) Promote and replicate best practices for sustainable urban management, including safety enhancing measures through better management of waste including, municipal, commercial, hazardous and healthcare wastes and mercury

SUSTAINABILITY AND RESILIENCE FOR FOOD SECURITY IN SUB-SAHARAN AFRICA

Summary

1. The planet's population will likely exceed 9 billion by 2050, with up to 2 billion projected for Sub-Saharan Africa alone. This burgeoning population will require an estimated 50 percent increase in global food production, increasing pressure on already fragile and stressed lands, adding millions of hectares of newly cultivated lands, with the associated increase in the use of chemical inputs.

2. Governments and development partners are stepping up efforts toward an African Green Revolution. If it succeeds, such a revolution will increase smallholder farmers' access to improved seeds, fertilizers, and markets. Yet there are no comparative efforts to integrate environmental priorities, including the growing risks associated with climate change. This absence will undermine the continent's fragile ecologies with consequences for the long-term sustainability of food security investments. As the world's leading financial institution for the global environment, the GEF has an important role in addressing this gap by targeting innovations to safeguard land, water, and biodiversity, and to promote climate-resilient agriculture.

3. The GEF is proposing a Signature Program on Sustainability and Resilience for Food Security in Sub-Saharan Africa, with the specific goal of leveraging existing investments to generate global environment benefits and improve smallholder agriculture. The GEF will pursue the program through a partnership with the Alliance for a Green Revolution in Africa (AGRA), which has established a platform for engagement with governments and major development partners, and a comprehensive scientific and socioeconomic framework as basis for investment in food security. AGRA's programs are driven by country-specific priorities, and address needs across agriculture systems on seeds, soil health, policy, markets, and strengthening farmers' organizations for transforming smallholder agriculture.

4. The Signature Program springs from the recognition that investing in natural capital is crucial for the African Green Revolution. Such investment will enable developing African nations to achieve long-term food security based largely on smallholder agriculture, and with global environment benefits. This will directly support the Comprehensive African Agricultural Development Program (CAADP) of the Africa Union, which all African countries have embraced as basis for transformational change in the agriculture sector. The Signature Program will catalyze investments in scaling-up best practices, policy options, and institutional frameworks to enhance sustainability and resilience of smallholder agriculture and food value chains. The program will be implemented in targeted agro-ecologies in 8-12 countries, potentially covering an estimated 10 million hectares and involving 2-3 million households over 5-10 years.[49]

5. GEF resources will be incremental to those of AGRA and other partners, focusing on four intervention domains: soil and water conservation; diversification of production systems;

[49] The targets are indicative pending detailed analysis that will inform further design of the Signature Program.

integrated natural resource management in agropastoral systems; and supportive policies and institutional frameworks for transformational change toward food security in Africa. The investments will directly contribute to objectives of the Biodiversity, Climate Change, and Land Degradation focal areas, with direct links to objectives of conventions for which the GEF serves as financial mechanism – CBD, UNCCD, and UNFCCC. The program will lead to measurable global environment benefits (carbon sequestration and storage, reduction of GHG emissions, conservation of agrobiodiversity, improved soil health, and sustained flow of water), influence climate-smart smallholder systems, and increase resilience of food value chains.

Vision

6. Globally, agricultural systems will need to produce food for an additional 2 billion people by 2050. The demands on agricultural systems are daunting. They must provide adequate and nutritious food; substantially raise the levels of incomes and employment for most of the world's poor, 75 percent of whom live in rural areas and most of whom rely on agriculture for their livelihoods; provide environmental services such as absorbing carbon, improving land and soil health, managing watersheds, and preserving biodiversity; and use finite land and water resources more efficiently. While much can be achieved by reworking food systems globally, meeting these targets will require expansion of area under cultivation, particularly in the developing world, with implications for the sustainability of the planet's land, freshwater, biodiversity and climate.[50] Increased productivity of existing agricultural and rangelands in a sustainable manner is, therefore, essential for achieving global food security.

7. Agricultural intensification was the hallmark of the Asian Green Revolution, which today offers useful lessons about environmental consequences of intensive agriculture. Intensification and modernization through use of high yielding varieties, chemical fertilizers, and extensive irrigation resulted in considerable increases in yields. While this saved an estimated 18-27 million hectares from being brought into production,[51] the excessive withdrawal of water and overuse of fertilizer ultimately created major problems for most Asian countries, though the problems did not emerge for nearly four decades. As African leaders call for more intensification and modernization of agriculture, there is a risk of history repeating itself with enormous consequences for the planet. This scenario can be avoided by fully integrating environmental priorities into the new Green Revolution that is underway in Africa, to ensure that high yields are achieved while safeguarding the vital ecosystem services that nature provides.

8. With the Signature Program on Sustainability and Resilience for Food Security in Africa, the GEF is seeking to reinforce the crucial importance of securing global commons in the context of the African Green Revolution. The proposed approach is to target environment priorities across all aspects of the food value chains – from production to marketing and associated supportive policies –in a comprehensive manner. The focus will be on value chains of major staple food crops such as maize, sorghum, millet, rice, and cassava. The GEF will specifically invest in best practices and policy options for improved management of smallholder agriculture,

[50] Godfray, H.C.J, et al. 2010. Food Security: The Challenge of Feeding 9 Billion People. Science 327:812-818

[51] Stevenson et al. 2013. Green Revolution research saved an estimated 18 to 27 million hectares from being brought into agricultural production. PNAS 110(21):8363-8368

leading to increased food production, secure natural capital, and enhanced resilience of the production systems.

9. In addition to generating measurable benefits for people and the planet, the Signature Program will help African governments address the potential pitfalls of agricultural intensification. GEF support will focus on four domains: soil and water conservation; diversification of production systems; integrated natural resource management in agropastoral systems; and supportive policies and institutional frameworks for transformational change toward food security in Africa. The GEF will finance specific interventions in accordance with priorities of select geographies where the need to influence transformational change for food security is greatest. The interventions, target geographies, and mode of investments will be established through a partnership framework that will include recipient countries and development partners.

10. In the near-term (5 years), the GEF envisions major improvements in smallholder agriculture through sustainable intensification in targeted geographies across 8-12 countries as foundation for a sustainable and resilient African Green Revolution. These improvements will be demonstrated by increased agricultural productivity (yields and incomes) involving 2-3 million households and measurable global environment benefits (carbon sequestration and storage, reduction of GHG emissions, conservation of agrobiodiversity, and sustained flow of water) across 10 million hectares of production landscapes. These outcomes will contribute directly to objectives of the GEF Biodiversity, Climate Change, and Land Degradation focal area strategies for GEF-6, while maximizing cross-focal area synergies and minimizing negative tradeoffs at scale.

11. Over the long-term (5-10 years), it is envisioned that environmental and climate-resilient actions will increasingly support smallholder sustainable agriculture in sub-Saharan Africa, addressing priorities of the global conventions and GEF focal areas, and reflected in commitments by all governments and development partners to implementation of the CAADP at national level. This will lead to increased investments, scaling-up of best practices, and extension of impacts beyond the geographies targeted for the Signature Programrogram. At the same time, AGRA's approach will fully integrate environmental sustainability and resilience for food security, and the GEF will be better positioned to engage with the countries and development partners in supporting the collective aspirations for a sustainable and climate-resilient African Green Revolution.

Problem Statement

12. Sub-Saharan Africa remains the primary target for global development aid toward tackling food insecurity, malnutrition, and poverty.[52] Africa has untapped food production potential that may be able to feed not only local populations but also help meet food needs in other regions. As the attention and pressure grow to feed existing populations and those to come, Africa needs to change its production practices for the sake of food security now and for the long term: growth in agricultural production to meet rising global needs using prevailing farming

[52] UNDP 2012. Africa Human Development Report 2012 – Toward a Food Secure Future. UNDP, New York

practices is unsustainable – a transformation is needed.[53] Such a transformation must integrate environmental priorities that underpin the sustained productivity and resilience of farming systems, especially those under smallholder production that dominate Africa's agriculture.

13. Africa's diverse farming systems are the foundation for food security, and they face a myriad of environmental constraints that undermine long-term sustainability (see maps in Annex 1). Maintaining the diversity is essential, but requires a different approach and greater investment, because one or a few innovations will not be effective across the board, as was the case in Asia. Overall, it is important to demonstrate viable, environmentally sound food security models across a variety of systems. The need is further heightened because climate change threatens Africa's rain-fed agriculture more than any other world region.

14. Although considerable efforts are being made to increase yields across the different farming systems, fulfilling the potential for sustainability and resilience will depend largely on integration of environmental priorities in food value chains. Noteworthy initiatives to promote sustainable agricultural practices in Africa have not yet achieved the scale and systemic integration along food value chains that would result in major global environment benefits. Such integration is crucial for achieving food security in a sustainable and resilient manner for nearly 500 million of the continent's population that is classified as agricultural.

Food Security SP Figure 1 - Dimensions of Food Security

[53] IFAD and UNEP, 2013. Smallholders, food security, and the environment. IFAD, Rome.

Food Security and Ecosystems Services – Framework for Sustainability and Resilience

15. Defined by the World Food Summit, "food security exists when all the people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life."[54] There are four main dimensions of food security: physical availability of food, economic and physical access to food, utilization of food, and stability of the other three dimensions over time (see Fig 1). These four dimensions all have direct implications for natural capital (land, soil, water, biodiversity) and associated ecosystem services that underpin the sustainability and resilience of food value chains (Table 1). Although the ecosystem services do not address the totality of what is required for a food secure world, managing and safeguarding them is essential for long-term sustainability the entire food value chain. This is an important priority of the GEF, and is particular relevant for its Biodiversity, Climate Change, and Land Degradation focal areas.

16. Availability involves harnessing natural capital for food production and distribution. Practices in production systems, and modes of storage and transportation, directly affect the status of natural capital while making food available to consumers. Access implies that people have options or economic opportunities to obtain food, which can include exploitation of nature's assets (e.g. harvesting wild products for income), having appropriate enabling conditions to make agricultural products available in the markets, and producers receiving a fair return for their crops or livestock. Utilization includes practices to harness natural capital for processing and consumption of food (e.g. fuel wood for cooking, clean water for drinking), as well as options for nutritional security (e.g. edible fruits). Stability of the other dimensions of food security is critical for ensuring that short- and long-term variability, including climate change, do not affect food security. Although every aspect of food security depends upon ecosystem services, unsustainable practices can and have led to degradation and loss of these services.

Food Security Table 1- Ecosystem services underpinning the four Dimensions of Food Security

Food Security Dimensions	**Ecosystem Services**			
	Supporting	**Provisioning**	**Regulating**	**Cultural**
Availability	Healthy soils for food production	Genetic resources for food crops and livestock Wild food as dietary alternatives Livestock feed Water for food production	Pollination of food crops Pest and predator control Soil health Erosion control Hydrological flow and water quality Climate and temperature	Traditional production practices
Access		Wild products as sources of income		Traditional harvesting practices

[54] World Food Summit, 1996

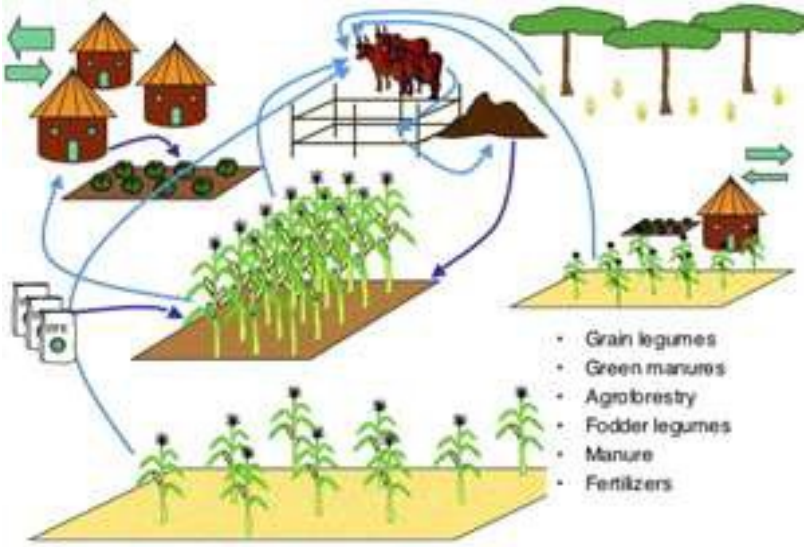
Food Security Dimensions	Ecosystem Services			
	Supporting	**Provisioning**	**Regulating**	**Cultural**
Utilization		Clean water for drinking Biomass or fuel wood for cooking		Traditional diets
Stability	Diversification of production systems Nutrient and water cycling in production systems Regeneration and restoration of landscapes	Wild food as part of "safety nets" Fodder for livestock Adaptive varieties of crops and livestock breeds Harvesting Rainwater and runoff and small scale irrigation	Climate change mitigation (C sequestration) Recharge of aquifers Natural hazard regulation (droughts, floods, fire)	Traditional crop and livestock breeding Incentives for sustainable practices

Smallholder Agriculture– Foundation for the African Green Revolution

17. Smallholder farms account for more than 70 percent of agricultural production in sub-Saharan Africa,[55] which makes them essential targets for a green revolution. The farms range in size from less than 0.5 to 2 hectares and primarily grow food crops, sometimes in combination with livestock, and incorporate useful trees that provide for other livelihood needs (Fig. 2). Unfortunately, the productivity of smallholder agriculture is low (on the order of one ton or less per hectare for the staple cereals – maize, sorghum, millet) and significantly lower than elsewhere in the world with similar conditions. This low productivity is the major driver of food
insecurity and is driven by several factors, most importantly soil nutrient depletion/mining due to removal with crops, land use change, and effects of climate change and variability. Effects of these drivers are further exacerbated by extreme poverty in some regions where, due to lack of investments and exposure to improved farming techniques, exploitation of natural capital represents the only means of sustaining livelihoods. In fact, smallholder farmers' most valuable asset is their natural resource and there is need to increase productivity in ways that preserve and enhance the value of these resources.

[55] IFAD and UNEP, 2013. Smallholders, food security, and the environment. International Fund for Agricultural Development, Rome.

Food Security SP Figure 2 - A representation of the key components of the farming system typical to smallholder farming systems in sub-Saharan Africa (Source: Giller et al. 2006)



18. In addition to the common predicament of crop failures due to climate variability (droughts and floods, and pest and diseases), millions of smallholder farmers in this region, most of whom are women, cannot afford the cost of necessary inputs required to sustain production levels of staple crops beyond subsistence. Smallholder farmers often lack adequate land tenure security and rights and thus have few incentives for conserving and improving the resource base Inefficient, dysfunctional food markets that do not provide sufficient returns to farmers' investments are a further disincentive. Yet expanding food markets could mean important income opportunities for farmers – if they can access them.

19. In the absence of these incentives, for most smallholder farmers the only option is to harness ecosystem services such as microbe-supported nutrient cycling, use of organic matter for enhancing soil quality, vegetative cover to reduce soil erosion and loss, and reliance on other biodiversity as source of nutritious foods during non-productive farming seasons. However, decades of unbridled use of agricultural areas and the surrounding landscapes have left the fields less fertile and the surrounding ecosystems less capable of supporting the farm systems. The growing demand for food in the region is putting pressure on smallholders to exploit the natural resources more, and this undoubtedly will have immense consequences on the ecosystem services that these farmers rely on.

20. With the rapid pace of technological developments, integrating markets, and rising interest in securing additional sources of food for national and international markets, many smallholder farms are transitioning from subsistence to surplus-producing small enterprises, and many others have the potential to do so. This brings enormous opportunities to increase incomes and lift the rural poor out of poverty, but also risks such as the growing impact of climate variability on various points of the supply chain, unsustainable use of soil or water resources, or a transformation of landscapes into less biodiverse, mono-cropped area.

The African Green Revaluation – Toward Sustainability and Resilience

21. The Signature Program will support ongoing efforts by African Governments to implement commitments under the CAADP of the African Union, which includes pillars on food security and land and water management. In particular, the program will strengthen GEF's role in influencing environmental sustainability and resilience for the African Green Revolution, which received a major impetus with creation in 2008 of AGRA through a joint effort by the Bill and Melinda Gates Foundation and the Rockefeller Foundation. [56] AGRA operates as a multi-donor platform for engaging governments, farmers' organizations, private sector, and civil society to promote innovations sustainable agriculture and food security in sub-Saharan Africa.[57]

22. AGRA has established itself as an African-based and African-led organization working with partners to catalyze change that rapidly and sustainably increases the productivity and incomes of poor smallholder farmers. AGRA aims to ensure that smallholders have what they need to succeed: good seeds and healthy soils; access to markets, information, financing, post-harvest storage and transport; and policies that provide them with comprehensive support. AGRA increasingly provides a comprehensive, integrated package of support to smallholder farmers in order to fill the gaps in food systems. AGRA has shown a capability to be both innovative and nimble, responding to emerging realities to ensure relevant investments that meet farmers' evolving needs. Through developing Africa's high-potential "breadbasket" areas, while also boosting farm productivity across more challenging environments, AGRA works to transform smallholder agriculture into a highly productive, efficient, sustainable, and competitive system, while also protecting the environment

23. As the only entity that presents a continent-wide opportunity for the GEF to foster sustainability and resilience in the African Green Revolution, AGRA is in position to embrace fully the proposed approach for addressing environmental priorities. GEF will build on AGRA's operational modality to scale-up best practices, promote policy options, and support institutional transformations for safeguarding natural capital (land, soil, water, biodiversity) and increasing food security. There are also important co-funding opportunities based on AGRA's existing partnerships in the priority countries, which ensures a solid foundation for country ownership of the Signature Program and for buy-in from other donors, private sector, and civil society organizations.

24. The Signature Program will build on AGRA's existing investments in "breadbasket" areas of the priority countries the following regions: Sahel/West Africa (Burkina Faso, Ghana, Mali, Niger), Horn of Africa (Ethiopia highlands), East Africa Highlands (Kenya, Uganda, Rwanda), Southern Africa (Malawi, Mozambique). These countries represent a continuum of enabling environments, from the existence of explicit policies towards integrated natural resource management to operationalization of the policies to deliver transformational impacts for food security. GEF support will enable countries to target specific interventions that will foster sustainability and resilience in production systems and food value chains. As a result, they will

[56] Sachs, J.D. 2008. The African Green Revolution. Scientific American (May Issue)
[57] http://www.agra.org/

directly contribute to achieving objectives of the GEF focal areas and the CBD, UNCCD, and UNFCCC.

Opportunity Statement

25. The Signature Program is a timely opportunity for the GEF to align with a major target for the post-2015 development agenda. Achieving food security is apriority for all developing countries, and world leaders at the United Nations Conference on Sustainable Development (UNCSD or "Rio+20") reiterated the desire to pursue food security in a sustainable and resilient manner. The Outcome Document, "The Future We Want," identified sustainable agriculture and food security priority areas for action and follow-up, and reaffirmed the need "to promote, enhance and support more sustainable agriculture, including crops, livestock, forestry, fisheries and aquaculture, that improves food security, eradicates hunger and is economically viable, while conserving land, water, plant and animal genetic resources, biodiversity and ecosystems and enhancing resilience to climate change and natural disasters."[58]

26. Global environment and development partners must embrace integrated approaches for investing in food security. Over the last decade, such approaches have been increasingly advocated by a number of important scientific and technical assessments as a means for advancing environmental sustainability and resilience in the agriculture sector in sub-Saharan Africa.[59] This heightened awareness presents a timely opportunity for the GEF to demonstrate the potential to inspire transformational change for the people of Africa and the planet.

27. In accordance with its mandate to invest in safeguarding the global environment, the GEF can influence the food security agenda by leveraging mainstream development financing in eligible recipient countries. GEF support will enable countries to more effectively integrate environmental priorities into planning and investment for food security nationally, and therefore contribute toward a healthy and sustainable planet. This approach also ensures that countries can meet their obligations under the Conventions for which the GEF serves as financial mechanism.

The Role of GEF

28. For over two decades, the GEF has invested in a wide range of projects demonstrating links between ecosystem services and food security.[60] From promoting sustainable land management in production systems to in situ conservation of crop genetic resources, the GEF has established a strong foundation to influence transformational change for food security globally. Although the GEF cannot tackle the full range of challenges, it is well-positioned to play a significant role in ensuring adequate integration of environmental priorities at all levels. This includes its convening strength among multilaterals and governments that could generate the

[58] http://sustainabledevelopment.un.org/content/documents/733FutureWeWant.pdf

[59] Examples include: 1) InterAcademy Council, 2004. Realizing the promise and potential of African Agriculture: Science and technology strategies for improving agricultural productivity and food security in Africa; 2) International Assessment of Agricultural Science and Technology for Development, 2009. Agriculture at Crossroads: Sub-Saharan Africa (SSA) Report Vol V. Washington DC; 3)The Montpellier Panel, 2013. Sustainable Intensification: A New Paradigm for African Agriculture, London.

[60] GEF, 2013. Two Decades of Experience: Investing in Ecosystem Services and Adaptation for Food Security. Global Environment Facility, Washington DC.

critical mass needed to take sustainable agriculture to scale. There is no peer to the GEF in terms of financing mechanisms for environmental issues.

29. A second wave of the green revolution is starting to be mainstreamed in sub-Saharan Africa, with multilateral and bilateral agencies, foundations, and the private sector all playing significant roles in countries most affected by low agricultural productivity. These important players all focus largely on improving productivity and value chains for smallholder farmers (see Annex 2). This includes investments to increase access by poor farmers to both inorganic and organic fertilizers, improved crop varieties, opening up of markets as a means of intensifying and increasing food production, and improving access to financing. More than US$300 million is invested annually through targeted projects and technical assistance by the donors.

30. Promising results are beginning to emerge less than five years after projects began in several countries. However, these efforts need complementary interventions that mitigate the degradation of natural capital and ecosystem services. Although the GEF mandate is consistent with this need, the interventions require an integrated approach that maximizes synergies and minimizes negative tradeoffs. The Signature Program will foster such an approach to support the African Green Revolution, while contributing directly to objectives of the focal areas (specifically Biodiversity, Climate Change and Land Degradation) through which incremental financing is leveraged by countries for investing in global environment benefits.

Advancing Focal Area Agendas through Synergies and Economies of Scale

31. An integrated approach toward tackling food security should conserve systemic agro-ecosystem components such as water and biodiversity, enhance nutrient cycling within the farms and the ecosystems within which they are located, and provide for climate change mitigation and adaptation. In the drylands where water resources are becoming scarce due to climate change, technologies are needed to promote efficient water use, and resources are needed to invest in irrigation schemes that integrate changes in rainfall and water availability.

32. The Signature Program will ensure a greater degree of coherence in addressing the GEF mandate under the different focal areas, while at the same time creating opportunities to maximize synergies and manage potentially negative externalities. By mobilizing diverse stakeholders and linking across scales, the spillover and catalytic effects of the GEF will also be greater than what can be achieved through the usual multi-focal area investments.

33. The Signature Program provides a new lens through which the GEF will directly focus on innovations in land use and agricultural management that meet the demands for increased productivity and efficiency of food value chains. In accordance with its mandate, GEF financing will contribute measurable global environmental benefits by: a) safeguarding agrobiodiversity; b) increasing land area under sustainable practices; c) reducing deforestation and habitat loss; d) increasing carbon sequestration; and e) reducing greenhouse gas emissions from production systems. Because the program will target specific geographies during implementation, there is greater potential for economies of scale in achieving focal area objectives.

Biodiversity Focal Area

34. Management of agrobiodiversity in production systems plays an important role in ensuring stability and resilience. The Signature Program accommodates this human-biodiversity interface through the focus on genetic resources (crop varieties) and diversification on-farm and across production landscapes. This will contribute directly to Objective 2, Program 3 of the Biodiversity focal area strategy.

Climate Change Focal Area

35. Considering that the largest source of GHG emissions from Sub-Saharan Africa is land-use change and agriculture, the Signature Program will make significant contribution towards reducing emissions from the projected agricultural intensification in the region. This will directly contribute to Objective 2, Program 2 on LULUCF and Climate Smart Agriculture in the Climate Change Mitigation strategy. Furthermore, by influencing overall food value chains through renewable energy and efficient energy usage in production, storage, and utilization of food, the Signature Program will also contribute to Objective 1, Program 1. For adaptation, the Signature Program will take into account priorities in the National Adaptation Plans of Action (NAPAs) of target countries.

Land Degradation Focal Area

36. The overall focus on sustainable intensification of production systems is directly linked to the focal area mandate on combating land degradation. The Signature Program will contribute to Objective 1 of the Land Degradation focal area strategy on securing agroecosystem services in crop and livestock production systems, while at the same time maximizing synergies through integrated management of land, water, and biodiversity. This will significantly increase the area under sustainable land management with multiple global environment benefits linked to the other focal areas.

Supporting Convention Objectives

37. The global environmental benefits generated through GEF investments will contribute directly to objectives of the CBD, UNCCD, and the UNFCCC. The Signature Program will be aligned directly with the strategic plans of these conventions to ensure consistency in overall approach, including modalities for quantifying and accounting for the benefits.

Box 1 - Aichi Biodiversity Targets with direct links to agriculture and food security

Target 6 - By 2020, all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem-based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.

Target 7 - By 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

Target 8 - By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

Target 13 - By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socioeconomically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

Target 18 - By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.

Convention on Biological Diversity

38. The CBD recognizes the critical importance of conservation and sustainable use of biological diversity for agriculture and food security. At its first meeting in 1994, the CBD COP decided to consider conservation and sustainable use of agricultural biodiversity, and subsequently established a multi-year program of work on agricultural biodiversity.[61] The program of work includes a focus on four cross-cutting initiatives that are important for food security: pollinators; soil biodiversity; biodiversity for food and nutrition; and genetic use restriction technologies. The convention currently has a Strategic Plan for Biodiversity, including the Aichi Biodiversity Targets covering the period 2011–2020.[62] Several Aichi Targets are of direct relevance to agriculture and food security (Box 4), with potential for harnessing GEF financing to address them through the signature program.

[61] http://www.cbd.int/agro/pow.shtml
[62] http://www.cbd.int/sp/targets/

UN Convention on Combating Desertification (UNCCD

39. The UNCCD text explicitly mentions links between desertification, drought, and lack of food security. The Convention focuses primarily on drylands, but its efforts on combating land degradation through sustainable land management practices make it relevant for all countries. The Convention currently has a Ten-Year Strategy and Action Plan (2008 – 2018)[63] that aims to forge a global partnership to reverse and prevent desertification/land degradation and to mitigate the effects of drought. Four strategic objectives guide the actions of all UNCCD stakeholders and partners, of which three have Expected Impacts that will be directly supported by Signature Program (Box 2).

Box 2 - The UNCCD 10-Year Strategic Objectives (SOs) and Expected Impacts (EIs) with direct links to agriculture and food security

SO1 - To improve the living conditions of affected communities
- (a) EI 1.1 People living in areas affected by desertification/land degradation and drought to have an improved and more diversified livelihood base and to benefit from income generated from sustainable land management
- (b) EI 1.2 Affected populations' socioeconomic and environmental vulnerability to climate change, climate variability and drought is reduced

SO2 - To improve the conditions of affected ecosystems
- (a) EI 2.1 Land productivity and other ecosystem goods and services in affected areas enhanced in a sustainable manner contributing to improved livelihoods
- (b) EI 2.2 The vulnerability of affected ecosystems to climate change, climate variability and drought is reduced

SO3 - To generate global benefits through effective implementation of the UNCCD
- (a) EI 3.1 Sustainable land management and combating desertification/land degradation contribute to conservation and sustainable use of biodiversity and mitigation of climate change

UN Framework Convention on Climate Change

40. Globally 31 percent of the total greenhouse gas emissions could be attributed to land-use change and agriculture, and in sub-Saharan Africa they are the largest sources of GHG emissions. Most of the emissions in Africa from land use change are from deforestation for both permanent croplands and shifting cultivation. Climate change effects such as changes in precipitation patterns, and decline in rainfall will affect the smallholder farmers most because of their reliance on rain-fed agriculture. The proposed program will address mitigation and adaptation, the main priorities of the Convention. Parties to the Convention, including sub-Saharan Africa countries, submit National Communications detailing their major sources of emissions and the steps they are taking to reduce emissions. They also include development sectors at risk of climate change impacts and the associated adaptation strategies. The least developed countries in the region have listed their priority sectors and respective projects in NAPAs. The program, to ensure short and long-term food security will also take into account

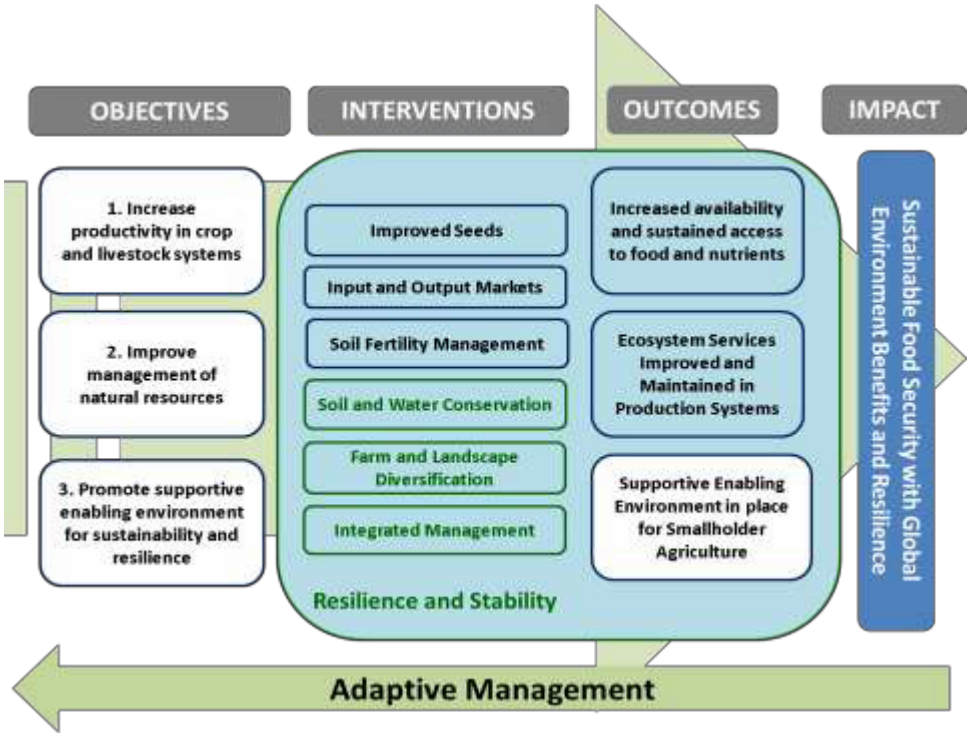
[63] http://www.unccd.int/Lists/OfficialDocuments/cop8/16add1eng.pdf

climate vulnerabilities and change and will integrate adaptation methods suitable for small-holder farmers and their livelihoods. The program will therefore implement the Convention objectives as prioritized in the country agendas.

Program Strategy

41. Three main objectives will form the basis of the Signature Program (Fig 2):
    (a) Increase productivity in crop and livestock systems
    (b) Improve management of natural resources; and
    (c) Promote supportive enabling environment for sustainability and resilience

Food Security SP Figure 3 - Impact Framework for the Signature Program



(Note: Intervention domains in Blue text are the focus of "baseline" investments, while those in Green text are the focus of GEF incremental financing to deliver global environment benefits and overall resilience; The Adaptive Management arrow signifies GEF commitment to learning)

42. The first objective acknowledges the crucial importance of addressing yield-gaps due to lack of access by smallholder farmers to improved varieties, input-output markets, and inorganic fertilizers. The three intervention domains associated with this objective are at the heart of AGRA's current work across its focus countries – seeds, markets, soil health, policy, strengthening farmers, and improving capacity for research and development. The second objective reinforces the need to focus on management of land, soil, water, and vegetation in an integrated manner for sustained flow of ecosystem services in smallholder production systems. Three intervention domains will address this objective. The third objective is essential for

creating the enabling environment, including supportive policies for improving food value chains and scaling-up best practices to enhance sustainability and resilience of the African Green Revolution. The single intervention domain for this third objective will focus on increasing resilience and stability across the targeted geographies through improved policies, institutions and organizations, including the private sector. This will also enable smallholder farmers to make informed choices across all dimensions of food security, and therefore has direct links to the other intervention domains.

43. GEF support for the interventions will be based on existing and planned baseline investments by AGRA and additional co-financing from countries and development partners. The GEF has an extensive experience in investing in all dimensions of food security through its focal areas. GEF support will leverage baseline investments to increase access to improved seeds, improve input and output markets, and provide options for soil fertility enhancement. It will also contribute toward addressing climate change adaptation.

44. Ensuring food security at all levels necessitates creation of a stable system of food availability and access. At the same time, climate variability and change adds a complex dimension to food security. Increasing resilience and stability is therefore critical for advancing climate-smart agriculture in sub-Saharan Africa, which must involve creation of appropriate enabling and policy conditions focusing on smallholder farmers. For example, smallholders need efficient and reliable storage systems and markets to generate income to deal with fluctuations in production. Such opportunities require local and regional frameworks allow for and encourage farmers to market their products. The smallholders also need information on expected changes in climate, such as precipitation patterns and extent of possible drought.

45. GEF has a wealth of information on successful interventions in all these areas, with details on the approaches used, results-based management systems developed to track outcomes, policies and management plans that contributed to sustainability, and technologies that aided in achievement of the project goals. The Signature Program will consolidate lessons from these projects and implement them to tackle the food security issue.

Target Stakeholders and Actors

46. The Signature Program will target the following actors and stakeholders:

(a) National Governments – By virtue of their commitments under the CAADP and obligations to implement the Conventions, Governments of countries involved in the Signature Program will be primary targets for influencing the change envisioned by GEF. Ownership and buy-in for the program by countries will ensure that policy options for fostering sustainability and climate-resilience can be identified and prioritized. In particular, a strong engagement with government agencies involved with agriculture, livestock, environment, food security, and forests will be crucial for influencing potentially new institutional frameworks to foster integration across these sectors.

(b) Smallholder farmers and Farmer Organizations – The program must reach smallholder farmers and farmer organizations to increase their commercial orientation by bringing producers together and reducing market barriers. As they become more commercial, smallholders will produce more marketable surpluses

and raise their incomes. More reasonably-priced food in the market will in turn boost food security. Improving produce storage options for smallholders will also reduce price volatility. Carefully designed and well-run warehouse receipt systems enable farmers to sell their product at times when better prices prevail. Such systems also increase the ability of smallholders to borrow funds, using their stored produce as security. Farmers' organizations have an important role in this regard and will also be targeted to provide demand-driven, income-enhancing services to their members.

(c) Financial Institutions and Agrodealers – The potential for both input and output markets depends on a strong engagement by financial institutions and agro-dealers. The Signature Program will target these actors to create investment opportunities for scaling- up best practices and climate resilient options. Financing institutions will be targeted to promote the availability of affordable financing for smallholder producers, without which they cannot make income-earning and climate-smart changes to their operations. Burgeoning micro-finance institutions and innovative banks are increasingly trying to serve this market segment. Reaching networks of agrodealers with accurate information on the latest input developments and best practice in agronomy will increase the availability and accessibility of improved technologies to smallholder farmers. AGRA already engages agro-dealers as a primary conduit of seeds, fertilizers, and knowledge to smallholder farmers. Agro-dealers are forming a new generation of frontline extension workers, as they play a critical role in increasing uptake of agricultural technologies by farmers.

(d) Other Private Sector: National and international private sector food purchasers, aggregators, and input suppliers – particularly agribusiness Small and Medium Enterprises (SMEs) – seek to develop public-private partnerships (PPPs) to include smallholders in markets. Now there is an opportunity to ensure this is done sustainably and equitably. The Signature Program will support the deeper integration of environment and climate resiliency issues into public and private value-chain development initiatives. The Program will stimulate the creation of environmentally positive PPPs, with a focus on i) ensuring the preservation and enhancement of biological and livelihood diversity in smallholder farms benefiting from enhanced market access; ii) greater efforts to use climate information services to ensure resilience of value chains in the face of greater weather risks; and iii) more attention to innovations to tackle waste in the post-production systems.

Barriers

(a) National Governments. Most national governments face several important barriers for a sustainable and resilient African Green Revolution. Governments lack adequate tools and resources to support decision-making on key policies to mainstream environmental priorities into food security planning and investments. Furthermore, existing institutional frameworks do not foster cross-sector integration of environment and agricultural priorities at multiple scales. As a result, policy frameworks not only fail to sufficiently support increased

productivity and higher incomes for smallholder farmers, but also undermine the sustainability and resilience of food value chains. Extension systems are under-resourced and unable to provide the knowledge of good and sustainable agricultural practices to promote their uptake by smallholder farmers.

(b) Smallholder Farmers and Farmer Organizations. Barriers affecting smallholder farmers include limited access to agricultural inputs and innovations, and to reliable food market systems. Low production of relevant agricultural research products and limited outreach to smallholder farmer level is a barrier to sustainability in most production systems. Food markets systems are also an important barrier because they fail to transmit consumer needs to farmers and convey adequate returns: smallholders typically do not know what produce consumers want and how they are willing to pay. Even when they do know consumer requirements, they lack the knowledge (such as post-harvest handling and grades) and resources (most importantly adequate storage facilities) to achieve the quality that the market demands. Moreover, farmers tend to engage with markets as individuals, lowering their attractiveness to buyers because their quantities are so low. Existing farmer organizations do not function well enough to give their members confidence in collective buying and selling. Lack of market intelligence and links to buyers further reduce smallholders' income from farming. These barriers also have a gender dimension because of the crucial role of women in smallholder agriculture.

(c) Financial Institutions and Agro-dealers. Smallholder farmers do not have access to capital for investments in best practices for long-term sustainability of their farms, which is likely to make it difficult for them to harness the promises of an African Green Revolution. Inefficient and ineffective input supply chains are major barriers to full engagement by financial institutions and agro-dealers in fulfilling this need. Some policies constitute bottlenecks that restrict smallholder access to improved seed varieties and essential farm inputs and tools. As a result, these invaluable resources are either physically or financially inaccessible to farmers, forcing them to use practices that lead to environmental degradation and exposing them to climate change vulnerability and risks.

(d) Other Private Sector. Africa's agribusiness SMEs show a capability to be an essential link between smallholder farmers and the markets (both input and output) that serve them. However, capacity and financial barriers keep SMEs from expanding these market services to farmers.

GEF Levers

47. The GEF's most important lever is its role in catalyzing investments in management of natural capital to safeguard the global commons. This is important for addressing biophysical barriers that smallholder farmers face, including climate change and variability, which can exacerbate environmental degradation and erode potential gains from improved management. As a leading funder for the global environment and financial mechanism of major environmental conventions, the GEF is influential in catalyzing actions by national governments, development partners, and civil society organizations. The GEF also harnesses this catalytic role to foster collective action across multiple geographical scales (from local to global) and across national boundaries.

48. These levers will be invaluable for the Signature Program, especially in removing barriers to a sustainable and resilient green revolution in sub-Saharan Africa. Effective innovations across food value chains are available for sharing with farmers and the Signature Program will include investments that will catalyze their use at scale. The program will benefit from AGRA's links with research institutions, private sector, and civil society organizations with specialized skills.

Program Framework

49. The Signature Program will focus on the following four domains of intervention:

Component 1: Soil health and water conservation. An important driver of food insecurity in Africa is decline of soil fertility on agricultural land, especially those under smallholder farming where conservation measures are limited or lacking. Sustainability of crop and livestock production in these lands requires soil management options that enable farmers to balance the demand for increased food production and maintenance of soil ecosystem services. There is a particular need for innovative approaches in fragile and vulnerable production systems, with emphasis on improving land productivity, maintenance of soil organic matter and carbon, efficient soil and water management, and improving vegetative cover. GEF financing will focus on scaling-up integrated soil fertility management, use of fertilizer trees on farms, conservation agriculture (where sufficient evidence has accrued on cost-effectiveness), and options for efficiently capturing and managing runoff.

Component 2: Diversification of production systems. An important aspect of food security in Sub-Saharan Africa is the need for production systems to deliver options that meet the multiple needs of communities. In addition to safeguarding crop varieties and livestock breeds, diversification of production systems creates options for income, including wild foods and biomass for cooking. GEF financing will focus on in situ conservation of genetic resources and local practices, integration and management of high value trees in production landscape level, sustainable use and management of trees on-farm for ecosystem goods (food products) and services (e.g. water flow, pollinators, pest control agents), and renewable energy alternatives to biomass for cooking.

Component 3: Integrated resource management in agro-pastoral systems. Increased pressure from livestock grazing is a major driver of land and water degradation in agro-pastoral systems, particularly in the drylands of sub-Saharan Africa. In the drylands, herders are also vulnerable to droughts, which force them into conflicts with farmers as they migrate in search of new grazing lands. This undermines the food security and livelihood of farmers and herders and at the same time exacerbates degradation of natural capital in the production systems. Addressing these challenges requires large-scale measures that integrate livestock management needs with crop production. GEF financing will focus on options to improve grazing and water resource management, increase the use of fodder trees to reduce impacts of overgrazing, improve the supply of crop residues including those of protein-rich grain legumes, and improve policies for effective crop-livestock systems.

Component 4: Increasing resilience and stability. Sustainability and resilience requires appropriate enabling conditions at local and national levels. In particular, there is need to influence resilience thinking in decision-making about food security, including adaptation to climate change. This will create opportunities for mainstreaming proven approaches into policies and institutional frameworks for adaptation. GEF will finance this cross-cutting component to accelerate the widespread application of sustainable and climate-resilient practices through: policy improvements and investment planning at the national level; capacity, knowledge management and institutional frameworks for monitoring and quantifying environmental benefits at scale; and capacity development and knowledge management activities for implementing best practices and coping strategies against climate change risks at multiple scales. All interventions will aim at empowering women and young people who are beneficiaries and key players in the transformational change anticipated by this Signature Program.

50. GEF will invest in each intervention domain according to the needs and priorities of the geographies being targeted for the Signature Program. GEF resources will be incremental but linked in an integrated and coherent manner to foster progress toward achieving food security with global environment benefits, and overall financing for the Signature Program will be accounted for by the four intervention domains, targeted geographies, and participating countries.. The modality for investments will be determined during the operational phase of the program. The measurable indicators will be carefully assessed when refining the results framework for global environment benefits. A preliminary results framework for the Signature Program framework is presented in Table 4.

51. Although the Signature Program will tackle critical aspects of food security and food value chains in sub-Saharan Africa, two important needs will not be explicitly addressed by the GEF. First, new varieties of crops are needed because many of the seeds farmers use today are inherently low-yielding and vulnerable to crop diseases and pests. AGRA addresses this need by investing in conventional, farmer-driven breeding as a way to give farmers access to high-quality seed at prices they can afford. The Signature Program will build on this approach, and GEF will not invest in research on, or testing of, genetically modified crop varieties as a solution for increasing yields.

52. Second, malnutrition is a major obstacle to human development in sub-Saharan Africa.[64] Solutions to malnutrition require targeted cross-sector (i.e. agriculture, health, education) policies and actions that are best handled by national governments and the development community. While the Signature Program will contribute through increased availability of nutritious food and diversification of the production systems in targeted geographies, it will not explicitly address malnutrition.

Target Geographies for Implementation

53. GEF's contribution to food security will be the scaling-up of sustainable land management options to achieve better crop and rangeland productivity and more resilient post-production and marketing systems for smallholders. This can be maximized by targeting

[64] Africa Human Development Report 2012: Towards a Food Secure Future. UNDP

countries and regions with areas prone to environmental crisis leading to food insecurity; that have potential for leverage based on having a CAADP strategy in place (or under development) and having secured financial flows for its implementation; that are ripe for scaling up based on evidence; with some success to build on; and with evidence of public sector engagement demonstrating ownership and sustainability. Based on these criteria, the signature program will focus on the following geographies:

- Sahel – Focus on the Guinea-Savanna dominated by maize-mixed and agro-pastoral systems (Burkina Faso, Ghana, Mali and Niger)
- Horn of Africa – With an estimated 70 million people, including pastoralists living in areas prone to extreme food shortages (Ethiopia)
- Eastern Africa Highlands – Mainly areas dominated by mixed and perennial farming systems, with high population densities (Kenya, Rwanda, Tanzania and Uganda)
- Southern Africa – Focusing on the crop-livestock systems in the sub-humid zone, with maize as the dominant food crop (Malawi, Mozambique, Zambia, Zimbabwe)

54. A basic profile of land area and population for the farming associated with the targeted geographies is presented in Table 2 (see also maps in Box 1). Some of these farming systems are considered the breadbaskets of Africa because of their crucial importance for food crops and livestock production. Yet they are also among the most affected by biophysical and social-economic constraints, which undermine the potential for achieving food security. Hence they represent the greatest potential for influencing transformational change through the proposed approach for this Signature Program.

55. Building on planned and existing initiatives in each of the target geographies, GEF investments will address the four intervention domains. Within each of the geographies, the Signature Program will engage with national Governments and other development entities to invest in appropriate options. The approach will ensure that efforts to address food security will be reinforced by innovations for safeguarding ecosystem services and increasing overall resilience of production systems.

Food Security Table 2 - Basic Profile of Major Farming

Farming System	Agro-pastoral	Cereal-root crop mixed	Maize mixed	Highland mixed	Highland perennial
Targeted Geographies	Sahel Eastern Africa Horn of Africa Southern Africa	Sahel (Guinea Savannah)	Eastern Africa Horn of Africa Southern Africa	Eastern Africa Horn of Africa	Eastern Africa Horn of Africa
Total Area (millions of ha)	365	205.3	395.6	47.3	42
Cultivated Area (millions of ha)	29.3	16.6	91	4	5.4
Rural Pop. (2010, millions)	92.8	50.7	95.6	43.5	65
Agriculture Pop. (2010, millions)	81.8	42.1	90.7	40	61.4

Source: Garrity et al. 2012. Understanding African Farming Systems: Science and Policy Implications

Partners

56. Because the Signature Program represents a departure from the business-as-usual approach of the GEF, the implementation will also involve several non-traditional partners. AGRA, will serve as lead executing partner for the program. Others potential partners include GEF Agencies (IFAD, World Bank, and African Development Bank), the CGIAR Fund, and the Forum for African Agricultural Research in Africa.

57. The Signature Program will help improve The Alliance for a Green Revolution in Africa (AGRA) management of natural capital, and improve the enabling environment for sustainability and resilience of the African Green Revolution. GEF funds will go towards scaling up activities that have multiple benefits, building on AGRA's strong livelihood interventions; and enhancing the environmental benefits of current interventions by incorporating additional natural resource management elements. Through the partnership, the Signature Program will contribute to yield increased crop productivity, soil health conditions over large areas, water retention and less erosion, maintenance of genetic diversity, substantial carbon benefits, as well as socio-economic benefits such as higher smallholder incomes.

GEF Agencies

58. At least three GEF Agencies are well placed to engage as partners for the Signature Program: International Fund for Agricultural Development (IFAD), The World Bank, and African Development Bank.

59. IFAD recently launched a new Adaptation for Smallholder Agriculture Programme (ASAP) to serve as new source of co-financing to scale-up and integrate climate change

adaptation across its approximately US$1 billion per year of new investments.[65] The ASAP has five outcomes: i) improved land management and gender-sensitive climate-resilient agricultural practices and technologies; ii) increased availability of water and efficiency of water use for smallholder agriculture; iii) increased human capacity to manage short- and long-term climate risks and reduce losses from weather-related disasters; 4) rural infrastructure made climate resilient; and v) knowledge on climate-smart smallholder agriculture documented and disseminated. These outcomes position IFAD as a prospective partner for the Signature Program. Because of the focus on smallholder farmers, the ASAP could potentially serve as significant source of co-financing for the Signature Program.

60. The World Bank is also well placed to leverage investments made under traditional agriculture financing flows, such as through the Global Agriculture and Food Security Program (GAFSP).[66] GAFSP addresses the underfunding of country and regional agriculture and food security strategic investment plans already being developed by countries in consultation with donors and other stakeholders at the country-level. The GAFSP has so far allocated $658 million to 18 countries for investments to raise agricultural productivity, link farmers to markets, reduce risk and vulnerability, improve non-farm rural livelihoods, scale-up technical assistance, and capacity development. As Secretariat for the GAFSP, the World Bank is well placed to generate considerable co-financing for climate-smart agriculture in the targeted geographies. In particular, targeting GAFSP recipients will multiply the impact of GEF investments under the Signature Program. It will allow the GEF investments to influence CAADP country strategies and the donor resources that will implement them that together will direct agricultural investment, and thus land management, in low-income countries for a generation.

61. The African Development Bank's 2013 – 2022 strategy includes an explicit focus on agriculture and food security. The AFDB approach is to unlock Africa's agricultural potential and tackle food insecurity using an integrated value-chain approach. The strategy focuses primarily on agricultural infrastructure, with investments in rural roads, irrigation, storage facilities, and markets. The AFDB also has a strong track record as financier of private investments in agriculture and agribusiness, and leverages partnerships with IFAD to strengthen the overall sector. Hence, it seems likely that the AFDB comparative advantage can be more effectively harnessed through its partnership with IFAD, rather than directly as a GEF Agency for the Signature Program.

62. The Consultative Group on International Agricultural Research Fund (CGIAR Fund) is a multi-donor trust fund that supports international agricultural research aimed at reducing rural poverty, strengthening food security, improving human nutrition and health, and enhancing natural resource management.[67] The Fund finances research carried out by 15 international agricultural research centers, working closely with hundreds of partners worldwide, through a portfolio of CGIAR Research Programs (CRPs). The Signature Program will create an opportunity for countries to harness public goods from these CRPs through adaptive management, including knowledge management and capacity development from the Centers involved. The following CRPs offer strong prospects for adaptive management and learning:

[65] IFAD Adaptation for Smallholder Agriculture Programme (ASAP), www.ifad.org/climate/asap
[66] Global Agriculture and Food Security Program (GAFSP), http://www.gafspfund.org/
[67] http://www.cgiarfund.org/

(a) CRP1.1: Dryland Systems - aims to improve food security for the rural poor, protect the natural resource base, and empower small-scale farmers and pastoralists in dry areas by pursuing new technological, institutional, and policy options.
(b) CRP5: Water, Land and Ecosystems – focus on intensifying agriculture while protecting the environment and lifting millions of farm families out of poverty.
(c) CRP6: Forests, Trees and Agroforestry - enhancing management and use of forests, agroforestry, and tree genetic resources across the landscape from forests to farms for the benefit or poor people, particularly women and other disadvantaged groups.
(d) CRP7: Climate Change, Agriculture and Food Security - offers developing country farmers new options for adapting to the emerging impacts of climate change and mitigating its effects through a "carbon-friendly" agriculture that also strengthens food security and reduces poverty.

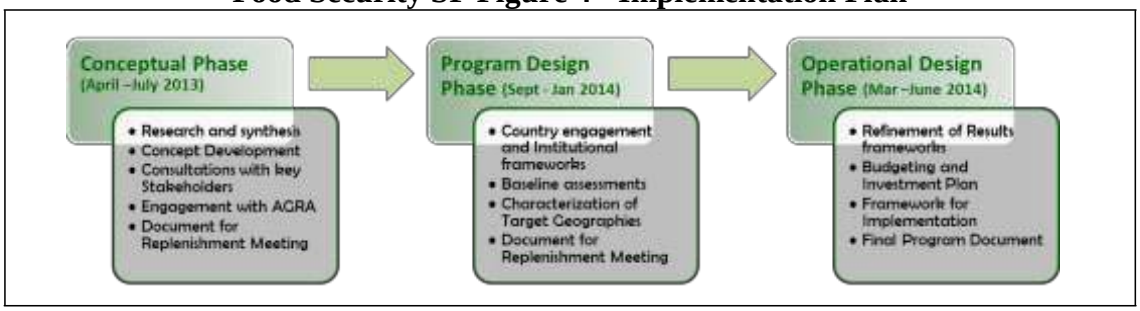
63. The Forum for Agricultural Research in Africa (FARA) is the platform for engagement of all major stakeholders involved with agricultural research and development in Africa.[68] FARA complements the innovative activities of national, international, and sub-regional research institutions to deliver more responsive and effective services to its stakeholders. It plays advocacy and coordination roles for agricultural research for development, while the national agricultural research systems, advanced research institutions and international agricultural research centers develop improved technologies along the research-to-development continuum in their respective countries and coverage areas. FARA's mission is to create broad-based improvements in agricultural productivity, competitiveness and markets by supporting Africa's sub-regional organizations in strengthening capacity for agricultural innovation. This mission is directly linked to the CAADP and to sub-regional priorities, and therefore supportive of country-driven needs for transforming agriculture. As a regional platform for research-for-development in Africa, FARA is well-placed to mainstream the approach proposed for the Signature Program.

64. A potentially important link with FARA is the Sub-Saharan Africa Challenge Program, which was designed to advance Integrated Agricultural Research for Development (IAR4D) in Africa.[69] The program is being implemented at three Pilot Learning Sites covering 8 countries, which overlap with the geographies targeted for the Signature Program. It focuses primarily on: (i) delivering international public goods concerned with best practices in relation to multi-stakeholder engagement in the generation and wide-scale adoption of agricultural innovations and (ii) evaluating whether IAR4D works and is more cost/benefit effective relative to conventional approaches. Depending on current status of the program, this approach and emerging lessons will be explored as a possible option for knowledge management and learning.

[68] http://www.fara-africa.org/
[69] http://www.fara-africa.org/our-projects/ssa-cp/about-ssa-cp/

Implementation Plan

Food Security SP Figure 4 - Implementation Plan



65. The implementation plan for the Signature Program includes three main phases: the current Conceptual Phase led by the GEF Secretariat, a Program Design Phase to be jointly led by GEF Secretariat, AGRA and GEF Agency (or Agencies), and an Operational Design Phase. These milestones and deliverables are timed to ensure alignment with the GEF-6 Replenishment process.

Conceptual Phase (May – July 2013)

66. This phase has been led by the GEF Secretariat. Following the first GEF-6 Replenishment Meeting in April, 2013, the GEF Secretariat conducted an extensive review of existing resources (scientific publications, project documents, and ongoing programs) to inform and elaborate the proposed approach. In addition, a number of important consultations were held to further assess GEF value-add for the Signature Program. They include the following:

(a) A high level meeting with representatives of GEF recipient and donor countries, African Institutions (New Partnership for Africa's Development), and International Organizations to consult on the program during the "Fifth Tokyo International Conference on African Development," held in Yokohama, June 2-3, 2013

(b) Consultation with African agriculture and natural resource management experts at a major conference on "Forests and Food Security," held at the FAO in Rome, May 13-15, 2013

(c) Consultation with international experts from academia, private sector, and civil society organizations during launch of the Aspen Institute Working Group on Food Security in Marrakech, June 14-17, 2013

(d) Meeting with the management team of the Alliance for a Green Revolution in Africa to discuss the program approach, targeted geographies, the overall Theory of Change, and framework for collaboration

(e) Consultations with experts from McKinsey & Co and the World Resources Institute in the context of GEF 2020 Vision, overall GEF positioning to influence transformational change for food security, and on emerging opportunities and priorities for engagement in sub-Saharan Africa

(f) Consultation with experts and task managers in GEF Agencies (African Development Bank, FAO, IFAD, World Bank, UNEP) to discuss potential overlaps and

(g) interests based on the proposed sectoral approach, including opportunities for engagement

67. The inputs and suggestions from these consultations have been incorporated into the full description of the Signature Program. The description also reflects buy-in and support secured for further development of the Signature Program. Further elaboration of the program will be undertaken during the design phase, which will be based on a careful characterization of the targeted geographies to inform priority actions and investments.

Program Design Phase (September 2013 – January 2014)

68. This phase will focus on designing the program with full engagement by major stakeholders in the targeted geographies in order to build ownership at multiple scales (local, national, and regional) of the proposed interventions and investments. The phase includes three main components: 1) characterization of the targeted geographies; 2) establishing the relative importance of proposed intervention domains; and 3) identifying and quantifying measurable global environment benefits (see Annex 3 for detailed description of each component). This phase will culminate in a consultative process with the targeted countries and development partners to establish the Signature Program priorities for incremental financing.

Operational Design Phase (March – June 2014)

69. A new operational modality for the Signature Program will be required to take into account financing modalities, oversight for implementation, accountability for outcomes and deliverables, and monitoring and evaluation. These needs will be addressed during the Operational Design Phase, including the proposed GEF Agency (or Agencies), specific roles for AGRA as executing agency, and overall program cycle requirements. The GEF Secretariat and AGRA will work jointly with designated government agencies and GEF Agencies on the financing plan based on the proposed program results framework. IFAD, World Bank, and African Development Bank will be specifically engaged to determine baseline investments and co-financing opportunities. It is envisaged that the GEF Secretariat and all relevant partners will operate a Steering Committee as platform for collective oversight of the Signature Program. The Steering Committee will have representation from the GEF Secretariat, Government Agencies, AGRA, the GEF Science and Technical Advisory Panel (STAP), GEF Agency(ies), other prospective donors, and key stakeholders. A fully developed program document will be the outcome of this phase, which will then follow the formal clearance and approval processes of the GEF.

Funding

70. The Signature Program will target an investment envelope of up to $1 billion over 5 years, with the GEF grant and projected co-financing presented in Table 5. Because of the commitment to agriculture and food security in sub-Saharan Africa by national governments and development partners, the GEF program will be operationalized to both leverage existing investments and catalyze additional resources in the targeted geographies. The co-financing prospects will be pursued during the Operational Design Phase.

71. The GEF grant of $100 million will be programmed according to the proposed intervention domains, and building initially on baseline investments by AGRA, which is also projected at $150 million over the five years. The 8-12 target countries are expected to contribute a minimum of $5 million each as co-financing based on existing and planned commitments under the CAADP. Bilateral Agencies with ongoing and planned investments in the target geographies will be engaged to mobilize $100 million in co-financing. Finally, multi-lateral agencies (including the GEF Agencies) are expected to generate an additional $500 million in co-financing.

Food Security Table 3 - Proposed GEF Grant and Projected Co-financing for the Signature Program

Source	Amount (US$ Millions)
GEF Grant	100
AGRA	150
National Governments	50
Foundations	100
Bilateral Agencies	100
Multi-lateral Agencies	500
Total	1,000

Results Framework

Food Security Table 4 - Preliminary Results Framework for the Signature Program

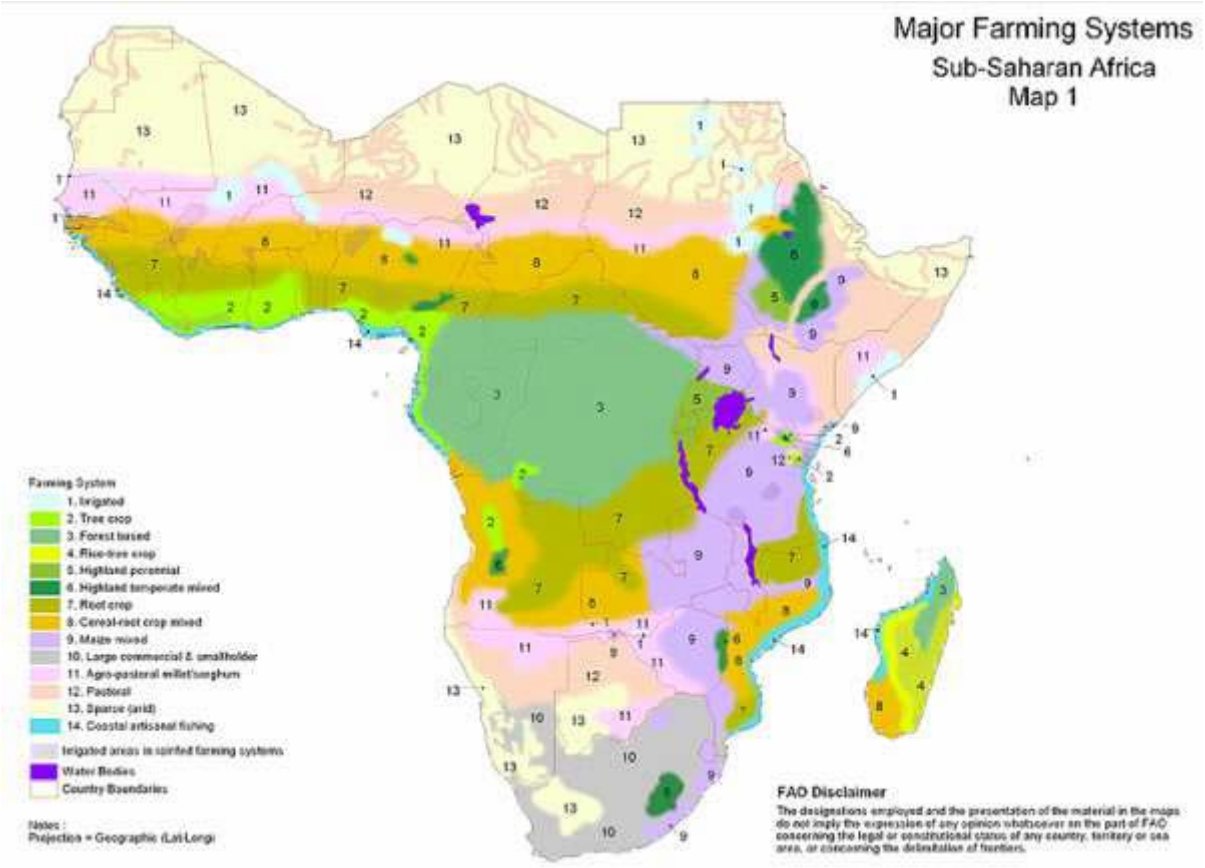
Intervention Domains	Examples of Interventions	Outputs	Outcomes
Soil health and water conservation	• Integrated soil fertility management • Use of "fertilizer" trees on farms (nitrogen-fixing leguminous trees) • Conservation agriculture • Farmer-managed natural regeneration • Small-scale irrigation • Rainwater harvesting • Erosion control	• Smallholder farmers have increased access to options for soil and water conservation • Soil organic content improved • Irrigation system sustainably improved • Increase smallholder adoption of suitable technologies	• Increased availability and sustained access to food and nutrients • Improved and sustained crop yields on smallholder farms (tons/hectare) • Ecosystem Services Improved and Maintained in Production Systems • soil organic matter accumulation (tons/year) • soil carbon stored (tons CO2e/year) • emissions avoided (tons CO2e/year) • improved quality and flow of water resources (relative to baseline)

Intervention Domains	**Examples of Interventions**	**Outputs**	**Outcomes**
Diversification of production systems	• In situ conservation and use of genetic resources • Integration and management of high value trees in production landscapes • Sustainable use and management of trees on-farm • Incentives and payments for conservation- friendly practices • Options for efficient use of biomass energy • Renewable energy alternatives to biomass	• Crops and livestock types • diversified • Vegetation and tree cover increased • Income generated from production lands • Fuelwood and biomass used efficiently	• Increased availability and sustained access to food and nutrients • Smallholder farmlands and production landscapes diversified (# of varieties on farm, # species per hectare) • Ecosystem Services Improved and Maintained in Production Systems • protection of existing carbon stocks (tons C/hectare) • carbon sequestration (tons CO2e/year) • emissions avoided (tons CO2e/year • on-farm crop diversity (# of varieties) • landscape diversification (area in hectares) • vegetation and tree cover increase o maintenance (area in hectares) • landscape connectivity (area in hectares)

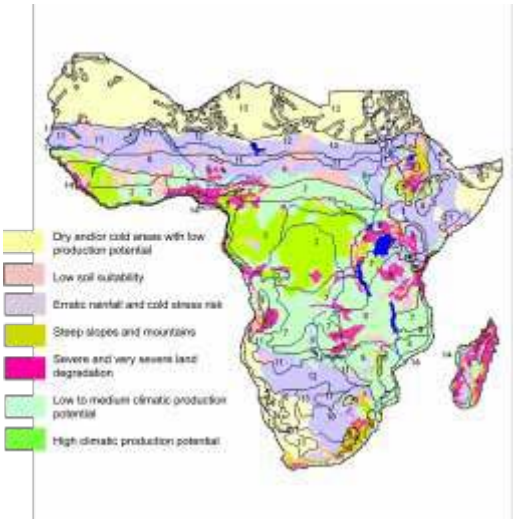
Intervention Domains	Examples of Interventions	Outputs	Outcomes
Integrated natural resource management in agro-pastoral systems	• Grazing and water resource management • Conservation and use of fodder trees • Management and use of crop residues as fodder • Policy options for effective crop-livestock systems	• Crop-livestock management integrated • at landscape scale • Reduced conflicts between smallholder farmers and herders • Increased use of fodder trees across landscapes	• Increased availability • and sustained access to food and nutrients • Agro-pastoral systems sustainably intensified (# of farms, area in hectares) • Ecosystem Services Improved and Maintained in Production Systems • protection of existing carbon stocks (tons C/hectare) • carbon sequestration • (tons CO2e/year) • emissions avoided (tons • CO2e/year • vegetation and tree cover increase o maintenance (area in hectares) • landscape connectivity • (area in hectares) • improved quality and flow of water resources (relative to baseline)

Intervention Domains	Examples of Interventions	Outputs	Outcomes
Increasing resilience and stability	• Policy options and incentives to promote soil and water conservation, farm and landscape diversification, and integrated crop-livestock systems • Policy options and investment planning for climate-resilient interventions at national level • Options for improved post-harvest storage • Coping strategies against climate change risks • Institutional frameworks for monitoring global environment benefits • Capacity and knowledge management for scaling-up best-bet practices	• Smallholder farmers adopting and • scaling-up innovations for sustainability and resilience of production systems • Storage and market opportunities available to smallholder farmers • Climate / weather information accessible and usable • Smallholders aware of and able to integrate improved climate-resilient practices • Institutions and capacities in place for • Increased financing accessible to smallholder farmers for investment in best • practices	• Supportive Enabling • Environment in place for • Smallholder Agriculture • Policies and incentives • in place for smallholder farmers to adopt and scale up best-bet • practices for environmental sustainability and resilience • National and sub- national policies and structures in place to support climate- • resilient practices • Increased private sector investment in climate-resilient options • Farmers' organizations actively engaged in scaling-up climate-resilient practices • Capacity and institutions in place for monitoring global environment benefits

Annex 1 – Sub-Saharan Africa (a) Farming Systems and (b) Associated Environmental Constraints



a) Farming Systems in Africa



b) Environmental Constraints associated with Africa's Farming Systems

Source: http://www.fao.org/farmingsystems/maps_SSA_en.htm

Annex 2 – Typology and Examples of Donors involved with Agriculture and Food Security initiatives in Sub-Saharan Africa

Category	Donors	Focus
Multilateral	African Development Bank	Agricultural growth, Value Chain Development (Markets)
	FAO	Environmentally sustainable food production
	IFAD	Smallholder Agriculture, Enabling Policies
	European Commission	Food production, Value Chain Development
	The World Bank	Agricultural growth, Value Chain Development
	Islamic Development Bank	Value Chain Development
Bilateral	ACIAR (Australia)	Smallholder Agriculture
	CIDA (Canada) IDRC	ICT and Food production Research on Smallholder Agriculture
	DFID (UK)	Value Chain Development, Smallholder Agriculture, Input and Output Markets and Technology Enhancements
	DANIDA (Denmark)	Smallholder Farmers and Access to Finance
	GIZ (Germany)	Value chain development, sustainability
	JICA (Japan)	Value Chain Development
	The Netherlands	Natural resource management, Evergreen Agriculture
	Norway	Climate change and food security, women in agriculture
	SIDA (Sweden)	Smallholder agriculture, Access to markets and finance, environmental sustainability, Women in agriculture
	USAID (United States)	Value Chain Development, Smallholder Agriculture, Input and Output Markets and Technology Enhancements
Foundations	Bill & Melinda Gates	Smallholder Agriculture, Value Chain Development

Category	Donors	Focus
	Ford Foundation	Food and agriculture policy, improved livelihoods for rural poor, research and development
	Rockefeller Foundation	Smallholder Agriculture, Value Chain Development
	Howard G Buffett Foundation	Food security, Water management
	Gatsby Charitable Foundation	Value chain development, Agricultural finance
	Aga Khan Foundation	Economic development, Microfinance, Agro-processing

Annex 3 – Further Planned Work for Designing the Signature Program

Component 1 – Characterize the targeted geographical contexts based on expert input and analysis with respect to the following:

(a) farmland extent (area in hectares) and as proportion of available arable land
(b) farming systems (types and estimated coverage in hectares)
(c) farmers and farm households (numbers, incomes)
(d) agricultural productivity (types of food crops and estimated yields / yield-gaps)
(e) major drivers affecting land and water (typology and existing trends)
(f) institutions and organizations (typology and activities)
(g) national policy environment, including links to implementation of Conventions for all countries involved
(h) existing donor activities and projects, including levels of investments, target outcomes and beneficiaries

Component 2 - Determine the relative importance of proposed intervention for each of the targeted geographies domains based on existing environmental constraints, and including examples of options for financing under the program:

(a) Soil health and water conservation – scaling-up integrated soil fertility management, fertilizer trees and conservation agriculture (where sufficient evidence has accrued on cost-effectiveness), and options for efficient capturing and management of runoff.
(b) Diversification of production systems – in situ conservation of genetic resources and local practices, integration and management of high value trees in production landscape level, sustainable use and management of forest landscapes including on-farm trees for ecosystem goods (food products) and services (e.g. water flow, pollinators, pest control agents), and renewable energy alternatives to biomass for cooking.
(c) Integrated management of agro-pastoral systems - options to improve grazing and water resource management, increase the use of fodder trees to reduce impacts of overgrazing, improve the supply of crop residues including those of protein-rich grain legumes, and improve policies for effective crop-livestock systems.
(d) Increasing resilience and stability – policy improvements and investment planning at national level; climate-smart coping strategies and climate risk mitigation; capacity, knowledge management and institutional frameworks for monitoring and quantifying environmental benefits at scale.

Component 3 – Identify potential measurable global environment benefits in the targeted geographies. This component will also identify existing resources (methods and tools), and institutions and capacity needs for monitoring global environment benefits in the targeted geographies. The following global environment benefits will be specifically assessed:

(a) biodiversity conservation - on-farm crop diversity (# of varieties), landscape diversification (area in hectares), wildlife habitat (area in hectares), landscape connectivity (area in hectares)
(b) climate change mitigation - protection of existing carbon stocks (tons C/hectare),

carbon sequestration (tons

(c) CO2e/year), and GHG emissions avoided (tons CO2e/year)

(d) land and soil health - increase (area in hectares) and maintenance (area in hectares) of vegetation and tree cover

(e) available water resources - improved quality and flow (relative to baseline)

AMAZON SIGNATURE PROGRAM

Summary

1. The Amazon basin covers an area of almost 8 million square kilometers and includes 610 Protected Areas and 2,344 indigenous territories cover 45 percent of the basin,[70] More than 40 percent of the rainforest remaining on Earth is found in the Amazon and it is home to at least 10 percent of the world's known species. The Amazon is the largest river basin on the planet, and is one of largest natural areas that still has the potential to remain sustainably conserved and managed. Given its sheer magnitude, the Amazon plays a crucial role in maintaining climatic and ecosystem stability nationally and regionally. In sum, it is difficult to overstate the importance of the Amazon to the global environment.

2. Complementing GEF's prior investments in the expansion of the region's protected area systems and support to biodiversity mainstreaming, the Amazon Signature Program (ASP) will initially involve Brazil, Colombia, and Peru, which together cover approximately 80 percent of the surface area of the Amazon. The ASP will extend GEF's support to the sustainable management of the Amazon basin through targeted interventions at the national and regional level that will secure its full potential to generate global environmental benefits in the GEF focal areas of biodiversity, climate change, international waters, and chemicals. The Program will implement sustainable development options, including opportunities in the forest-sector, that can help reduce poverty and stabilize the agricultural frontier.

3. All participating countries have activities at the national level to sustainably manage forests and prevent deforestation. However, many investments do not take advantage of or recognize the regionalization of the Amazon basin as an opportunity to align national actions with a sustainable development model. The ASP will build on this opportunity and strengthen national action while promoting regional cooperation and collaboration to jointly address common drivers of deforestation and unsustainable use of natural resources.

Vision

4. The Amazon Signature Program will move beyond solely supporting measures focused on conservation and sustainable use of biodiversity to include promoting economic development that relies on natural resources, including sustainable forest management that can help reduce poverty and stabilize the agriculture frontier. An array of private sector actors (large corporations, small and medium enterprises, small-holders, etc.) and indigenous and local communities will have key roles to play in the sustainable development and management of the Amazon as a whole. Global environmental benefits will be considered from a more holistic perspective as the ASP will help secure the Amazon basin's function in maintaining climatic and ecosystem stability nationally, regionally, and globally while sustaining these benefits over the medium to long-term. Finally, the ASP will build on the increasing trend of regional integration and identify, codify, and disseminate best practices and policy options to regulate and manage extractive industries, the development of infrastructure, and other common drivers of deforestation.

[70] RAISG, 2012. Amazon Under Pressure. 68 pages (ww.raisg.socioambiental.org)

The Rationale for an Amazon Signature Program

5. The Amazon Signature Program recognizes the global significance of the Amazon basin as a repository of biodiversity and provider environmental services and the unique opportunity that exists now for securing hard-won conservation gains for the long-term. Investments by the GEF and other donors in the Amazon basin during the last decade have resulted in significant conservation successes and secured global environmental benefits in biodiversity and climate change. By selecting the Amazon as the geographic setting for one of its Signature Programs during GEF-6, the GEF will build on this significant baseline of investments and political will to secure global environmental benefits for the long-term. The Program will address pressures that threaten the ecological integrity of this critical biome but that also provide opportunities for sustainable development., and will facilitate the concentration of not only GEF financial resources but also those of other donors.

6. The Amazon Signature Program will help create and enhance opportunities for basin-wide policy dialogue and action. The Amazon Signature Program will help support existing regional cooperation agreements to propel the agenda that member countries have already agreed as necessary and that require international cooperation. The agenda for the management of conservation and productive landscapes (land- and river-based) includes trans-boundary protected areas, illegal gold mining across international borders, and fresh-water fisheries. These issues, and others identified by the participating countries, are at the epicenter of sustainable development for the countries with territories in the Amazon, making GEF's support particularly timely.

7. The Amazon basin is a biological unit. The Amazon rainforests contain one of the greatest concentrations of plants, animals, and microorganisms on the planet. Many of these species, and particularly those at the top of the food chain, have evolved in an environment dominated by enormous tracts of undisturbed, closed canopy forest. The survival of these species and ecological processes demands a network of large and well-connected protected areas that cover representative samples of the different vegetation and habitats types situated within production landscapes. Therefore, countries in the basin must jointly consider conservation and sustainable development at the basin level, as failing to do so will most likely result in the loss of a significant number of species and changes in the structure and function of the forests. Only through a collaborative approach that combines national and regional action can the vision of a sustainable Amazon be realized.

8. The Amazon basin is a climatological unit. Amazon forests are crucial for maintaining climatic and ecosystem stability locally, regionally, and globally. The closed canopy forest recycles rainfall falling over the basin through the combination of evaporation and transpiration from plants. This process is significantly reduced or stopped all together when pastures and other non-forested vegetation types replace the forests. by,. In those circumstances annual rainfall diminishes and the length of the dry season increases. The changes in the rainfall can be so severe that the entire system can pass a tipping point from which it would be difficult to recover. This regional and planetary scenario will most likely entail natural dieback of the native forest due to drought and fire. This recycling is critical to other regions in South America that depend

on this process. If recycling in the Amazon is reduced, less rain water would reach Bolivia, Paraguay, northern Argentina and southern Brazil. Indeed, the Río de la Plata basin depends on evaporation from the Amazon forest for 70 percent of its water. The capacity of Amazon forest to influence climate goes beyond the region, as there is mounting evidence that climate over parts of the USA partly depends on what happens over the heart of South America. Securing the climatological integrity of the Amazon is in the interests of all countries in the basin, where unilateral national decisions may have regional and global consequences that could in the long-term have serious deleterious impacts at the national level. Through its combined support of targeted national and regional actions, the Amazon Signature Program will help maintain climatological integrity.

9. The conservation of the Amazon forests requires investments to address the national agenda as well as regional issues. Without the collaborative work of neighboring countries to tackle common threats and to take advantage of the opportunities, it would be difficult to secure the maintenance of the forest cover and flow of ecosystems services in the long term. Taking action on regional issues can no longer be postponed, as the Amazon region is increasingly accessible and gaining importance in the development agenda. A number of policies and activities critical for the maintenance of the Amazon basin will require political space and investments and may include the following:

(a) Regional policy, legal and regulatory frameworks. At the regional level, participating countries may work on issues related to monitoring deforestation and harmonizaing legal frameworks to address it. The need for a basin-wide approach to monitoring can be demonstrated by initiatives like the Amazonian Network of Geo- reference Socio-Environmental Information (RAISG). This consortium of conservation and social NGOs has recently produced the first pan-Amazonian online database of the drivers of deforestation and the protected area network (including indigenous territories) (www.raisg.socioambiental.org).

(b) Conservation and Sustainable-use Landscapes. The regional agenda on land-based interventions is potentially significant and is recognized by the Governments of the countries participating in the Signature Program. That includes generating and maintaining the coordination of activities in trans-boundary protected areas including: i) the Cuyabeno (Ecuador), Paya (Colombia), Gueppi (Peru) complex around the margins of the Putumayo River, ii) the Madre de Dios (Peru), Acre (Brazil) and Pando (Bolivia) complex, and, iii) the Sierra del Divisor of both Peru and Brazil. There is also an opportunity to facilitate coordination in the Indigenous territories in the tri-national area of Colombia, Peru and Brazil. Finally, at the level of the Amazon biome, some ecosystems are not adequately represented in terms of the areas protected and this could be further evaluated with the aim of identifying and filling ecosystem coverage gaps.

(c) Production Systems. Governments in the region may also address issues related to threats imposed by illegal gold mining.Few border controls exist in these isolated and remote areas, and gold prospectors move up and down the major international rivers running from the Andes to the Amazon. The agreements under OTCA (Amazon Cooperation Treaty Organization) to address monitoring of gold mining along the Colombian-Peruvian border could serve as a platform to engage in further discussions about illegal gold mining these discussions. The participating countries in the ASP may

engage in technology transfer for sustainable use of Amazon products. This type of South-South cooperation is likely to be anchored in agricultural research and development agencies like EMBRAPA (Brazil), IIAP (Peru) and ICA (Colombia). These national agencies, in combination with international remote sensing organizations, could provide valuable data to support the efforts of stakeholders, like RAISG.

(d) ASP will facilitate and promote South-South cooperation to support these regional actions, with a focus on science and technology transfer.

Problem Statement

The Global and National Environmental and Economic Significance of the Amazon

10. Not captured in the figures detailing the size of the Amazon and its protected areas are the critical ecosystem services that the biome provides within the participating countries of the ASP and to humankind globally. These services include the maintenance of the global water cycle, nutrient and carbon cycling, regional climate regulation, preventing soil erosion, and others. The economic value of these services is enormous, but negligible in monetary terms because these services accrue to humankind as a whole for free.

Brazil

11. Brazil holds 60 percent of the Amazon´s rainforest. While it appears mostly continuous, the forest is made up of patches of different ages, climate regimes, geomorphology, and evolutionary history, and therefore qualitatively different in terms of biodiversity composition and ecosystem functions.[71]

12. The importance of the Amazon in regulating rainfall grows from East to West, as evapotranspiration cycles sustain water flows through the atmosphere until they reach the Andes and are directed towards other regions of the planet.In order to maintain current patterns of precipitation, 70 percent of the original extent of the forest needs to be maintained.[72] However, the stability of this ecosystem is under threat both by the global climate changes and local human pressures. Even if the forest adapts to increased temperatures, its composition may change greatly due to potential CO2 fertilization, increased rainfall, and the possibility of reduced deforestation and fire control practices.[73]

13. Scientific understanding of the Amazon's biodiversity is rapidly growing but still incomplete. The Amazon Region Protected Areas Program (ARPA) reports that only over its 10

[71] e.g., Camila C. Ribas et al., "A palaeobiogeographic model for biotic diversification within Amazonia over the past three million years", Proceedings of the Royal Society B: Biological Sciences 279, nº 1729 (22 de fevereiro de 2012): 681–689, doi:10.1098/rspb.2011.1120.

[72] M. a. F. Silva Dias et al., "Cloud and Rain Processes in a Biosphere-atmosphere Interaction Context in the Amazon Region", Journal of Geophysical Research: Atmospheres 107, nº D20 (2002): LBA 39–1–LBA 39–18, doi:10.1029/2001JD000335.

[73] Kenneth J. Feeley et al., "The Relative Importance of Deforestation, Precipitation Change, and Temperature Sensitivity in Determining the Future Distributions and Diversity of Amazonian Plant Species", Global Change Biology 18, nº 8 (2012): 2636–2647, doi:10.1111/j.1365-2486.2012.02719.x.

years of implementation, the biological expeditions it supported in 39 protected areas found over 8,800 species, including 4,181 plant species and 4,712 animal species, including 1,901 species of invertebrates, 975 fish, 1,144 birds, 294 mammals, 209 reptiles and 189 amphibians. These results show how incomplete the knowledge about the Brazilian Amazon species is: a previous compilation of several studies estimated that the known species of the Amazon were just 45,526, of which 40,000 were plants and 5,526 were animals.

14. The Amazon also shelters a high diversity of ecosystems. According to a review by ARPA, the Brazilian Amazon holds 30 types of ecosystems (Table 1), including forests, savannas, varzeas, and tropical steppes.[74]

Amazon SP Table 1 - Ecosystem groups in the Brazilian Amazon[75]

Ecosystem Group	Number	Area (km2)	percent of the Brazilian Amazon	Protected Areas (km2)	Protected Areas (percent of the group)
Forest	19	5.393.456	77,5	1.136.080	21,1
Tropical savanna	4	1.003.329	14,4	84.685	8,4
Varzeas	6	465.714	6,7	94.664	20,3
Tropical steppes	1	95.994	1,4	11.086	11,5
Total	30	6.958.493	100	1.326.515	61,3

15. The Brazilian Amazon is also the home for a great diversity of peoples and cultures. The indigenous lands total over 100 million hectares and are inhabited by 250,000 people. The 2010 Brazilian Census indicates that over 214 indigenous languages are spoken in indigenous lands. The indigenous peoples of the Amazon hold important knowledge about the region´s ecosystems and species, have built a meaningful lore of myths, beliefs, and practices, and are important political actors in the sustainable development arena. Although their situation has improved in the last decade, much has to be done to protect their rights and improve their quality of life while Brazil accelerates its pace of development.

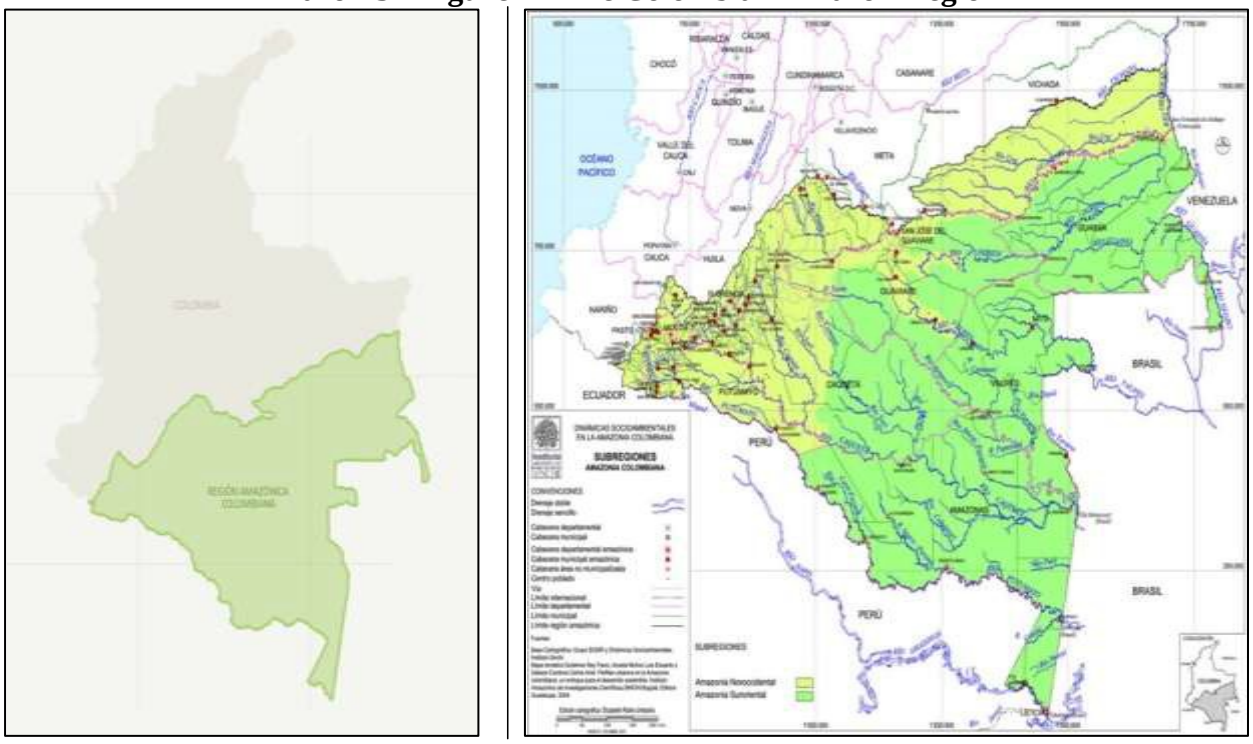
16. Along with the indigenous peoples, the Brazilian Amazon´s ecosystems are also the home of traditional peoples of mixed cultural heritages: caboclos, ribeirinhos, quilombolas. These groups have learned to live in the forest, and hold an important wealth of knowledge and cultures. Many have their traditional territories delimited by sustainable use protected areas belonging to the National System of Protected Areas and other types of land categories. Both traditional communities and indigenous peoples have been active players in the sustainable development debate, participating in policy and program priority definitions and management.

[74] ARPA, ARPA - Biodiversidade (2012: WWF - Brasil, [s.d.]).
[75] Ibid.

Colombia

17. The territory of Colombia covers 113,800,330 ha, of which 48,316,400 (28 percent) belong to the Amazon biome. According to RAISIG , 6.2 percent of the Amazon biome is situated within Colombia. On the other hand, the Amazon watershed includes extensive montane and high Andean forests along the eastern slopes of the Eastern Cordillera. The actual Amazonian rainforest within Colombia, however, is much larger because it goes north towards the rainforest – savannah transition within the Orinoco river watershed . From a political administrative standpoint the national part of the region, with 78 municipalities, encompasses 483,164 km^2, a surface that represents 42.3 percent of the continental territory of Colombia (Figure 1)

Amazon SP Figure 1 - The Colombian Amazon Region

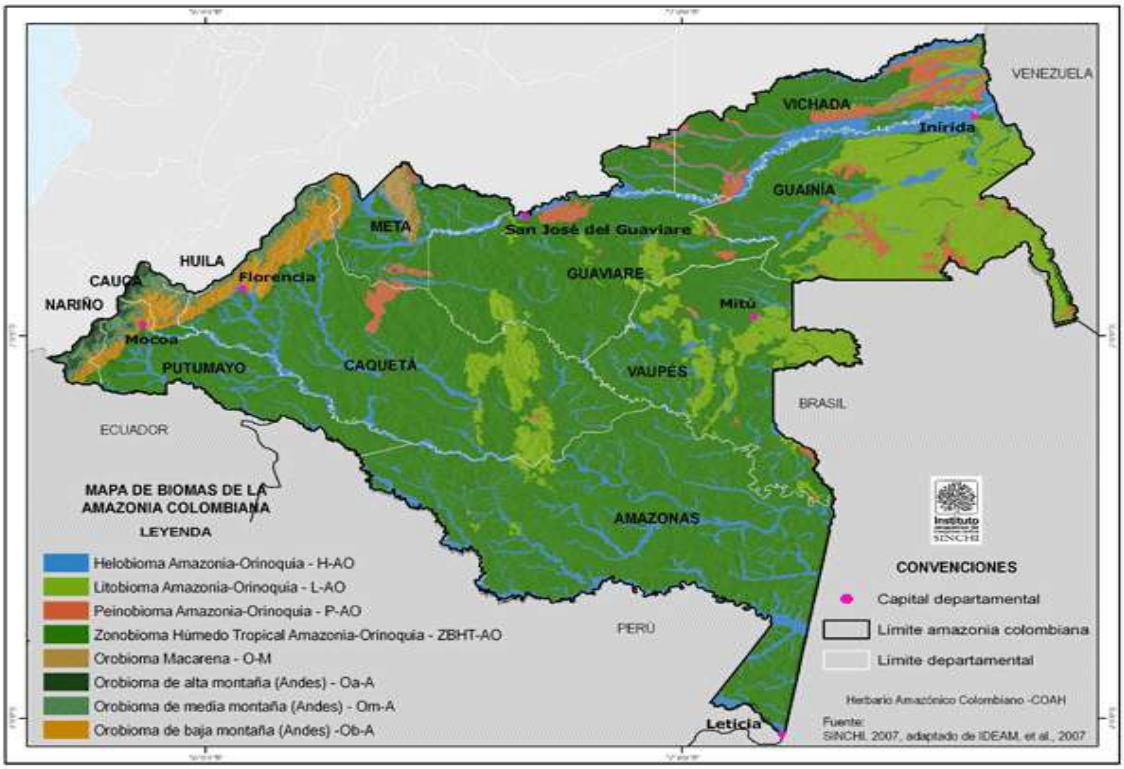


18. In the Amazon watershed in Colombia there are two distinct life zones: (i) the lowland rainforest between 80 and 1,000 metres in elevation and with a warm and humid climate; and (ii) montane rainforest between 1,000 and 3,400 in elevation. Within the Amazon watershed in Colombia, other ecosystems types do occur, such as intra-Amazon savanna and Tepui-like vegetation,[76] highland rainforest and paramo vegetation, as well as many types of freshwater ecosystems (Figure 2).

[76] Huber, O. & M. N. Foster. 2003. Prioridades de conservación para el Escudo de Guayana. Consenso 2002. Guiana Shield Initiative. Conservation International, IUCN, UNDP.

19. The Colombian Amazon is considered a global center of biodiversity, supporting8,500 plant species,174 amphibians, 200 reptiles, 318 mammals, and 988 bird species.[77] Many more species are yet to be discovered to science. Plant and animal species of Andean origin occur in the transition between the lowland rainforest to the Andean hills. In the Andean slopes of the eastern cordillera, facing the Amazon lowlands, there is unparalleled zonation and biotic transition. Endemism is higher in the highlands, while species richness increases toward the lowlands. The geographical setting also makes freshwater biodiversity outstanding: most of the large rivers in the Colombian Amazon come from the Andes (the so-called white water rivers), rich in sediments and nutrients, especially the Caquetá and Putumayo, which are large tributaries of the northern Amazon. To the north, most of the rivers are of the black and dark water types, with sources within the forest and outcrops, and with well-differentiated biota.[78]

Amazon SP Figure 2 - Major life zones and ecosystem types in the Colombian Amazon



20. The Colombian Amazon includes five distinctive biogeographic realms, each with a separate evolutionary history, and biodiversity content:[79]

(a) The Guiana Shield.

(b) Lowland typical Amazon rainforest (Imeri and Napo Plestocene refugia)

(c) Piedmonts, sub Andean, Andean, high Andean and paramo montane ecosystems.

[77] Sinchi Research Institute

[78] Junk, W. J. 1999. The flood pulse concept of large rivers: learning from the tropics. Archiv für Hydrobiologie 115: 261-280.

[79] Hernández, J. I., A. Hurtado, R. Ortiz & T. Walschburger. 1992. Unidades biogeográficas de Colombia. In G. Halffter (Ed.). pp. 105–152. La diversidad biológica en Iberoamérica. Acta Zoológica Mexicana. Volumen Especial. 1992.

(d) Intra-Amazon savanna ecosystem
(e) Savanna – forest natural mosaics in the transition with the Rio Orinoco watershed.

21. The Colombian Amazon is significant from a climate change – stability perspective, because the amount of carbon stored in the Colombian Amazon yielded a figure of 5,170 million tones;[80] and Western Amazonia is considered less vulnerable to Climate Change: minor incidence of severe drought effects and high temperatures (especially during 2005 and 2010). Higher temperature hotspots (2005 and 2010) were less frequent in the western Amazon.

Peru

22. The territory of Peru covers 128,521,600 ha, of which 78,288,000 (60.90 percent) belong to the Amazonian ecological biome.[81] The actual Amazonian watershed within Peru, however, is much larger because it goes higher into the Andes, covering a full 96,177,631 ha, equivalent to 74.83 percent of the country. This region is by far the largest within Peru.

23. The Amazon watershed includes two distinct life zones: (i) the lowland jungle (Selva Baja) standing between 80 and 1,000 metres in elevation and with a warm and humid climate (average temperature of 28°C, relative humidity of over 75 percent, and a yearly rainfall of around 2,600 mm); and (ii) the highland jungle (Selva Alta) between 1,000 and 3,800 metres in elevation.

24. The Amazon of Peru is widely considered an epicenter of global biodiversity richness. The species present represent a large percentage of each taxa globally, including 806 species of birds, 7,372 species of angiosperms, 262 species of amphibians, 2,500 species of butterflies, and 697 species of river fish. Beta diversity is also important, as there are numerous endemic species because of the existence of Pleistocene refugia. Notable among the endemic species are the pink (Inia geoffrensis) and gray (Sotalia fluviatilis) Amazon River dolphins, and the big leaf mahogany (Swietenia macrophylla), one of the most valuable and overexploited hardwood species globally.[82]

25. The importance of this biome goes beyond biodiversity. Peru's Amazon region is one of the largest global carbon sinks, currently storing an estimate of at least 39 Billion Tons of CO2 equivalent,[83] which is roughly similar to the annual global emissions of CO2 into the atmosphere from all sources (estimated at 35billion tons of CO2).

26. Although much attention focuses on the Selva Baja, it is important to mention that the Selva Alta is uniquely important as well, given that is the upper watershed for the entire Amazon

[80] Phillips J.F., Duque A.J., Cabrera K.R., Yepes A.P., Navarrete D.A., García M.C., Álvarez E., Cabrera E., Cárdenas D., Galindo G., Ordóñez M.F., Rodríguez M.L., Vargas D.M. 2011. Estimación de las reservas potenciales de carbono almacenadas en la biomasa aérea en bosques naturales de Colombia. Instituto de Hidrología, Meteorología, y Estudios Ambientales-IDEAM-. Bogotá D.C.,
Colombia. 32 pp.
[81] http://www.unep.org/dewa/giwa/areas/reports/r40b/giwa_regional_assessment_40b.pdf
[82] http://peru.panda.org/en/our_work/in_peru/amazon/
[83] http://www.pnas.org/content/107/38/16738.full#ref-14

region, and because of its importance for altitudinal migration in the context of the impacts of climate change.

27. The region is also the home to 300,000 indigenous members of over 50 ethnic groups including Junikuni, Sharanahua, Awajun, Ashaninka, Amahuaca, Yine, Ese Eja, Shipibo, Achuar, Kandozi, Quechua, Urarinas and Cocama – Cocamilla, among others. It also represents the last refuge of nearly 10,000 indigenous people in voluntary isolation, for whom these forests and rivers are the source of life.[84]

28. In comparison and from an economic perspective, the Amazon region's contribution to Peru's economy is minuscule. Its current contribution to Peru's GDP is only 5.35 percent.[85] In other words, 60 percent of the territory contributes only 5 percent to the economy. Not surprisingly, historically the country has approached this region simply as a source of natural resources, but without a comprehensive vision of long-term sustainable development. As a result, the Amazon of Peru has seen textbook examples of "boom and bust" cycles exemplified by the rubber explosion in the early 1900s, which for three decades represented 20 percent of Peruvian exports, creating immeasurable wealth that disappeared almost as fast as it was created, leaving no development behind.

29. In more modern times, successive governments have introduced a series of measures to accelerate economic development by subsidizing traditional economic activities that do not necessarily take into account the unique ecological nature of this territory. Tax incentives to specific Departments within the region have been justified by the difficulties faced to attract investment and employment to these areas due to a complex geographic location that isolates the Peruvian Amazon from the rest of the country.[86]

The Amazon under Pressure: An Overview

30. The major threats to the Amazon biome include transportation infrastructure (roads), extractive industries (mining, oil and gas), water infrastructure (dams, extraction, usage, waterways), and agricultural expansion driven primarily by commodity production, all of which, in direct and indirect ways, contribute to deforestation. Without proper planning and management, economic development in the basin may increase rates of deforestation and push the Amazon dangerously close to a tipping point scenario called the 'dieback,' reversing many of the gains that have been achieved in the last decade. Under the dieback scenario, pastures and other non-forested vegetation types replace forests.. Consequently, annual rainfall decreases and the length of the dry season increases, creating conditions perfect for more frequent and severe human-induced fires. These environmental conditionswould eventually result in the replacement of most species-rich forests by other ecosystems with significantly lower biodiversity and limited capacity for generating environmental services. The changes in the rainfall may be so severe that the entire system could reach a state of ecological degradation from which it would be difficult to recover.

[84] http://peru.panda.org/en/our_work/in_peru/amazon/
[85] http://faculty.maxwell.syr.edu/jyinger/classes/PAI735/studentpapers/2011/Paurinotto.pdf
[86] http://faculty.maxwell.syr.edu/jyinger/classes/PAI735/studentpapers/2011/Paurinotto.pdf

Roads in the Amazon Headwaters

31. There are an increasing number of roads being built or upgraded in the upper Amazon. The main road is the "Interoceanic" or "Transoceanic" road between Brazil and Peru. This road will connect the city of Rio Branco in the Brazilian state of Acre, to three ports on Peru's Pacific coast. This road is part of the Initiative for the Integration of the Regional Infrastructure of South America (IIRSA), a development plan to link South Americas' economies through new transportation, energy, and telecommunications projects. IIRSA investments are expected to integrate highway networks, river ways, hydroelectric dams, and telecommunications links throughout the continent to allow greater trade and create a "South American community of nations". The initiative is being supported by the Corporación Andina de Fomento (CAF), the Inter-American Development Bank (IDB) and the River Plate Basin Financial Development Fund (Fonplata). There are other roads being planned or in the making in Colombia and Ecuador to link with rivers in the Peruvian and Brazilian Amazon (See Figures 1 and 3 in Annex 1).

Extractive Industries (Mining, Oil and Gas)

32. As the price of gold reached historic highs early this year, unlicensed miners poured into the gold rich soils of the Andean foothills. While the deforestation itself may be localized, the mercury used by miners to extract the gold from the rock is not. Mercury vaporizes during the mining process and becomes airborne, eventually poisoning water supplies, fish, and the people eating the fish and drinking water from the contaminated rivers. Because international borders along most rivers in the Amazon basin are not protected, miners are free to move around the basin in search of gold and other minerals.

33. Extractive industries, mainly oil and gas, can also leave behind a large ecological footprint. This is mainly because of the indirect impacts, rather than the size of the areas cleared for their operations. These indirect impacts are facilitated by the transportation infrastructure that allows an influx of people into areas previously occupied only by indigenous peoples and local communities. The impact of the industry on the Amazon forests could be significant as a considerable overlap exists between the oil and gas concessions and protected area systems. Managing this development to mitigate impact through offsets and other measures will be critical. (See Figures 4 and 5 in Annex 1.)

Water Infrastructure

34. The Amazon headwaters are a critical source of water, nutrients, and organic matter that feed the region's rich flooded forests. The Amazon and tributaries are also habitat and critical highways for migratory fish that move to headwaters areas to spawn. Indeed, many economically and ecologically important Amazonian fish species spawn only in Andean rivers. Contrary to common belief, fish is the main source of protein in the Amazon basin, and far more important than beef. The rivers, and the terrestrial and aquatic biodiversity they support, will be severely harmed if the more than 150 new dams planned across the Amazon basin are constructed. A strategic evaluation of these issues is urgently needed to maintain the Andes-Amazon hydrological connectivity (See Figure 6 in Annex 1).

Commodity Production

35. Although the Brazilian Amazon has witnessed a decrease in deforestation since the mid-2000s,[87] the expansion of cattle ranching continues to be a driver of deforestation in virtually all Amazon-basin countries. During the last decade the removal of many policies that stimulated deforestation was offset by the increased influence of global markets. For example, the increased demand for soy meal for livestock and poultry feed plays a significant role in deforestation dynamics; directly by increasing conversion of forest for soy cultivation, and indirectly by displacing existing cattle production onto the forest frontier. Indeed, many cattle ranchers who own properties suitable for soy production have sold their holdings with significant capital gains, enabling them to expand their herds, and purchase even more land in forested areas where prices are lower. This dynamic will be addressed through the GEF signature program on commodities and will require close collaboration in the implementation of both programs.

Pressures and Sustainable Management Responses in Brazil, Colombia and Peru

36. Although common across the region, the manner in which threats to the Amazon forest manifest, and the degree of urgency of each, are different within Brazil, Colombia and Peru. In response to these pressures, common sustainable management responses are being implemented in each country.

Brazil

(a) Pressures in the Brazilian Amazon

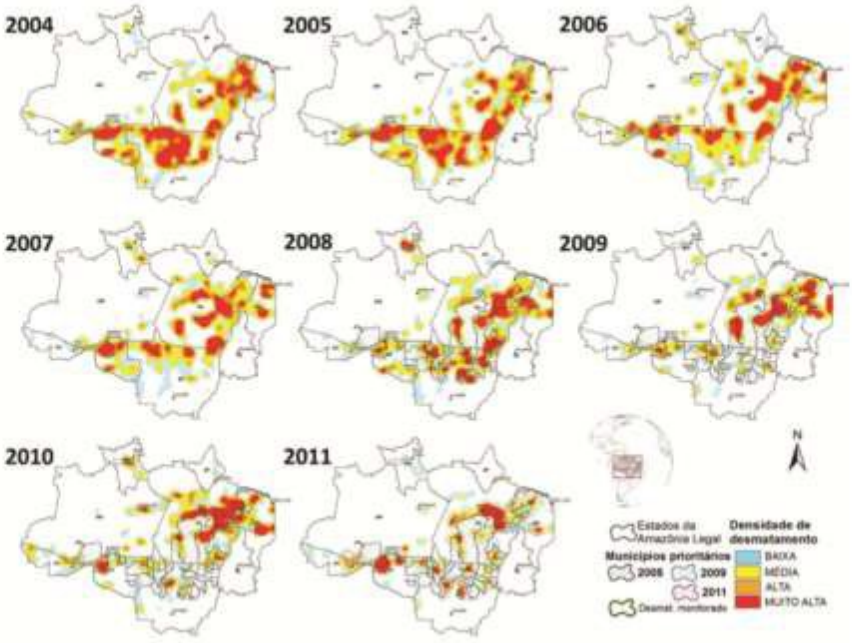
37. The patterns of deforestation are changing in Brazil. When the Legal Amazon Deforestation Prevention and Control Plan (PPCDAM) began in 2005, most of the deforestation was composed of large clearings, easy to spot with satellites and to enforce on the ground. These clearings were concentrated along main roads in the states of Mato Grosso and Pará. Currently, apparently as result of law enforcement, deforestation patterns have changed, with small clearings composing the major part of it.

38. While great progress was made in reducing clearings larger than 25 ha, many smaller clearings remain. The DETER (Deforestation Detection in Real Time) system, used to trigger law enforcement operations, does not detect clearings below 25 hectares. As overall deforestations declined, there was an increase in the proportional contribution of deforestation associated with government induced resettlement projects, from 10 to 25 percent.[88]

39. Deforestation dynamics change over time, probably due to changes in rainfall, attention from law enforcement agents and government policies, and development projects with localized impact (Figure 3).

[87] Official data from National Institute of Space Research (INPE): http://www.inpe.br/ingles/news/news.php?Cod_Noticia=271
[88] Ibid

Amazon SP Figure 3 - Historic series of deforestation density from 2004 to 2011[89]



40. To respond to the increase in the rate of deforestation in the agrarian reform resettlements, the Brazilian government created the Green Resettlements Program, a partnership between the National Institute of Agrarian Reform (INCRA) and public and private organizations, including grassroots organizations. The Program includes four lines of action: valorization of environmental assets and productive activities; environmental restoration and food security; land titling and environmental rural registry; and environmental monitoring and control.[90]

41. Most deforestation opens areas for pasture (approximately 60 percent of the deforested land until 2008), which are usually unproductive (only 0.5 to 1 animal per ha).[91] However, these clearings are just a small part of an economic dynamic that displaced cattle from more productive areas, which are converted to soybean and other export crops. Both the market and the government demanded that slaughterhouses control their supply chain, creating a market for certified cattle suppliers. However, many of these cattle ranchers transferred the breeding phase to smallholders within and out of resettlement areas, which escape the control of the slaughterhouses.

42. The timber sector is also an important factor in odeforestation and forest degradation that may make forests more prone to fires. The drivers for the expansion of the timber sector have been road building in areas where valued timber species are found, low cost of acquisition of

[89] Ibid
[90] INCRA, "Incra apresenta programa Assentamentos Verdes ao ministro Pepe Vargas", INCRA, 28 de novembro de 2012, http://www.incra.gov.br/index.php/noticias-sala-de-imprensa/noticias/12492-incra-apresenta-programa-assentamentos-verdes-ao-ministro-pepe-vargas.
[91] Brasil, Plano de Ação para Prevenção e Controle do Desmatamento na Amazônia Legal (PPCDAM): 3ª Fase (2012-2015) pelo Uso Sustentável e Conservação da Floresta.

timber due to lack of law enforcement, scarcity of timber in southern Brazil, and economic growth.

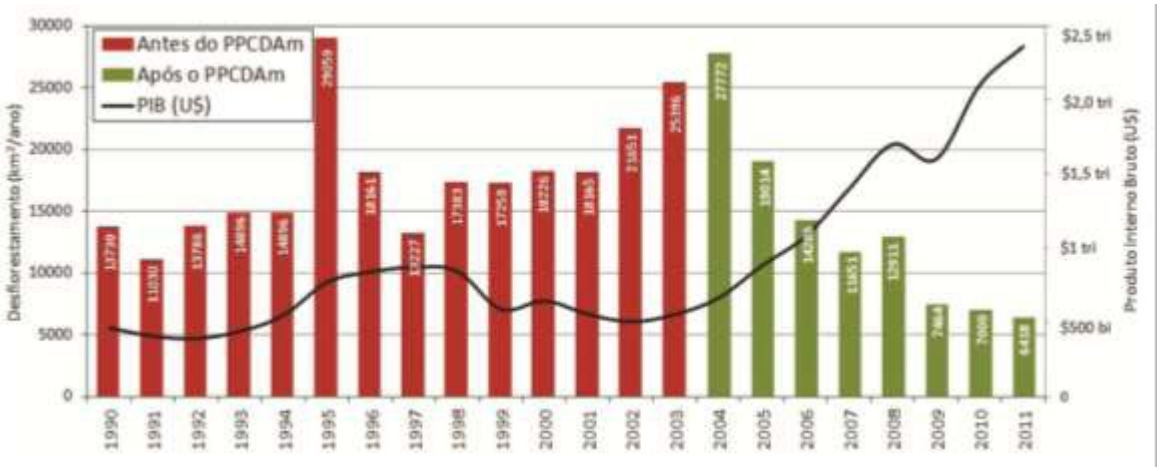
43. A 2009 study identified 75 timber extraction clusters occupying 192 municipalities, with over two thousand timber companies. Most of the timber was extracted from the state of Pará (47 percent), followed by Mato Grosso (28 percent) and Rondônia (16 percent). There is a high association between timber extraction, deforestation, and cattle ranching. The gross revenue of the timber industry in 2009 was around US$ 3 billion, generating 204,000 jobs. Most (79 percent) of the timber is sold to the domestic market.[92]

44. The main drivers of deforestation in the Amazon vary by region. In regions where land titles are unclear, deforestation is a strategy for land acquisition. In others, deforestation follows construction that open roads, bring large numbers of workers and increase the demand for land. In other regions the agricultural sector is more dynamic, and the driver is the profit farmers can make by replacing the forest with their crops compared with the profit or costs of conserving and managing the forests. Often, new economic dynamism pushes less profitable activities (normally ranching and small-scale agriculture) over the forest. In some regions the unsustainable extraction of wood to produce charcoal leads to deforestation while open frontiers elsewhere in the Amazon favor low intensity agriculture and ranching.

(b) Sustainable Management Response to Pressures in the Brazilian Amazon

45. Over the last decade, Brazil has accumulated impressive experience combating deforestation and promoting biodiversity conservation. Deforestation has dropped significantly, from a staggering 27,772 km^2 per year (2004) to 6,418 km^2 (2012) per year, while the economy grew 300 percent (Figure 4).

Amazon SP Figure 4 - Annual deforestation rates measured by the PRODES/INPE Program and the evolution of the Brazilian Gross Internal Product in the same period. (Note: "Antes" means before, "Apos" means after.



[92] Ibidem, SFB & Imazon 2010 cited by]

46. A series of important measures, organized under an overarching tactical plan at the federal level, the PPCDAM,led to the reduction in deforestation. Studies have estimated the Plan´s contribution to the drop in deforestation rates: The empirical results indicate that the conservation policies associated with the two turning points were effective at curbing deforestation rates in Brazil. Observed deforestation in sample municipalities totaled 57,100 square kilometers in the states of Para, Mato Grosso, Rondonia, and Amazonas for the 2005 through 2009 period. In counterfactual simulations we estimate that, had the set of conservation policies implemented beginning in 2004 and 2008 not been introduced, this total would have instead equaled 119,200 square kilometers. Our results therefore suggest that these conservation policies avoided 62,100 square kilometers of deforestation, or 52.1 percent of the total deforestation that would have occurred in the 2005 through 2009 period if policies had not been adopted. Using the conversion factors of 10,000 tons of C per square kilometer and 5 US dollars per ton of CO2 mentioned in MMA (2011), this avoided deforestation is equivalent to an avoided loss of 621 million tons of stored C, or 2.3 billion tons of stored CO2, which is valued at 11.5 billion US dollars.[93]

47. Soares-Filho et al. also analyzed the effects of protected areas and public policies on the recent reduction in Brazilian Amazon deforestation rates, and concluded that "44 percent of the 13,400-km^2 decline was caused by the agricultural slowdown, 37 percent by new protected areas, and 18 percent by factors not included in the model."[94]

48. According to Brazil´s Presidential Decree 7.390/2010, which details the implementation of the National Policy on Climate Change, the baseline deforestation levels for the Amazon corresponds to the average of deforestation rates from 1996 to 2005, that is, 19,535 km^2. Brazil´s 2020 target was to reduce this in 80 percent, that is, to 3,925 km^2. Therefore, Brazil has accomplished 84 percent of its target, eight years early. However, the impressive success of PPCDAM faces, currently, the challenge to reduce deforestation even more, as new clearings are smaller and more widely distributed, and many may well be legal deforestation.

49. One of the most impressive strategies of the PPCDAM was the use of financial safeguards to counter deforestation. According to presidential decree and a resolution of the Central Bank of Brazil, rural credit is restricted in municipalities with the highest rates of deforestation until they reduce deforestation and enroll farmers in the Rural Environmental Registry. In addition, the measures include making buyers liable for illegalities made in their supply chain with products from the Amazon.

50. The creation of protected areas (PAs) has been one of the most effective policies of the PPCDAM. Since 2002, ARPA has contributed to the creation of over 24 million hectares of new PAs, and to the implementation of a total of 52 million hectares of PAs currently supported by

[93] Juliano Assunção, C. C. Gandour, e Rudi Rocha, "Deforestation slowdown in the Legal Amazon: prices or policies", Climate Policy Initiative (CPI) Working Paper, Pontífica Universidade Católica (PUC), Rio de Janeiro, RJ, Brazil. p 3 (2012), http://www.webmeets.com/files/papers/AERE/2012/29/Deforestation_Prices_or_Policies_AERE.pdf.

[94] Britaldo Soares-Filho et al., "Role of Brazilian Amazon Protected Areas in Climate Change Mitigation", Proceedings of the National Academy of Sciences 107, n^o 24 (15 de junho de 2010): 10821–10826, doi:10.1073/pnas.0913048107.

the Program. Protected areas cover over 27 percent of the Brazilian Amazon.[95]Three-quarters of all protected areas created worldwide since 2003 are in Brazil.[96]

51. A study concluded that only the expansion of protected areas between 2003 and 2007 could prevent the emission of about 3.3 billion metric tons of carbon until 2050.[97] If the previously existing PAs that are being established by ARPA are considered, this reduction was estimated in about 4.3 billion metric tons of carbon until 2050.

52. If the remarkable contribution of the ARPA Program is to last it must be consolidated through the implementation of the protected areas, and further protection of new areas that will constitute a network of biologically representative and ecologically functional PAs.

53. In addition to its strategic focus, ARPA has an innovative managerial arrangement with the Brazilian Biodiversity Fund – FUNBIO, a non-government organization that is the recipient and manager of the donor fund, which made disbursements more effective. FUNBIO has established a management unit that is familiar with the procedures of international donors, including the World Bank and the GEF, The GEF grants to Funbio in the last 16 years amount to US$ 102.6 million, including US$ 45.9 million for the ARPA Program. Total resources managed by FUNBIO to date reach US$ 400 million.[98]

54. In addition to the areas protected for conservation purposes, the network of Indigenous Lands (ILs) protects about one quarter of the Amazon (over 100 million hectares). Brazilian ILs have been recognized for their important role in conservation, being as effective as (or more than) conservation areas.[99] Many ILs are contiguous to other ILs or PAs to form large conservation blocks protecting several million hectares.

55. The municipalities with the highest deforestation rates were included in a list of critical municipalities where government efforts were concentrated. As result of law enforcement operations and specific policies for these municipalities, most have reduced deforestation rates. Nevertheless, jobs have been cut. To mitigate such loss in employment and economic activities, the government has implemented the Operação Arco Verde, a positive agenda with actions from many ministries and government agencies to promote sustainable development.

56. The Brazilian strategy to prevent and control deforestation, forest degradation and fires through PPCDAM have three lines of action:

(a) Governance;
(b) Territorial Management and Land Titling;
(c) Environmental Monitoring and Control;
(d) Support to Economic Activities.

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[95] UICN, WWF-Brasil, e Ipê, Metas de Aichi: Situação atual/Elaborado por Ronaldo Weigand Jr., Danielle Calandino da Silva e Daniela de Oliveira e Silva (Brasília (DF): UICN/ WWF-Brasil/ Ipê, 2011).
[96] C. N. Jenkins, "Expansion of the global terrestrial protected area system", Biological Conservation (2009): 2166–2174.
[97] Britaldo S. Soares Filho et al., Redução das Emissões de Carbono do Desmatamento no Brasil: o papel do Programa Áreas Protegidas da Amazônia (ARPA), 2009.
[98] "FUNBIO", acessado 29 de julho de 2013, http://www.funbio.org.br/.
[99] Soares-Filho et al., "Role of Brazilian Amazon Protected Areas in Climate Change Mitigation",

57. Territorial Management and Land Titling deals with deforestation drivers related to land acquisition and the open frontier. Land titling and environmental registry provides security and reduces the need to clear the forest to show ownership, and facilitates access to government support. The creation of protected areas and recognition of indigenous territories defines the use of these lands and provides tools for conservationists to protect against squatters, poachers, and illegal loggers. These areas also closed frontiers, causing land scarcity, which in turn create incentives for a more intensive, productive, and sustainable use of land, and longer term planning. Placed in the path of deforestation, PAs act as shields against deforestation for areas much larger than their limits. PPCDAM allocated over US$ 90 million for this line of action for the period 2012-2015.

58. Environmental Monitoring and Control deals with all illegal land uses, but mainly reduces illegal logging, poaching, and clearings inside PAs and clearing of restricted use areas inside private properties (the Brazilian Forest Code determines certain areas for permanent preservation along water bodies and steep slopes, and a proportion of each private property that should be maintained under native vegetation – 80 percent for the Amazon forest). The objectives include accelerating the approval of forest management plans and forest concessions, increasing the effectiveness of law enforcement, increasing the state presence in remote regions, and making all actors in supply chains responsible for products obtained through illegal deforestation. PPCDAM allocated over US$ 160 million for these activities for the period 2012-2015.

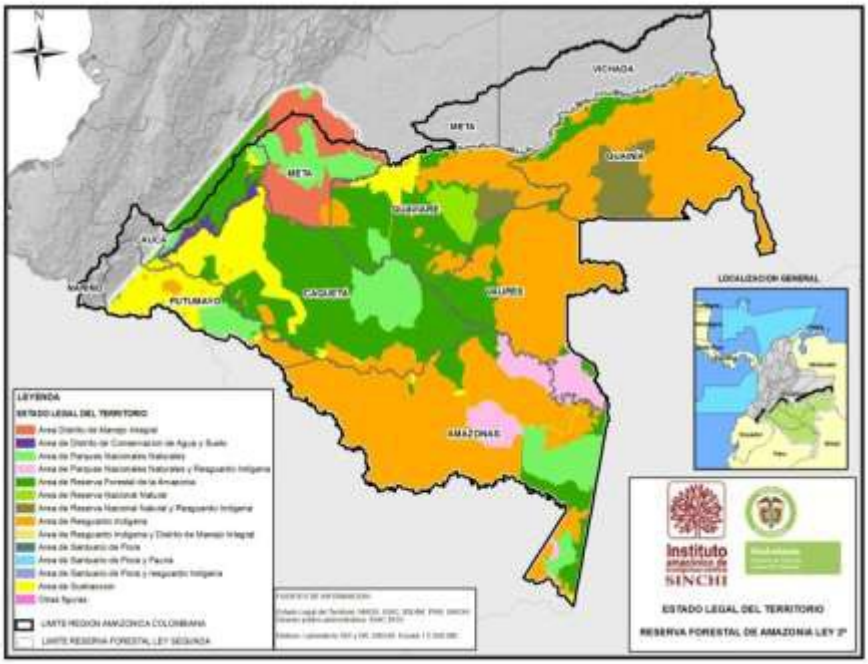
59. Support to Economic Activities deals with deforestation caused by higher revenue from clearings than from forest conservation and management. Objectives include promotion of production chains that can be alternatives for deforestation, supporting good agricultural practices, increasing legal and sustainable timber production, promoting sustainable activities in the agrarian reform resettlements and in family farms, and generating science, technology and innovation about the sustainable development of the Amazon. PPCDAM allocated over US$ 175 million for these activities for the period 2012-2015.

Colombia

(a) Pressures in the Colombian Amazon

60. According to the MADS, the legal status of the Amazon is: 9.8 percent national parks, 10.7 percent areas subtracted from the forest reserve (and theoretically open to colonization), 22.2 percent forest reserve without other designations; 45 percent indigenous communal lands (resguardos), 5.6 percent areas without clear legal status, and 6.3 percent with overlapping designation (Figure 5).

Amazon SP Figure 5 - Legal status of the Colombian Amazon (source Instituto Sinchi)



61. The areas of the National Park System encompass ca. 8.5 million ha (14.4 percent of the region)[100] all of them of indirect use[101] and among the best preserved at the country level. Some protected areas in the Colombian Amazon, especially those located in the eastern part of the region, such as Chiribiquete National Park (NP), Cahuinarí NP , Río Puré NP and Yaigojé Apaporis are isolated, and threats such as illegal hunting and logging are local. Isolation, however does not guarantee protection, especially when new threats and challenges may arise, for example from mining and road development.

62. Conversely, the protected areas located on the Andean slopes, such as Alto Fragua-Indiwasi NP, La Paya NP, Tinigua NP and Macarena NP, show higher degrees of threat, especially from deforestation. Tinigua and Alto Fragua-Indiwasi NPs had relatively higher levels of deforestation during the period 2000–2010. Recently, as a complement to the protected areas, ECLAC and Fondo Patrimonio initiative (Cepal & Fondo Patrimonio, 2013) published a compilation of the proposed biological corridors to be created within the region,[102] some of which

[100] CEPAL y Fondo Patrimonio. 2013. Amazonia posible y sostenible. Bogotá. 258 pp.

[101] It has to be taken into account, despite the generic denomination of National Park, that according to Colombian law, when indigenous territories overlap with areas of the National Park System, a special management regime (REM) must be defined. In practice it means that some of the parks, or parts of them, are managed as protected areas where direct uses are allowed.

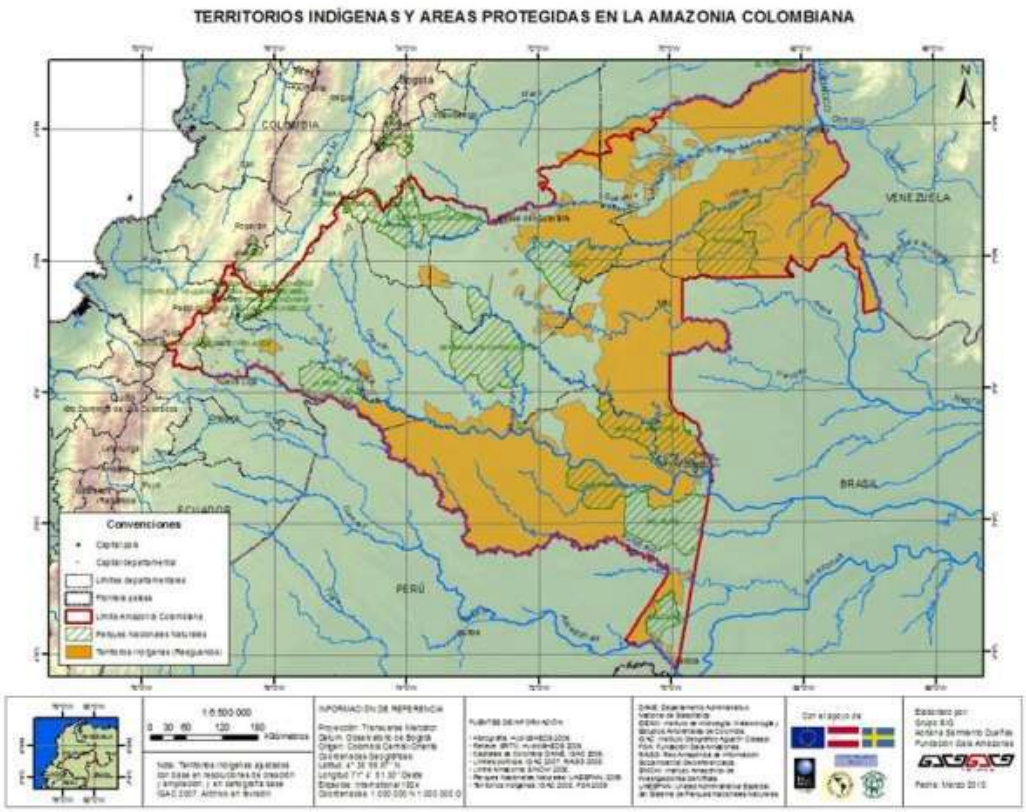
[102] A) The Orito, Río Guineo and Mocoa corridor; B) Churumbelos-Caquetá and Río Mocoa corridor; C) The Serranía de Los Churumbelos NP and Cueva de Los Guácharos NP corridor, will connect with other Andean protected areas (Puracé, Alto Fragua-Indi- Wasi, Cueva de los Guácharos and Complejo Volcánico Doña Juana), creating one of the largest conservation areas in the Colombian Andean–Amazon transitions; D) another corridor is between Río Fragua-Curillo-Solano, linking with La Paya NP; E) The corridor Florencia, Puerto Milán-Solano, will protect one of the most threatened axes; F) The corridor Caquetá Orteguaza-Puerto Leguízamo-Sucumbíos will link with La Paya NP, and Sucumbíos in Ecuador; G) the corridor Río Caguán–Cartagena del Chairá is one of the most important linking the Macarena Mountains with the lowland large rainforest; H) The corridor Cartagena del Chairá– Chiribiquete–La Macarena, would link La Macarena NP and Chiribiquete NP.

are of regional importance.

63. Colombia has a long history of recognizing of collectively owned land, such as indigenous resguardos, which are especially large in the Amazon region. According to official statistics (DANE, Censo de 2005) there are 56 different indigenous groups in the region, some living in voluntary isolation (Franco, 2013).[103] There are 146 indigenous collectively owned lands legally recognized (resguardos, occupying 23 million ha, almost 50 percent of the biome in the country, and which mostly maintain its natural forest cover. Indigenous resguardos are large to the east, and tend to be smaller as one goes from east to west, especially along the Andean Amazon-facing slopes (Figure 6).

[103] The Department of Amazonas has 22 indigenous groups (andoke, barasana, bora, cocama, inga, karijona, kawiyarí, kubeo, letuama, makuna, matapí, miraña, nonuya, ocaina, tanimuka, tariano, tikuna, uitoto, yagua, yauna, yukuna, yuri); there are five in Guainía (kurripako, piapoco, puinave, sikuani, yeral); ten in Guaviare (desano, guayabero, karijona, kubeo, nukak , piratapuyo, puinave, sikuani, tucano, wanano); nineteen in Vaupés (bara,barasana, carapana, desano, kawiyarí, kubeo, kurripako, makuna, nukak, piratapuyo, pisamira, siriano, taiwano, tariano, tatuyo, tucano, tuyuka, wanano, yurutí); six in Vichada in the Matavén forest (kurripako, piapoco, piaroa, puinave, sáliba, sikuani); nine in Caquetá (andoke, coreguaje, coyaima, embera, embera-katio, inga, makaguaje, nasa, uitoto); and twelve in Putumayo (awa, coreguaje, embera, embera-katio, inga, kamëntsa, cofán, nasa, pasto,siona, uitoto, yanacona).

Amazon SP Figure 6 - Indigenous territories (resguardos) in the Colombian Amazon (source Fundacion Gaia Amazonia)



Land Use Change

64. According to IDEAM (2008) 68.8 percent of land of Colombian surface is covered by natural ecosystems, and 23 percent are already deforested areas converted into pasture, 7.2 percent to secondary vegetation and 0.2 percent to forestry plantations. In the 1980s and 1990s, forest loss at the country level was 1.289.000 ha (average annual rate 0.15 percent), with more intensity associated with illicit crops in La Macarena (0.97 percent) and 0.74 percent in the piedmont of the eastern and western cordilleras (Putumayo and Nariño). Overall at the country level between the period 1990-2000, there was a forest loss of 3,227,570 ha, with a rate of 322.705 ha per year; between 2000-2005, 1,366,671 ha of forest was lost, at a rate of 273,334 ha per year; for the period 2005-2010 was obtained an average deforestation rate of 238,361 hectares, one of the areas where more loss is located was in the Amazon foothills, and northwest of the department of Caquetá (IDEAM 2011).[104] Another 1.3 million ha,were at severe risk of deforestation up to 2030. The already deforested area represents the emission of 48.2 million tons of carbon from 2005–2010.

[104] IDEAM & Fundación Gordon y Betty Moore. 2011. Capacidad Institucional Técnica y Científica para Apoyar Proyectos de Reducción de Emisiones por Deforestación y Degradación –REDD– en Colombia. Instituto de Hidrología, Meteorología y Estudios Ambientales (IDEAM), Ministerio de Medio Ambiente, Vivienda y Desarrollo Territorial (MAVDT), Fundación Natura.

65. Deforestation in the Colombian Amazon is localized and active in the western part of the region. Historically, deforestation began in the Caquetá land settlement project in the 1960s and in the Putumayo oil frontier expansion in the 1970s. Both regions are part of an arc of deforestation that has been expanding slowly but steadily from west to east and along the Caguán River. Forest loss from 2000–2010 ranged from 2.8–2.6 percent of the country's surface, with 1.6 in 2005–2010, representing the lowest deforestation rates for major watersheds (0.1–2.0 percent) and a medium level in the Putumayo–Caquetá watershed (2.1–4.0 percent), this latter with an increment of 1.6 percent in the period (RAISG, 2012). Forest loss in protected areas was higher in Tinigua National Park (7.4 percent) and Alto Fragua Indiwasi (9.6 percent) and lower in Macarena (3.2 percent) in the decade (RAISG, 2012). There are seven hotspots of deforestation in Colombia around the Chiribiquete Park area, and there is a rapid degradation of already deforested areas. Although low in percentage of converted areas as compared to other countries, deforestation occurs in areas with high biodiversity and environmental values (Fundación Gaia, in RAISG, 2012:59).

Forest Conversion to Pasture Lands

66. There is a synergistic relationship between the increase of the agricultural frontier, colonization, and illicit crops in the areas of great transformation. Often farmers raising illicit crops are the first to settle in the forests area, clearing a few hectares that encouraging the settlement of communities that develop minor agricultural productive activities, but that have a significant impact on the increase in degradation and deforestation fronts. This process consolidates subsequently into pasture lands (99.9 percent of the transformed areas. (MADS 2013, SINCHI 2010).[105] According to SINCHI (2010), pasture lands constitute 5.2 percent of Colombia's Amazon region (especially in the category "Clean Pastures" with 3.2 percent, other categories such as Weedy grasses, Mosaic of pastures and crops, and Mosaic of pastures and natural vegetation corresponds to 2 percent).

Illicit Crops

67. One of the most important current deforestation driver in the Colombian Amazon is illegal crops cultivation,[106] local road developments and oil exploitation (Putumayo).[107] Overall, illegal cocaine production has caused the loss of 1,000 km^2 of forest in the Colombian Amazon (UNODC, 2011).

[105] SINCHI, 2010.Mapa de áreas deforestadas de la Amazonia colombiana al 2002. Escala 1:100.000. Fuente de datos: mapa de coberturas de la tierra (Corine Land Cover).

[106] Dávalos, L. M., A. C. Bejarano, M. A. Hall, H. L. Correa, A. Corthals & O. J. Espejo. 2011. Forests and drugs: coca-driven deforestation in tropical biodiversity hotspots. Environmental Science & Technology in press; Armenteras, D., N. Rodríguez & J. Retana. 2009. Are conservation strategies effective in avoiding deforestation in the Colombian Guiana Shield? Biological Conservation 142 (7): 1411-1419.

[107] Etter, A., C. Mc Alpine & H. Possingham. 2008. Historical patterns and drivers of landscape change in Colombia since 1500: a regionalized spatial approach. Annals of the Association of American Geographers 98(1): 2-23

Roads

68. Distance to roads has been directly correlated with human settlements and losses of forest cover. Until about the mid-Twentieth century, the Colombian Amazon lacked the development of major roads. Transportation throughout the region was carried out by its extensive navigable river system. Planned roads have been, as in other parts of the Amazon,[108] major drivers of deforestation. The Colombian Amazon has two networks of roads coming from the interior of the country and arriving at the edge of the region. The first is the northern Bogotá–Villavicencio road, which arrives at San José del Guaviare, and interns itself to the Miraflores – Calamar zone. Except for a plan to stabilize these colonization areas, and to improve the road, the Colombian government has no plan to extend the road system into the forest.

69. The second network of roads, in the Putumayo and Caquetá Andean foothills, is limited to the area already colonized and mostly under pastureland and cattle-raising ranches. An important environmental impact arises when the last area to be colonized is then planned to be linked through the marginal jungle road, across or nearby the Macarena and High Guaviare Protected Area complexes (Tiningua and Macarena National Parks). Also important in relation to environmental impacts is the branch of high Putumayo southern Andes, a controversial branch of the road that threatens the highly vulnerable Andean cloud forest reserve near to the San Francisco municipality. This road is a major IRSA endeavor, linking the Pacific Ocean from the port of Tumaco to Pasto (the capital city of the Andean Nariño province) and running to the low Amazon Putumayo-Ica river hydro-way, connecting with the Brazilian Amazon. These projects, although delicate in terms of environmental protection, are of local scope and do not represent a major new threat to the extensive natural ecosystems in the Colombian Amazon.

Oil Exploitation

70. Current oil exploitation in the Colombian Amazon is situated in the same, already deforested Caquetá and Putumayo territories. Some extensive oil fields are located at the northern edge of the Colombian Amazon in the Meta and Guaviare departments. According to Colombian law, all these activities are banned within protected areas, although indirect effects at their borders do occur. Major challenges lie ahead as the Colombian government has designated as potential oil-producing areas extensive Amazon territories lying in the northern and western part of the country, in the Guaviare and Caquetá departments, with some overlapping with indigenous territories and adjacent to national parks, and covering 40 percent of the region, 35 percent of the latter total currently at the stage of potential exploitation (RAISG, 2012). Amazon watersheds most affected in Colombia are the Caquetá River and Putumayo. Environmental impacts in forest areas are less severe in the actual operation of the oil fields, than they are the fact that it drives deforestation towards oil exploration fields and regions. The current impact of oil exploitation in protected areas in the Colombian Amazon is minimal, and to indigenous territories it stands as medium to high, although potential expansion of the oil fields could change the situation region- wide. In the future, however, oil expansion into the large Amazon territory represents a major risk, and deserves especial attention from government authorities.

[108] Chomitz, K.M. & D.A.Gray. 1996. Roads, land use and deforestation: a spatial model applied to Belize. The World Bank Economic Review 10 (3): 487-512.

Mining

71. During the 20th century, mining in the Colombian Amazon remained marginal as far as environmental and social significance was concerned. Some mining activities were already present in the Guainía department, and there was some illegal sparse gold extraction along major rivers. Currently mining operations in the Colombian Amazon represent less than 4 percent of its territory and a low (1–13 percent) influence in watersheds (RAISG, 2012). Only in Guainía does mining represent an direct threat to the Puinawai National Natural Reserve, with the same situation present in the lower part of the Cahuinari National Natural Park. In general, western-located indigenous territories in the region experience low direct impacts from of mining, as compared to the ones located in the east part (Vaupés and Guainía) which suffer up to medium level impact (RAISG, 2012).

72. At the turn of the century, mining became a major concern from a social and environmental standpoint, since global markets and loose regulation led to its expansion, especially across the eastern part of the country, overlapping major indigenous territories, and potentially covering up to 95 percent of the region. By 2012, 874 mining title rights had already been granted within the forest reserve. With Resolution 1518 of 2012, the government declared a two-year moratorium on 17.6 million ha, until the Forest Reserve is properly zoned, and measures to control illegal mining were taken. The government has the time to define a more integral plan for mining development in the region. In Resolution 0045 of June, 2012, the government declared, with the National Mining Agency, 8.237.911 ha as a strategic mining area within the Amazon Forest Reserve with important environmental consequences. It implied the immediate suspension of extraction from the forest reserve, with a direct positive impact on 37.844.524 ha. The government, through the Ministry of Environment and Sustainable Development, has been given time to propose a management plan for the Forest Reserve and to evaluate the possible reopening of the area for legal mining concessioners.

Hydroelectric Development

73. An outstanding feature of the Colombian Amazon, as compared to other Andean Amazon countries (Bolivia, Peru and Ecuador) is that there are no hydroelectric developments in the Colombian Amazon, nor major potential sites identified for future development. There is a single small project located in Mitú, in the Vaupés department, for local energy distribution. The potential expansion in Colombia of the so-called Amazon hydroelectric frontier represents a major risk for fresh water biodiversity and associated ecosystem services.

Urbanization

74. Urban development is a marginal cause of deforestation in Colombian Amazon.[109] Most important Amazon cities are Florencia (ca. 164,000 inhabitants), Mocoa (ca. 50,000 Inhabitants) and Leticia (23,000 inhabitants), and at the northern border San José del Guaviare (54,000 inhabitants).

[109] Etter, A., C. McAlpine, D. Pillar & H. Posingham. 2006. Modelling the conversion of Colombia lowland

Unsustainable Use of Biological Resources

75. All the Colombian deforestation frontiers have been transitory wood and timber production areas, especially in the Pacific lowlands and the Amazon region. The limited sustainability of this activity manifests itself by the decreasing stocks of valuable hardwoods, and the integration into the local markets of less valuable species. Also, there are currently 34 endangered forestry species.[110] An important part of the region is legally protected as Forest Reserve. However, these large areas lack effective in situ administration, so that selective logging and local deforestation are common practices. Especially important is the illegal trade of tropical hardwoods along the Putumayo River, which are sold in Brazilian markets (San Lorenzo do ICA–Tefé–Manaus area).

76. The same situation exists with bush meat hunting, which is common throughout the Colombian Amazon.[111] Although it has not been evaluated, bush meat hunting is showing in some areas clear symptoms of unsustainability. Continental fisheries are of local and regional importance throughout the Colombian Amazon, with clear signs of decreased yield and unsustainability.[112] Generally speaking, there is a low-intensity use of natural resources throughout the region, which is customarily controlled in most indigenous resguardos, although when an indigenous population has been culturally influenced and external peasant immigrants dominate the population, depletion of natural resources through hunting, commercial fishing and harvesting of non-timber forest products is common.

(b) Sustainable Management Response to Pressures in the Colombian Amazon

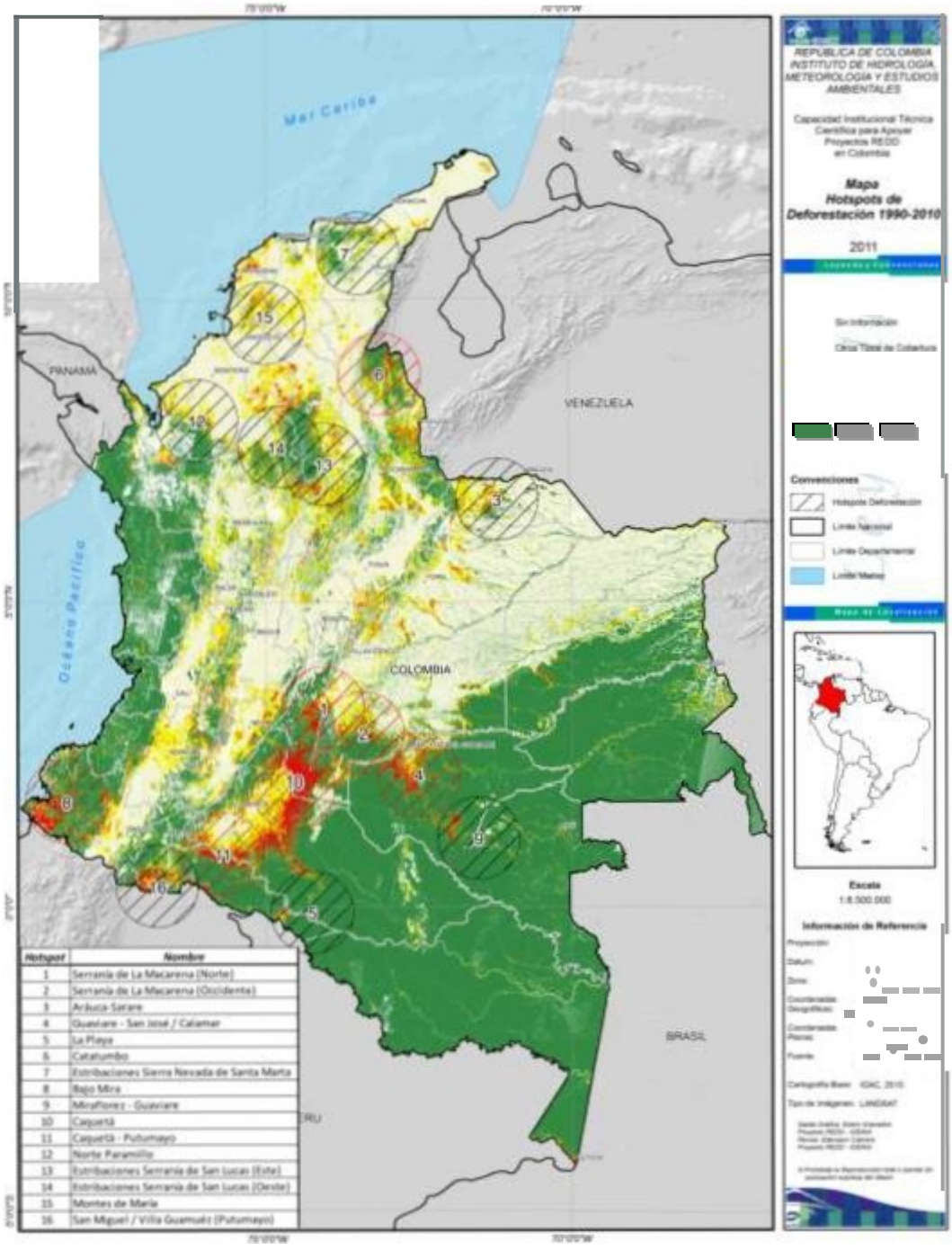
77. A bird's eye-view of the Colombian Amazon depicts its unbalanced and contrasting shape: to the eastern side, the green uninterrupted forest and natural vegetation cover, and to the west two small and severely transformed territories. The one in the north, the Guaviare–Miraflores colonization corridor and to the west, the Caquetá and Putumayo colonization areas.The Caquetá was driven by a large land settlement project funded by the World Bank during the 1960s, and Putumayo was mobilized by oil extraction during the 1980s. Most of the Colombian non-indigenous Amazonians live in these two areas. At the western side of the region there is a narrow fringe of natural vegetation along the foothills and eastern slopes of the Colombian cordillera, with an outstanding single Andean–Amazon continuous natural linkage towards the north (several protected areas at the Alto Rio Guaviare watershed). Overall, the Colombian Amazon includes 8 of the 16 deforestation hotspots identified by the Colombian government (Figure 7).

[110] Cárdenas. D. & Salinas. 2007. Libro rojo de plantas amenazadas de Colombia Volumen 4. Especies maderables amenazadas. Primera parte de investigaciones Científicas Sinchi Ministerio del Medio Ambiente, Vivienda y Desarrollo Territorial: Bogotá.

[111] Baptiste, B. L. G. 2009. Ecología de los consumos de carne. In Flórez, A. (Ed.) Capítulo VII. El poder de la carne. Historias de ganaderías en la primera mitad del siglo XX en Colombia. Universidad Javeriana: Bogotá.

[112] Lasso, C., F. de Paula Gutiérrez, M.A. Morales, E. Agudelo, H. Ramírez & R.E. Ajiaco (Editores). II. 2011. Pesquerías continentales de Colombia. Serie Recursos Hidrobiológicos y Pesqueros de Colombia. Instituto de Investigaciones de Recursos Biológicos Alexander von Humboldt: Bogotá, D.C. Colombia.

Amazon SP Figure 7 - Deforestation Hotspots in the Colombian Amazon[113]



[113] MADS. 2013. Readiness Preparotion Proposol (R-PP) Colombia. Work Draft.. Vertion 7.1. rnay!l4l2013. FCPF. ONU-REDD.

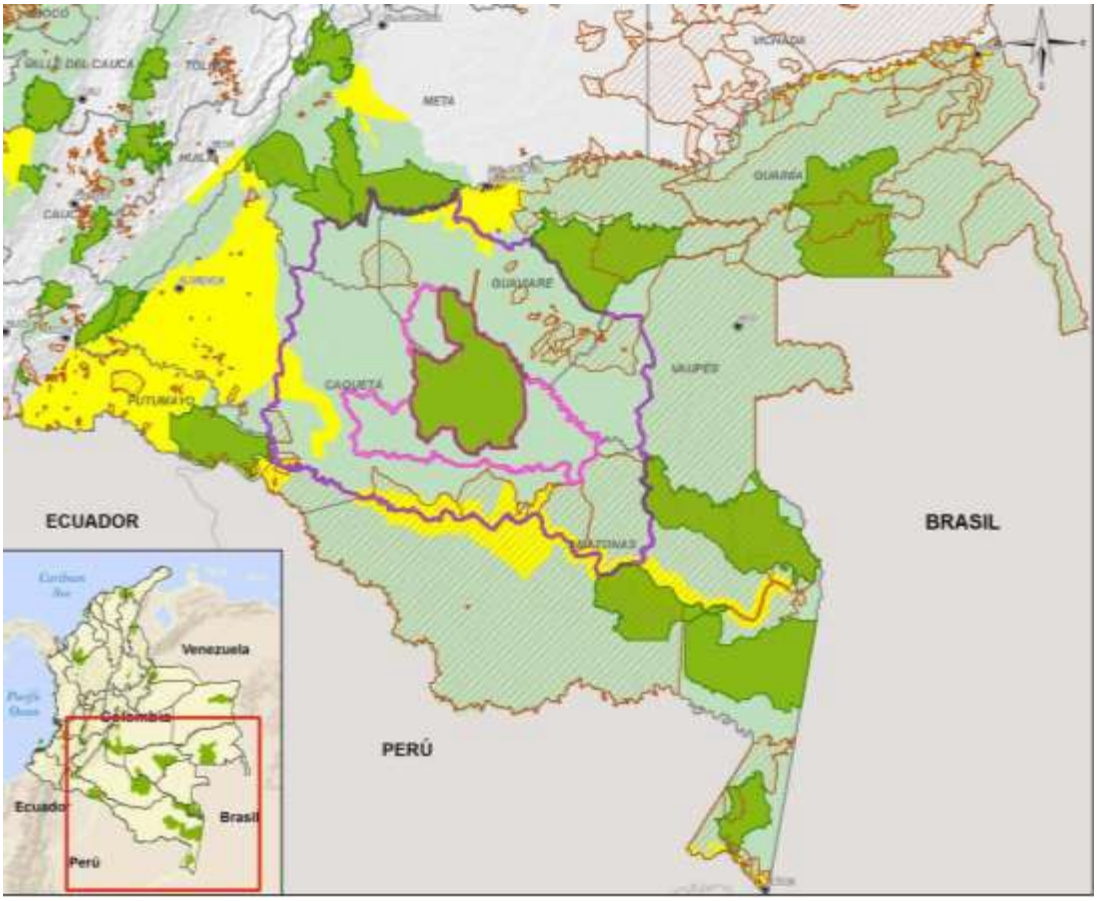
78. The Colombian Amazon receives only 4.2 percent of total resources available for Overseas Development Assistance (ODA) in Colombia. During the past two decades many initiatives funded though international cooperation have been carried out in the Colombian Amazon, especially for biodiversity conservation and indigenous groups based on sustainable development. Numerous national and international NGOs, as well as the Ministry of the Environment, National Natural Parks, and Colombian Research Institutes, are the main agencies that implement those initiatives. Major donors have been, among others, the McArthur Foundation, and Gordon and Betty Moore Foundation, the Netherlands and the USAID-IICA initiative.

79. Most initiatives carried out during the past five years focused on land use zoning plans , establishment and management of protected areas, general sustainable development strategies, and more recently climate change. The National Parks Unit (Parques Nacionales de Colombia), and the Amazon Research Institute (Sinchi), take part in some of these initiatives. A national initiative of conservation and development has an Amazon component implemented in alliance with Conservation International, focusing on community management of fisheries. The Colombian National Patrimony Fund focuses its interventions in the Middle Caquetá River and Amazon piedmont, in the strengthening of protected area management, biodiversity conservation and REDD+ demonstration projects. Most projects and initiatives include a component of indigenous governance. The initiative Amazon 2030 focuses on public awareness and environmental communication, and in the evaluation of institutional performance.

80. According to the Ministry of Environment and Sustainable Development, the Colombian government is launching the “Heart of the Amazon” (Corazón de la Amazonía Colombiana) initiative to promote sustainability (Figure 8) in and around an area of 11 million ha with the Chiribiquete National Park as its core, connecting with La Paya, Macarena, Tinigua, Cahuinari, Yaigojé-Apaporis National Parks, and the Nukak National Natural Reserve. A key decision supporting this aim is the enlargement of Chiribiquete Park, (to 2.780.800 ha), making this the largest park in Colombia. The area also includes some indigenous tribes in voluntary isolation, large archeological pictograms, and the inclusion into the national park system of 41 types of ecosystems, 8 of which were not represented in Colombian National Parks. In addition to direct conservation objectives the government aims to improve the governance and the use of land according to land use zoning and compliance with the law.

81. The sustainability agenda of the Heart of the Amazon is much larger, including in the formation of sectoral agreements with the agricultural, mining, energy and transportation sectors, to address deforestation, as well as the implementation of the pact for legal timber to generate opportunities for sustainable development. Agreements with the cattle and dairy industries are important in order to include silvopastoral arrangements in pasturelands, an initiative already in the course of development in several regions in Colombia. A new funding mechanism specially designed for the Colombian Amazon region will be devised. The initiative will be accompanied by an ambitious social and ecological monitoring program. For this program, the government is proposing an $11 million GEF-5 project to be started in 2013, with expected contributions from Norway and the UK, among others.

Amazon SP Figure 8 - Location of the "Heart of the Amazon Initiative" (sources MADS)

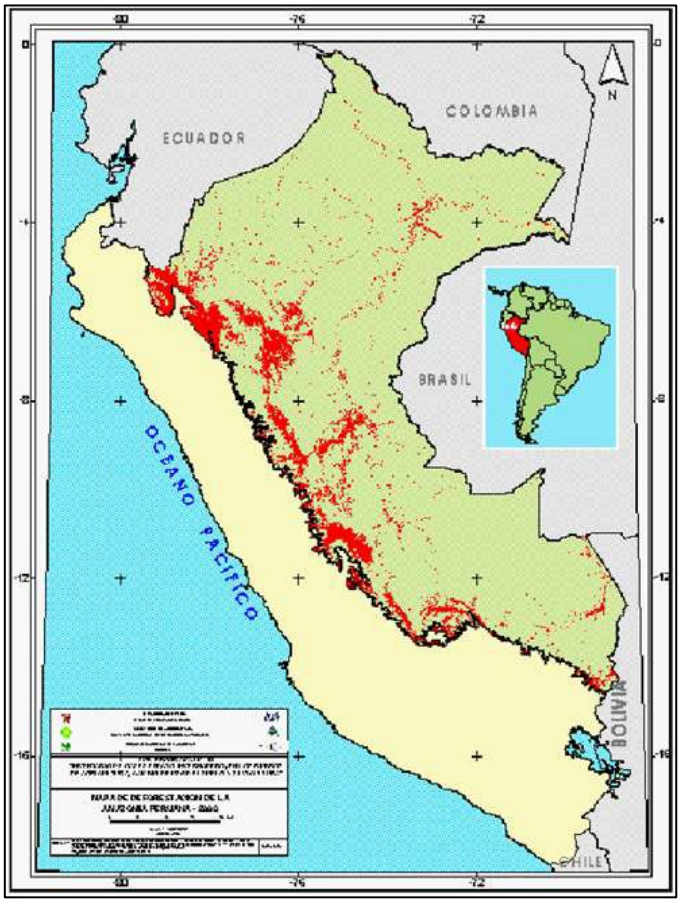


Peru

(a) Pressures in the Peruvian Amazon

82. The threats to the ecological integrity of the Amazon region of Peru are diverse but growing rapidly. The most critical factor responsible for the loss of biodiversity and ecosystem services is the loss of forest cover resulting from deforestation. Currently, Peru loses 112,000 ha of Amazonian forests each year, much of it located in the upper Amazon (Figure 9). The mechanics of deforestation are diverse but all follow an identical economic logic also present in other regions suffering from accelerating deforestation: for most people who live in the Amazon, a fallen tree is worth much more than a standing tree

Amazon SP Figure 9 - Cumulative Deforestation in the Amazon of Peru (in red)



83. This simple economic calculation is the root cause of deforestation and is present in the various economic activities responsible for deforestation, the most important among them being the following:

(a) Shifting Agriculture and Cattle Ranching. This is by far the most severe cause of deforestation. Given that most soils in the Amazon are shallow and poor, the nutrients tend to be stored in the trees themselves; removing them leaves behind soils incapable of supporting permanent crops. After a few years of poor yields, these soils are abandoned and replaced by inefficient cattle ranching (in most case with yields of less than one head per hectare). Lands are abandoned and new frontiers opened, thus intensifying the deforestation cycle. As a result, close to 100,000 hectares are lost this way each year. Of particular interest here is the expansion of illegal Coca crops in the upper Amazon, with the additional challenge resulting from the use of chemicals in the distillation of illegal cocaine precursors.

(b) Illegal Mining. High gold prices have fueled an intense process of illegal gold mining, in particular in the Department of Madre de Dios. The alluvial soils are rich in gold, but the extraction process requires removing all tree cover and "washing" the soil with water under pressure, and using toxic substances (e.g., mercury) to amalgamate the gold, thus leaving behind a landscape that can never recover natural. It is estimated that

at least 40,000 hectares have been lost to date, with additional serious social problems related to child labor and prostitution, alcoholism, and drug trafficking. Illegal mining is also prevalent in upper watersheds, especially in the Department of Puno.

(c) Expansion of Palm Oil Plantations. Although a relatively new threat, this activity is rapidly expanding. Unlike the previous two deforestation drivers, this expansion is illegal but uses a series of loopholes to circumvent the restrictions on large scale change in land use which are in place precisely to avoid deforestation. The pattern of deforestation is quite different, and shows large contiguous areas (i.e., 5,000 hectares or more) clear-cut over periods of less than one year.

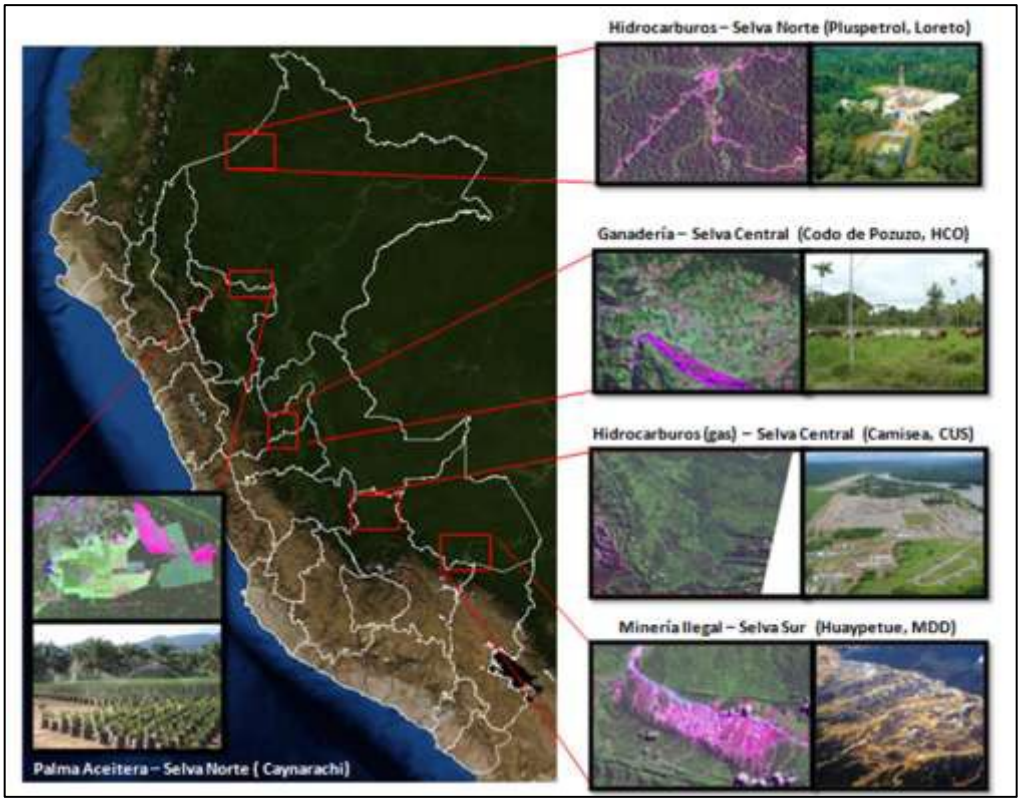
84. In all cases, deforestation is fueled by roads that facilitate access and migration from the Andes. These roads may be a part of larger regional integration initiatives such as the Initiative for the Integration of the Regional Infrastructure of South America (IIRSA), or are simply local and regional secondary and tertiary roads built by local governments, or even communal roads, with little or no EIA processes or environmental safeguards. Because of rapid economic growth and a fast process of decentralization and transfer of funds to the regions, regional governments in Peru are well financed but still lack the strong institutions and capacity to properly oversee these investments.

85. A recent study of localized deforestation compares the deforestation patterns of these three activities using LANDSAT satellite images (Figure 10).

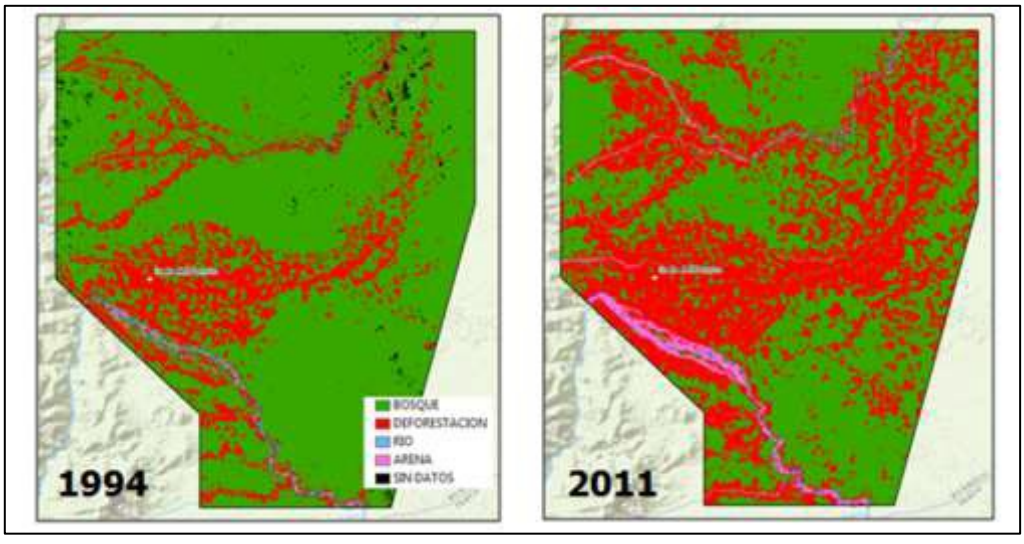
86. The results (Figures 11-13) illustrate the typical deforestation patterns of each one of these activities.[114] In all three cases, the local deforestation rate in the reference region is in the 2 percent to 5 percent per year (each image represents a study area of about 100,000 ha). Unlike deforestation patterns in other forest regions globally, the Peruvian Amazon faces a slow death.

[114] Raschio and Contreras. 2013. Analisis de los Impactos Ecologicos del Modelo de Hidrocarburos sin Carreteras Ecosystem Services. Marzo, 2013. Lima, 38 Pp.

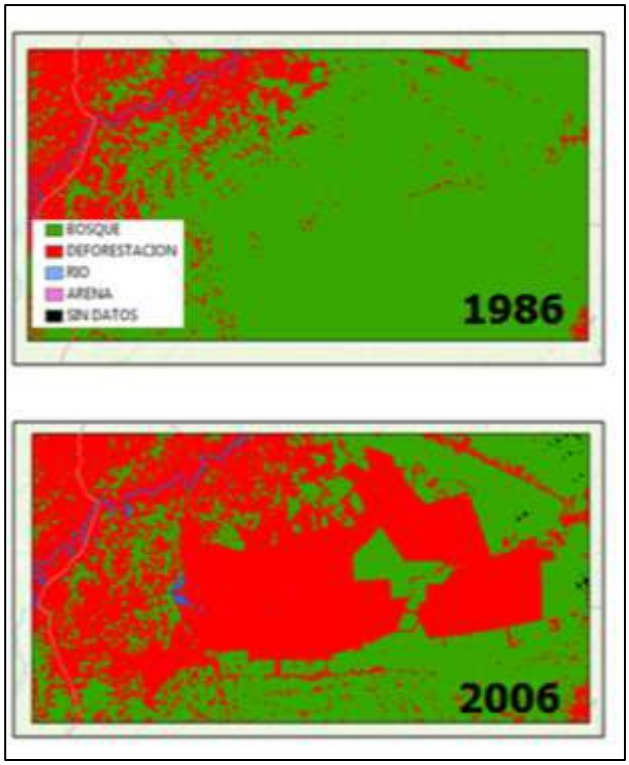
Amazon SP Figure 10 - Areas Studied for Deforestation Patterns by Various Economic Activities



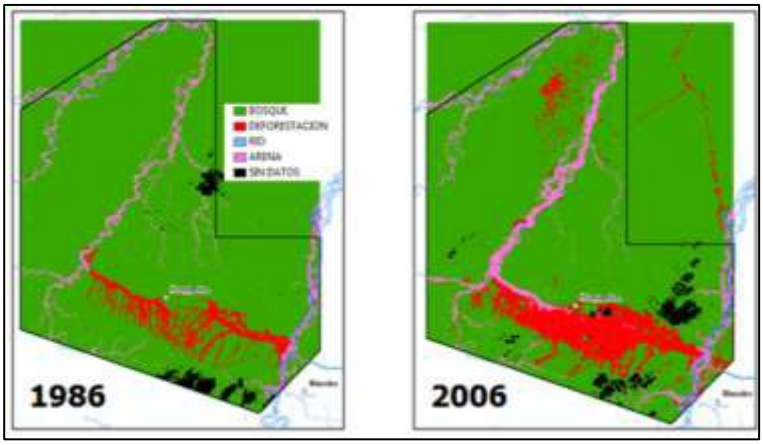
Amazon SP Figure 11 - Deforestation by Cattle Ranching (Codo del Pozuzo, Huanuco)



Amazon SP Figure 12 - Deforestation by Palm Oil Expansion (Shanusi, Loreto)



Amazon SP Figure 13 - Deforestation by Illegal Mining



87. Forest degradation, contamination, over-hunting and over-fishing are less visible threats than deforestation but perhaps even more important and widespread than currently recognized. Forest degradation is primarily linked to illegal timber extraction, in many cases a first step leading to forest clearance for cattle ranching. Contamination with mercury is prevalent in the

same areas of illegal gold mining, including downstream effects; contamination is also serious in areas downstream from where illegal coca is grown and refined into cocaine.

88. These threats are exacerbated by the growing importance of the Amazon region as a source of global commodities, particularly with the exponential increase in demand from China and other countries avid for natural resources. Although barely appearing in trade statistics 20 years ago, China is now the first destination for commodity exports from many South American countries, including Peru, Brazil, and Chile. In addition to minerals and fishmeal, commodities exported to China also include Amazonian products whose production is linked to deforestation, such as timber, beef, and soybeans.[115]

89. Not surprisingly, the climate change impacts of these changes occur in parallel, given that most of the CO2 present in the trees that are lost is emitted into the atmosphere. Deforestation represents at least 75 percent of the annual GHG emissions of Peru, estimated at around 50 Million Tons of CO2 equivalent.

(b) Sustainable Management Response to Pressures in the Peruvian Amazon

90. Despite these threats, Peru has made significant progress in terms of conserving its Amazonian region. This is both the result of the country's own efforts as well as support from international funders that have been active in the country for many decades. After Brazil, Peru is the second destination of international conservation funds going into the Amazon region, having received close to US$200 million in financing since 2007. The main funders that have contributed to this total include bilateral agencies (USAID, NORAD, GIZ/KFW), multilateral agencies (World Bank, IDB, GEF), and the Gordon and Betty Moore Foundation.

91. Ongoing conservation efforts in the Amazon of Peru can be classified in three categories: (i) policy and institutional frameworks, (ii) the system of Protected Areas, and (iii) conservation efforts outside Protected Areas.

[115] Castro de la Mata, G. Seeking Opportunities from New Patterns in Global Trade. Pages 10-14 in: Sustainability Report 2010. Inter-American Development Bank (IDB), Washington, DC.

Amazon SP Figure 14 - Status of Land-Use Planning Processes in Peru

92. Policy and Institutional Frameworks. Peru has made significant progress in its efforts to create and implement an effective framework for environmental management. From scattered Departments in charge of Wildlife Management, Natural Resources Evaluation, and Protected Areas in the late 1980s, Peru first created a high-level Commission of Multi-Sectoral Environmental Management (CONAM) in the 1990s, which became the basis for the recent creation of the Ministry of Environment (MINAM).

93. Implementation and decentralization of environmental management through the National Environmental Action Plan (2011). The Plan sets forth a ten-year strategy for responding to the country's environmental issues and addressing the management of natural resources . It establishes goals in seven priority areas: (i) water resources; (ii) solid wastes; (iii) air quality; (iv) the forest sector and climate change; (v) biological diversity; (vi) mining and energy; and (vii) environmental governance. Achieving the objectives of the Plan is defined as a shared responsibility of all levels of government (i.e., it is decentralized and multi-sectoral). The Plan includes specific actions to be undertaken in each priority area every 5 years. This is a very important broad framework to promote Amazonian environmental goals.

94. Land Use Planning. Land use planning is one of the main tools under implementation in the Amazon. Figure 14 shows the progress to date: several Amazonian Departments including Amazonas, San Martin, Madre de Dios, and Cuzco, are very well advanced in this process.

95. DEVIDA. This is a highly-visible institution focused on avoiding the expansion of illegal narcotic cultivation, with a strong presence in the upper watershed that can support the introduction of ecological-friendly alternatives to these crops.

96. The System of Protected Areas. Peru has a distinguished track record of a long-term approach to strengthening its System of Protected Areas. Since the establishment of a few but important seminal Parks in the 1970s that were in their origin "Paper Parks," the country has now a very large, ecological representative, and fairly well managed and financed System of Protected Areas (SINANPE).

97. Progress in Peru's PA system has been systemic; much of this progress is attributable to GEF's past investments in Peru's PA system. The first GEF investment focused in the strengthening of the System emphasizing financial sustainability through the establishment of the National Fund for Protected Areas (PROFONANPE) in 1992. Thanks to the careful design of this institution and the emphasis on professional and transparent financial management, PROFONANPE is today an example of global "Best Practice" in Environmental Fund Management, having raised and channeled more than US$135 million to the SINANPE since its creation.

98. Subsequent GEF grants have supported the strengthening of both the SINANPE and PROFONANPE, emphasizing aspects such as financial sustainability, decentralized management, and local participation in Protected Area management. Today the SINANPE in the Amazon covers 17,118,637 ha, representing a considerable 17.80 percent of the broader (hydrographic) Amazon region.

99. Conservation outside Protected Areas. This is the area in which the State has less control over the territory, and where economic incentives and other non-regulatory tools need to promote ecosystem conservation through compatible land uses. It is a major challenge that the Government of Peru is addressing through, among other mechanisms,the National Forest Conservation Program for the Mitigation of Climate Change (Programa Nacional de Conservación de Bosques para la Mitigación del Cambio Climático, PNCBMCC). This Program combines and coordinates national priorities on forest conservation with national coverage and international financial support, whose design and implementation are currently under way with a target of 54 million hectares under conservation.

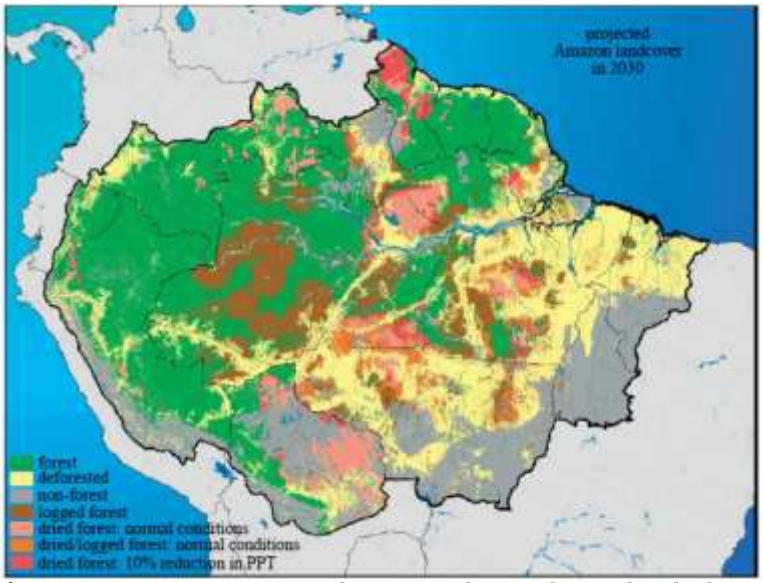
Program Strategy

The Opportunity for the GEF to Advance the Sustainable Management of the Amazon Basin

100. Given current environmental and development trends, the opportunity to make a lasting impact at the basin scale is likely to disappear in the medium term (10-20 years). Continued deforestation and interactions with climate change (including reduction of precipitation due to reduced evapotranspiration) is likely to speed up the rate of forest loss and if current destructive trends continue more than 50 percent of forests within of the basin could be destroyed in the next two decades as depicted in Figure 15. In addition, damaging impacts from mercury on the

environment and human health, and destruction of habitat for migratory fish would likely be accentuated.

Amazon SP Figure 15 - The projected map of Amazonia in 2030



The projected map of Amazonia in 2030 assuming climatic conditions observed in the last 10 years are repeated in the future (PPT = precipitation). From: Nepstad, D.C., C. M. Stickler, B. Soares-Filho and F. Merry (2008). Interactions among Amazon lan

101. The GEF has made significant investments in innovative approaches to advance the conservation and sustainable use of biodiversity and the sustainable management of international waters in the Amazon Basin and particularly within Brazil, Colombia and Peru. These three countries encompass 80 percent of the Amazon Basin and share a common set of threats and opportunities for collaborative work. In the long term, this signature program may include all GEF-eligible countries that have Amazon forests in their territories: Bolivia, Brazil, Colombia, Ecuador, Peru, Suriname, and Venezuela.

102. Most of these previous investments are associated with conservation and sustainable use of biodiversity at the national level. While these efforts have produced significant reductions in deforestation and resulted in measurable biodiversity gains, they have yet to look beyond the immediate need to react to spatially-explicit deforestation and comprehensively address the mounting deforestation pressures caused by a number of drivers in the Amazon Basin. As many of these drivers are Pan-Amazonian in nature, not only are national actions needed, but collaboration across borders will also be a critical component of any long-term strategy.

103. The Amazon Signature Program will address these gaps by building on the significant baseline that exists in Brazil, Colombia, and Peru to support integrated solutions to the sustainable management of the Amazon Basin that are more relevant to the social and economic development aspirations of each country and the region as a whole, while generating significant global environmental benefits primarily in the GEF focal areas of biodiversity and climate change, but also in international waters and chemicals.

Brazil

104. As the network of protected areas expanded, Brazil´s economic dynamism increased. The economy grew 300 percent, mainly fueled by the agricultural sector but also by industries and services. This growth creates demand for energy, new transportation paths, and better infrastructure. The Brazilian government has set in motion a large infrastructure plan, the Growth Acceleration Plan (PAC), which includes several infrastructure and energy projects in the Amazon. While deforestation as whole has gone down, locally, where some of these construction sites are being implemented, deforestation and environmental degradation has increased.

105. However, the legal backbone of the Plan, the Brazilian Forest Code, was reformed in 2012, and many non-government organizations against the reform warn that this will bring the return of high rates of deforestation and that this threatens the achievements so far and Brazil´s capacity to meet the 2020´s targets of the National Policy on Climate Change.

106. Therefore, this is a key time in Brazilian sustainable development policies, as there is an opportunity for the law to be fully applied. With new laws and new economic fuel, many fear that increased deforestation may return, particularly in private areas. Even public protected areas may come under political pressure if they cannot provide economic return. Because of that, much has been discussed about payment for ecosystem services and conservation-based development. A bill is under discussion in the Congress and the government is gathering information about national and international initiatives.

107. The GEF Signature Program in Brazil will focus on preventing forest dieback through protected areas, indigenous lands, and a positive agenda involving sustainable production, conservation-based local and territorial economic arrangements and production chains, and remuneration of ecosystem functions and conservation services

Colombia

108. The conservation of Colombian Amazon represents a global achievement, and open opportunity, and in the near future a major challenge. On one side, there major conservation achievements, such as several large parks and reserves. There are opportunities in the western part of the region, as seen in the Heart of the Amazon initiative. An important conventional conservation endeavor challenge remains, regarding the consolidation of integrated sustainable land use management in the montane forests transitions and the deforested areas. Notwithstanding, a major challenge calling for innovation remains in the eastern side of the Colombian Amazon, where there are pressures for large scale mining. Overall the –challenge in the Colombian Amazon is to:

(a) Provide enough funds for standard conservation management of protected areas, and to adapt its management to global climate change.
(b) Promote community based conservation management in resguardos and in areas subtracted from forest reserves.
(c) Promote sustainable production in the cattle raising industry.

(d) Enforce the law and the presence of the state in order to stop deforestation, continue the downward trend in illegal coca production, provide land access, technology and credit to peasants), and,

(e) Create a model of biodiversity management for legal oil and mining operations, and transportation networks, including a comprehensive ecological framework for siting, mitigating impacts and funding conservation though biodiversity offsets (already required by law).

(f) With the expectation of a successful peace process with the FARC, undertake the necessary reforms including attention to victims of the conflict and reintegration into society of demobilized armed groups, and manage the risks that a transition to peace entails, in particular greater economic pressures for large-scale development.

109. The general objective of the Amazon initiative in Colombia would be to consolidate a large scale, multi-functional multi-stakeholder conservation landscape, linking avoided deforestation, biodiversity conservation, within a comprehensive framework that links human wellbeing, governance and ecosystem services management

Peru

110. The economic and ecological points of view regarding the Amazon of Peru are on opposite extremes; they represent on the one hand a vision to quickly develop a vast expanse of useless territory; on the other, the need to conserve one of the largest repositories of the planet's biodiversity. These opposing views, however, also represent a unique opportunity that the ASP aims to exploit: to take advantage of the vast ecological wealth of Peru's Amazon region to promote sustainable development and create prosperity.

111. In Peru, significant conservation progress is colliding head-to-head with larger economic forces that respond to the perception that the region has not yet unleashed economic growth opportunities to the nation as a whole. This pattern is only made more complex by the fact that actual market values for most biodiversity and ecosystem services do not yet exist.

112. Therefore, GEF has the opportunity to help Peru transform current perceptions and management actions such that the conservation and ecological integrity and functionality of the Peruvian Amazon become a foundation for sustainable development. Achieving this long-term objective within Peru will require a change in perception that can only be brought about through a better understanding of the true value of the forests; at the same time and for this shift in perception to be tangible, it needs to be complemented with actual experiences of value generation from standing forests. Finally, the great progress with the establishment and effective management of Protected Areas needs to be consolidated so that the gains become permanent.

Supporting Convention Obligations

113. As the financial mechanism to the UNFCCC, UNCBD and UNCCD, the GEF plays an important role in supporting forest efforts globally. The three Rio Conventions have emphasized the importance of forests to the successful achievement of their individual objectives.The

Amazon Signature Program will address a critical shared goal of these Conventions, which is to reduce and avoid the loss of forest resources.

114. For the CBD, the ASP will make significant contributions to the achievement of two Aichi Biodiversity Targets focused on forests and sustainable natural resources management:

(a) Target 5: By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced

(b) Target 7: By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

115. Due to the comprehensive nature of the CBD Strategic Plan and the associated Aichi Targets, the ASP will help achieve the following non-forest related Targets within each participating country:

(a) Aichi Target 2: Integrate biodiversity and development;
(b) Aichi Target 4: Sustainable production and consumption;
(c) Aichi Target 11: Expansion of Protected Area Networks;
(d) Aichi Target 14: Restore and safeguard essential ecosystem services;
(e) Aichi Target 15: Enhance ecosystem resilience and carbon stocks; and
(f) Aichi Target 19: Knowledge-base and science applied.

116. Within the UNFCC, REDD-plus elements (UNFCCC decision 1/CP.16) will be addressed, including Reducing emissions from deforestation and Conservation of forest carbon stocks.

117. With regards to Desertification, Land-degradation and Drought and sustainable forest management (SFM) (UNCC D decision 4/CO P.8), the ASP will help "reinforce SFM as a means of preventing soil erosion and flooding, thus increasing the size of atmospheric carbon sinks and conserving ecosystems and biodiversity."

118. The ASP also contributes to the UNFF Global Objectives on Forests (E/2006/42 E/CN.18/2006/18): Reverse the loss of forest cover worldwide through sustainable forest management (SFM), including protection, restoration, afforestation and reforestation, and increase efforts to prevent forest degradation.

119. The Minamata Convention on Mercury will address sources of mercury including artisanal and small scale gold mining (ASGM) and primary mercury mining. The text of the convention stipulates, inter-alia, under article 7 that "Each party that has artisanal and small-scale gold mining and processing within its territory shall take steps to reduce, and where feasible eliminate, the use of mercury and mercury compounds in, and the emissions and releases to the environment of mercury from, such mining and processing." Under the ASP, countries may, per the Convention, consider developing and implementing national action plans to facilitate the formalization or regulation of the ASGM sector in order to prevent the exposure of vulnerable populations, particularly children and women to mercury used in artisanal and small scale gold mining.

120. The architecture of the GEF allows the institution to link directly with the Governments of the participating countries to establish a common agenda for conservation and sustainable use of the Amazon forests.

121. The GEF will play a key role in donor coordination around GEF's thematic area of investments as listed above. As such, the GEF will convene donors and lenders in the region, and particularly the GEF agencies, such as the World Bank and the Inter-American Development Bank, regional development Banks, such as CAF, bilateral-aid agencies (i.e., USAID, GIZ) and private foundations active in the region (i.e., Gordon and Betty Moore Foundation, MacArthur Foundation and Blue Moon). The GEF has already initiated communications with the World Bank and IADB. With the IADB, the GEF will explore the coordination of activities with the proposed "BioClimate Initiative (ARPA+), an embryonic initiative that will aim to expand and strengthen the network of protected areas in the Amazon and ensuring its connectivity. The BioClimate Initiative (ARPA +) seeks to extend the ongoing efforts undertaken by the Brazilian Government to the neighboring countries in the entire Amazon Basin

Program Framework

122. The ASP will be composed of the following components, implemented through national and regional activities. Indicative outcomes are provided in Table One, however, with further development of the program these components and outcomes will be further defined and indicators and outputs identified.

Amazon SP Table 2 - Amazon Signature Program Framework[116]

Program Components	Outcomes
(a) Enabling Environment	Strengthened and harmonized governance systems (policy, legal, and regulatory frameworks, etc.) to better manage forest ecosystems including monitoring of deforestation at national and regional levels.
(b) Conservation and Sustainable Use Landscapes	(i) Increased area of globally significant biodiversity under protection through protected areas. (ii) Improved management effectiveness of new and existing protected areas and indigenous territories. (iii) Improved financial sustainability of protected areas and indigenous territories. (iv) Increase in area of productive landscapes that integrate biodiversity conservation and sustainable use. (v) Increase in area of sustainably managed forest ecosystems, including area certified.
(c) Production Sectors	(i) Strengthened land-use planning that incorporates environmental sustainability safeguards. (ii) Effective implementation and enforcement of environmental impact assessments and mitigation plans. (iii) REDD projects effectively implemented. (iv) Decreased rate of deforestation caused by all productive sectors (infrastructure, extractive sectors, commodities). (v) Reduction in emission of greenhouse gases. (vi) Improved management of fisheries focused on migratory species seasonally visiting the Andean headwaters. (vii) Reduction of mercury pollution in waterways and impacts on human health.
(d) Regional Actions	(i) Strengthened regional cooperation to address shared and common drivers of deforestation. (ii) Creation of new protected areas that fill ecosystem representation gaps at the level of the biome and

[116] Outcomes, indicators, outcome targets, and core outputs are indicative at this stage and will be fully determined during program development.

Program Components	Outcomes
	improved management effectiveness of trans-boundary protected areas and indigenous territories. (iii) Science and technology transfer for sustainable use of Amazonian products.

Component One: Enabling Environment

Overview

123. The maintenance of the Amazon forests requires, first and foremost, policy, legal and regulatory frameworks that prioritize environmental sustainability. Implementation and adequate enforcement of these frameworks will then allow the development and implementation of infrastructure projects and the activities of the extractive industries without compromising biological, social and cultural values. However, the first order of business is to resolve land tenure issues. Without clarification of tenure, it is virtually impossible to stop deforestation. By having clarity over land tenure, Governments at all levels can design and effectively implement spatially-explicit plans and for the establishment of protected areas for a variety of purposes, including areas for multiple-use, and the extraction of timber and non-timber forest products.

Colombia

124. Sustainable planning for oil, mining, and transportation. The objective of this activity is to define a robust technical and institutional framework for environmental management within the legal oil, and mining and transportation industries. Key activities may include:

(a) Consolidate, with the oil, mining and transportation industries, a framework for monitoring and mitigating environmental impacts and promoting biodiversity conservation and management.

(b) Enhance involvement in the sustainable development agenda by the oil and mining industries, coordination with agriculture and transport sector, and NGOs , Academia, and indigenous groups.

Peru

125. Development of a National Vision for Sustainable Development for the Amazon. A critical challenge in Peru is to change the perception that the Amazon is a waste land by enhancing the development of new understandings and communicating the values of the Amazon to the Peruvian society as a whole. The end result will be the broad consensus that Amazon development must be based on a principle of maintaining forest cover and maintaining ecosystem functionality. Specific areas of work will include:

(a) Changing Perceptions through focused valuation studies and communication campaigns, emphasizing practical examples where biodiversity and forests have already added value, or can add value to the economy (e.g., gastronomy, ecotourism, cosmetics, etc.).

(b) Development and Monitoring or Forest Conservation Targets, in collaboration with the various existing initiatives.
(c) Strengthening Coordination Mechanisms with other Government Sectors, Local Governments, NGOs and Academia, Indigenous Groups, and the Private Sector.
(d) Strengthening Governance and Capacity, including mechanisms for participatory management of resources.

Component Two: Conservation and Sustainable-use Landscapes

Overview

126. The conservation and sustainability of Amazon forests and the biodiversity therein requires a wide and strong network of protected areas. For this network to be effective, individual protected areas need to be large, properly located in areas of high biodiversity value, and well-connected. The proper design of this network will not only provide appropriate protection to biodiversity, but also make these landscapes and the associated socio-economic systems more resilient to climate change. A properly designed and implemented network should lead to more stable rainfall patterns that will maintain t the biodiversity, soils and carbon of the forest, as well as the communities that rely on the forest's environmental services. This is particularly critical along the Andean foothills, the epicenter of biodiversity in the Amazon and along the northern edge of the Amazon forests, where there are still large tracts of undisturbed forests and thus, great opportunities for designing sustainable conservation and sustainable use landscapes.

127. The long-term sustainability of individual protected areas can be ensured by supporting the Protected Area Agencies in the participating countries. This can be achieved by developing and implementing plans for the institutional and financial sustainability of the protected area system, and increasing the capacity to manage the protected areas within their jurisdiction. A viable conservation and sustainable use landscape requires integrating productive landscapes with the network of National Protected Areas and with other conservation and natural resource management units including regional protected areas, and indigenous territories as appropriate. By fully integrating all these areas into national and sub-national socio-economic planning, the value of PAs will increase and threats to PAs will be reduced with an eventual drop in the recurrent costs of management. Primary areas of intervention will include:

(a) Expand the extent and coverage of protected areas, indigenous territories, national forests and extractive reserves, particularly in areas of high risk of being deforested in the near and medium-term. While the opportunities for the expansion of the protected area network is closing for the National Parks and other type of areas with restricted uses (IUCN I-III), there are still significant opportunities to add protected areas designed for sustainable use of natural resources (IUCN IV-VI).
(b) Improve the management effectiveness of new and existing protected areas. While the period for expanding the network of protected areas may be closing within the next decade, improving management effectiveness remains a priority. Strengthening protected area management with basic infrastructure, personnel and equipment, results in significant increases in conservation of habitats, biodiversity and ecosystem services.

(c) Improve financial sustainability of protected areas through an array of tools and instruments, including budgeting for conservation, payment for ecosystem services, and trust funds. For instance, in Brazil there is an untapped potential for revenue generation, as 79 percent of the hydroelectric power sources (62 GW) are located downstream from protected Areas. There are also new and large opportunities in the eco-tourism industry
that can grow in Brazil alone from $213 million a year when accessing 18 National Parks, to $320 million a year when making use of 67 National Parks.

Brazil

128. Protected areas will be created and implemented following a strategic focus to ensure biodiversity representation, ecosystem services, ecosystem resiliency, and support to traditional communities and indigenous peoples. A key focus will be consolidating about 60 million hectares of protected areas and strengthening the Protected Areas Fund. This strategic focus will be designed through a participatory process involving the updating of the Map of Priority Areas for Conservation.

129. The Brazilian Map on Priority Areas for Biodiversity identified 511 terrestrial ecosystems types (conservation targets) to be protected. The map identified 825 areas considered priority for biodiversity, including 81 million hectares considered priority for the creation of protected areas (Table 3).

Amazon SP Table 3 - Priority Areas in the Amazon according to recommended action (from the Brazilian Map of Priority Areas for Biodiversity)

Type of Priority Action	Number of areas	Area (km2)	percent of the Biome
Creation of PA – Strict Protection	44	207217	4.90
Creation of PA – Sustainable Use	97	437273	10.34
Creation of PA – Undefined type	25	164562	3.89
Creation of mosaic or corridor	25	116101	2.75
Support to sustainable use	18	73858	1.75
Biological survey	2	1488	0.04
River basin management	13	91809	2.17
Territorial management	46	189103	4.47
Fisheries management	12	83862	1.98
Recognition of indigenous lands and traditional territories		33689	0.80
Recovery of degraded lands	31	111218	2.63
Environmental education	3	10201	0.24
Total of new priority areas	334	1520382	35.96
Areas already protected	490	1873186	44.30
TOTAL	824	3393568	80.25
Area of the Biome		4228533	

130. The National Policy of Territorial and Environmental Management of Indigenous Lands (PNGATI) will be partially supported through funding of sustainable productive and income generation activities covering about 100 million hectares.

131. Sustainable forest management will be supported and promoted in public forests and private lands under forest.

132. Promotion of Conservation Landscapes and Conservation-Based Territorial Development processes will create local and territorial dynamism, and sustainable development processes that should result in political support to protected areas, indigenous lands and conservation in general.

Colombia

133. Strengthening functional integration of national and trans-frontier conservation territories. The objectives would be to:

(a) Create a network of conservation territories that maintain ecosystem function, linking protected areas in the form of a large-scale conservation mosaic that also include indigenous territories and other forms of land use and land tenure regimes. A model large scale mosaic is proposed in around the Chiribiquete National Park.
(b) Consolidate a protected areas and conservation territories system that allows for large-scale connectivity across-international borders in order to maintain ecological process and adaptation to climate change, to reduce loss of ecosystem services, and increase resilience to climate disruptions.

134. Key activities to achieve these objectives may include:

(a) Promote community based conservation management in resguardos and in areas subtracted from forest reserves.
(b) Create a governance model for integration of indigenous territories with the national conservation strategies.
(c) Promote other conservation initiatives, such as private, communal, municipal and regional conservation areas (different for national parks), for land use planning and management.
(d) Systematize and exchange of experiences on successful or promising local conservation and sustainable development initiatives.
(e) Strengthening current conservation management of protected areas in order to overcome threats especially on the western side of the region and preventive management and monitoring in the eastern large isolated areas.
(f) Adaptive responses to climate change in protected area planning and conservation mosaics.

Peru

135. Support the Consolidation of the System of Amazonian Protected Areas. The initiative will also support the continued consolidation of the Amazon network of PAs within this larger sustainable development framework, recognizing that PAs are the backbone of conservation.

Specific activities will follow current priorities within the long-term plan of the SINANPE and will target areas outside PAs. Specific activities will focus on:

(a) Strengthen the socio-economic integration of PAs with their geographic surroundings;
(b) Increase local participation in co-management; and
(c) Strengthen mechanisms to share the economic benefits of PAs with local populations.

Component Three: Production Systems

Overview

136. Deforestation and the loss of biodiversity, biomass, and soil carbon can be curtailed through three main lines of action proposed under this Component, including:

(a) Strengthening land use planning and implementation and enforcement of land-use plans is required to ensure sustainable land uses around the network of protected areas and within the productive landscape more broadly. Areas to be targeted include Forest Reserves where timber and non-timber forest products are extracted. The promotion of such an agenda can facilitate job-creation based on managed forests and forest products, and other nature-based enterprises that are forest-reliant including bioprospecting and biotechnology.
(b) The potentially negative impacts of infrastructure development can be limited and mitigated by effective implementation of transparent and strategic environmental impact assessments founded on robust scientific analysis, enforcement of appropriate environmental and social standards.
(c) Implementation of REDD projects at the national and sub-national level and pilot projects where there is high potential for replication.

137. The ASP will coordinate closely with the Commodities Signature Program to ensure that activities implemented under each program jointly address the impact of cattle and soy production in the Amazon.

Brazil

138. Conservation-based businesses associated with conservation areas will be promoted through capacity building, exchange of experiences, networking and specific credit policies. This could include concessions and public-private partnerships between businesses and protected areas.

139. Bioprospecting, biodiversity-based products, and access and benefit sharing for biodiversity will be promoted.

140. Innovative financial and economic instruments for conservation and sustainable development will be studied, promoted and implemented. Among them, specific focus will be given to the ICMS Ecológico (ecological tax revenue distribution) which will be reformed and updated in all states of Amazonia and cotas de reserva ambiental (tradable environmental

certificates) implemented in all states of Amazonia and wider ranging legislation of payment for ecosystem services in the federal, state and local levels.

Colombia

141. Stabilization and sustainability in the agriculture frontier. The objective of this activity is to stop the expansion of the agriculture frontier, by stabilizing already settled areas, and promote their reconversion to sustainable productive systems. Key activities may include:

(a) Promoting the reconversion of cattle ranching areas to sustainable productive activities like silvopastoral systems, with ecological restoration.
(b) Supporting REDD+ activities (the Colombian Amazon is a priority for the implementation of REDD+).
(c) Strengthening Municipality's and regional environmental corporation's capacities for land use planning.
(d) Strengthening coordination with other Sectors within government, local governments (state governments, Departamentos, municipalities and indigenous resguardos), NGOs and Academia, indigenous groups, and the private sector.
(e) In a context of an expected situation of post-conflict scenario, articulating environmental and sustainability considerations into resettlement and land titling programs.

142. Management of freshwater resources. The objective of this activity is to develop and implement land use management plans at the level of the watershed, focusing on the sustainability and maintenance of local fresh water resources, taking into account an integrative approach of ecosystem services (especially regulation) and biodiversity conservation. Key activities may include:

(a) Strategic environmental planning for future hydroelectric developments, and to maintain the integrity of the free flowing rivers that support major environmental services downstream (fisheries, hydrological pulses that maintain flooded forests and wetlands). Special attention would be given to impacts of mining (e.g, mercury) and climate change impacts in freshwater systems.

143. Sustainable Forest Management (SFM). The objectives of this activity are to:

(a) promote the sustainable and responsible use of wood, with activities to ensure the legality of timber and compliance with sustainability criteria, and
(b) contribute to poverty reduction, improvement in livelihoods, and strengthening human and social capital in local communities.

144. Key activities to support the implementation of SFM that may include:

(a) Employing financial and market instruments for sustainable forest management.
(b) Strengthening environmental authorities and articulation with community lands for law enforcement and the Pact for Legal timber.
(c) Land use planning at local levels (municipalities).

145. Sustainable use of biodiversity and bio-trade. The objective of this activity is to promote sustainable use and rational marketing of NTFPs and sustainable fisheries. Key activities may include:

(a) Strengthen traditional livelihoods of the inhabitants in the region, and contribute to human welfare, by promoting and creating green markets for NTFPs, sustainable fisheries, and others products with potential trade at different scales.

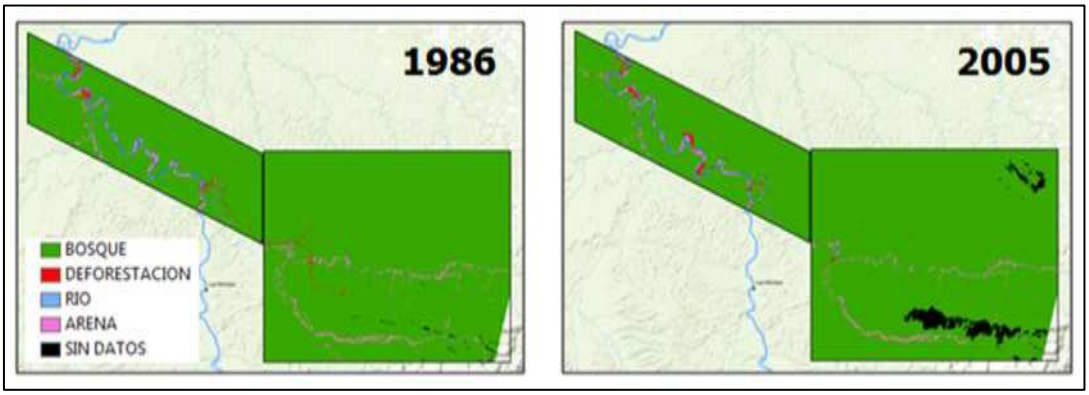
(b) Establish market incentives, value chains and transfers of technologies that promote the equitable distribution of benefits and strengthen traditional livelihoods of the inhabitants of the region generated from them.

(c) Strengthening environmental authorities and articulation with community lands for law enforcement.

Peru

146. Support the Development and Implementation of Economically Viable Sustainable Activities. It is imperative to support the perceptions of Amazonian value with actual examples of value creation. For this, the initiative recognizes that attempting to slow down private investment is not conducive to tangible results. Instead, it is important to engage the private sector to promote an agenda that seeks to optimize economic growth, poverty reduction, and environmental sustainability. The initiative will collaborate with various promising mechanisms and investment options that can create economic growth for the country and local people while maintaining the ecological integrity of the region, and on the basis of these experiences, support the development of a conducive policy framework (including issues related to property rights) to facilitate these types of investments. Promising among these are:

Amazon SP Figure 16 - Negligible Deforestation through the Roadless Hydrocarbon Model in Camisea (Blocks 56 and 88)



(a) Development of Benchmarks for Extractive Industries. The experience of gas exploitation in Camisea has been highlighted as an example of best practice in hydrocarbon development globally because of its approach to conduct all exploration and exploitation without roads. As a result, local deforestation in the area has been less than 0.002 percent over the last 10 years (Figure 16), while at the same time Camisea has contributed over US$60 Billion to the Peruvian

economy.[117] The initiative can draw lessons and elevate the benchmarks for how the industry operates in Peru and elsewhere. The initiative will also draw lessons to strengthen safeguards while promoting the adoption of this type of best practices in this and other extractive industries.

(b) The initiative will help consolidate current efforts to develop REDD towards the development of a private and commercially-friendly framework that attracts private investment into forest conservation.

(c) Ecotourism. The initiative will work with the tourism sector to learn successful experiences, understand current barriers to its continued expansion, and develop regulations and incentives on the basis of best practices.

(d) Non-timber Forest Products. Similarly, the initiative will study and learn successful experiences in Peru and beyond, understand current barriers to its continued expansion, and develop regulations and incentives on the basis of best practices, and with the objective of promoting investments at commercial scales for promising products (e.g., an incubator function). Some of these products can also include biodiversity-friendly organic products such as cacao and coffee ground in the shade.

(e) Sustainable Forest Management. The initiative will work closely with the relevant sectors to develop incentives on the basis of a better understanding of barriers, including lack of effective property rights, and identify and promote best practices.

Component Four: Regional Actions

147. Conservation of Amazon forests requires investments to address the national agenda as well as regional issues. Without the collaborative work of neighboring countries to tackle common threats and to take advantage of the opportunities, it would be difficult to secure the maintenance of the forest cover and flow of ecosystems services in the long term. Taking action on regional issues can no longer be postponed, as the Amazon region is increasingly accessible and gaining importance in the development agenda. Regional interventions will be needed on activities that relate to the three components described above and may include:

(a) Regional Policy, legal and regulatory frameworks. At the regional level, participating countries may work on issues related to monitoring of deforestation, and the harmonization of legal frameworks to address deforestation. Significant gains could be achieved by building and making operational agreements among the agencies working on remote sensing like IDEAM in Colombia, and INPE in Brazil. OTCA and the "Amazon Fund" could offer a viable platform to further elaborate on a common agenda and actions on the ground.

(b) Conservation and Sustainable-use Landscapes. The regional agenda on land based interventions is potentially significant. That includes generating and maintaining the coordination of activities in trans-boundary protected areas including: i) the Cuyabeno (Ecuador), Paya (Colombia), Gueppi (Peru) complex around the margins of the Putumayo River, ii) the Madre de Dios (Peru), Acre (Brazil) and Pando (Bolivia) complex, and the Sierra del Divisor of both Peru and Brazil. There is also an opportunity to facilitate coordination in the Indigenous territories in the tri-national area of Colombia, Peru and Brazil. Finally, at the

[117] http://www.nature.com/news/fighting-for-the-forest-the-roadless-warrior-1.9494

level of the Amazon biome, some ecosystems are not adequately represented in protected areas and this could be further evaluated with the aim of identifying and filling ecosystem coverage gaps.

At the regional level, a series of commitments by various governments that share the Amazon basin demonstrate heightened awareness and interest to implement a shared agenda and vision with regards to the protected areas of the Amazon. In 2010, the Directors of Protected Area Systems in the Amazon agreed to the "Amazon Conservation Vision and Action Plan." In 2011, the Governments of Colombia, Ecuador, and Peru signed a memorandum towards the joint management of three protected areas that make up the tri-national Putumayo Corridor. (See Figure 7 in Annex 1).

(c) Production Systems. Governments in the region may also address issues related to threats imposed by illegal gold mining, especially considering border controls in these isolated and remote areas are non-existing and gold prospectors move up and down the courses of the mayor international rivers running from the Andes to the Amazon. The agreements under OTCA to address monitoring of gold mining along the Colombian- Peruvian border could be consider as a platform to engage in these discussions. The participating countries in the ASP will most likely engage in technology transfer for sustainable use of Amazon products. This type of south-south cooperation is likely to be anchor in agricultural research and development agencies like EMBRAPA (Brazil), IIAP (Peru) and ICA (Colombia). These national agencies, in combination with international remote sensing organizations, could provide valuable data to support the efforts stakeholders, like the Amazonian Network of Geo-reference Socio-Environmental Information (RAISG). This consortium of conservation and social NGOs has produced the first pan-Amazonian on-line database of the protected area network (including indigenous territories) and drivers of deforestation (www.raisg.socioambiental.org).

148. ASP will facilitate and promote South-South cooperation amongst the three countries with a focus on science and technology transfer, as appropriate, to support the regional actions identified above. These thematic areas are currently indicative and will be fully elaborated as the program is further developed.

Program Implementation Plan

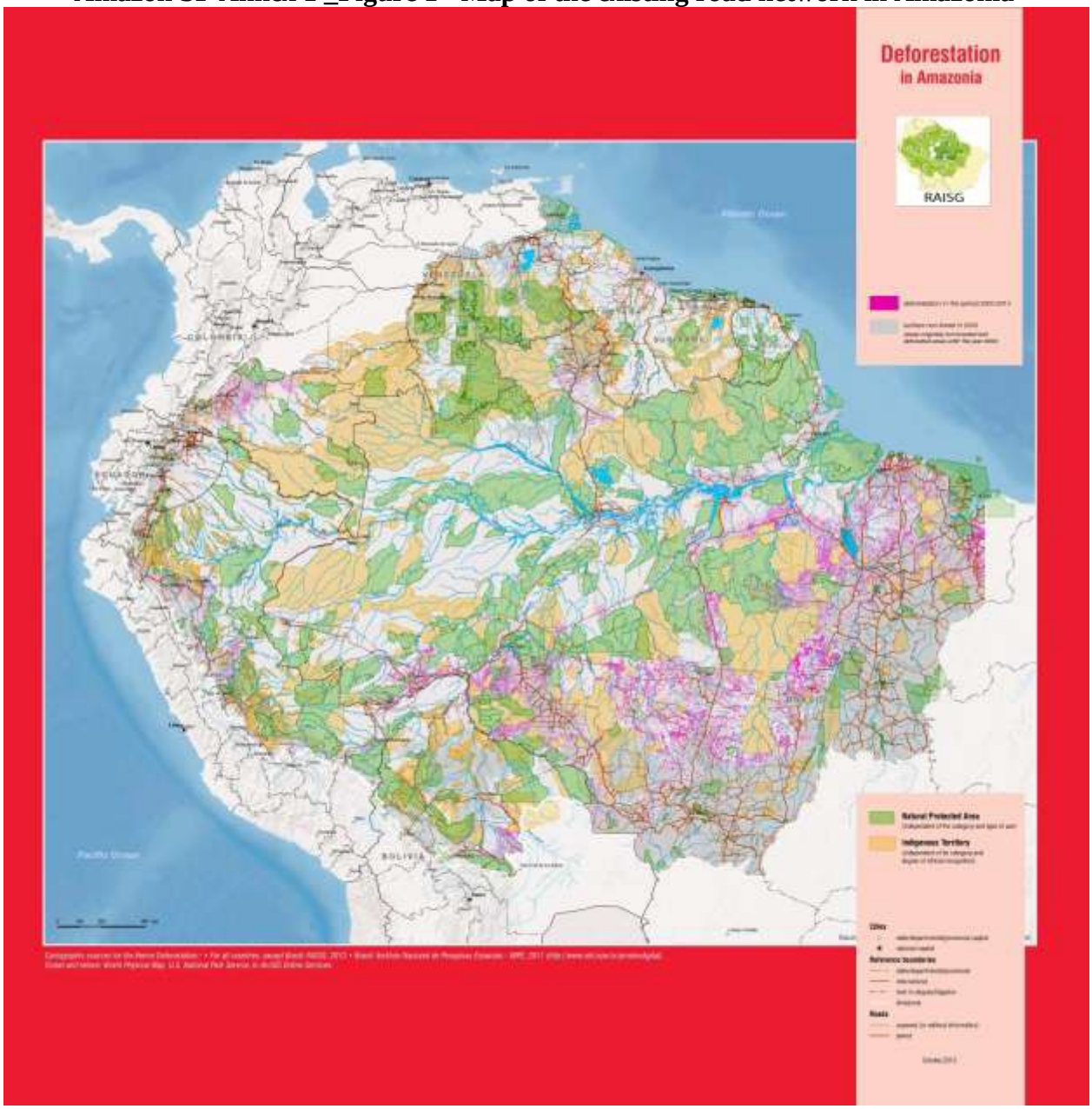
149. As part of the development of this program thus far, the GEF Secretariat has undertaken missions to Brazil, Colombia, and Peru to meet with the respective Governments, and other key national stakeholders to discuss the Amazon Signature Program. The current document is a product of the inputs of Government, national consultants, and that of the GEF Secretariat and serves to frame the program and outline its general direction. Further dialogue and consultation will be required to refine the program's scope and to decide on the suite of national and regional components and activities that will be implemented. A comprehensive design and implementation plan will be determined during further program development.

Funding

150. The request for funding for the Amazon Signature program is US$100 million. At this level of funding, each participating country may access US$20-40 million of GEF resources. Significant co-financing is anticipated.

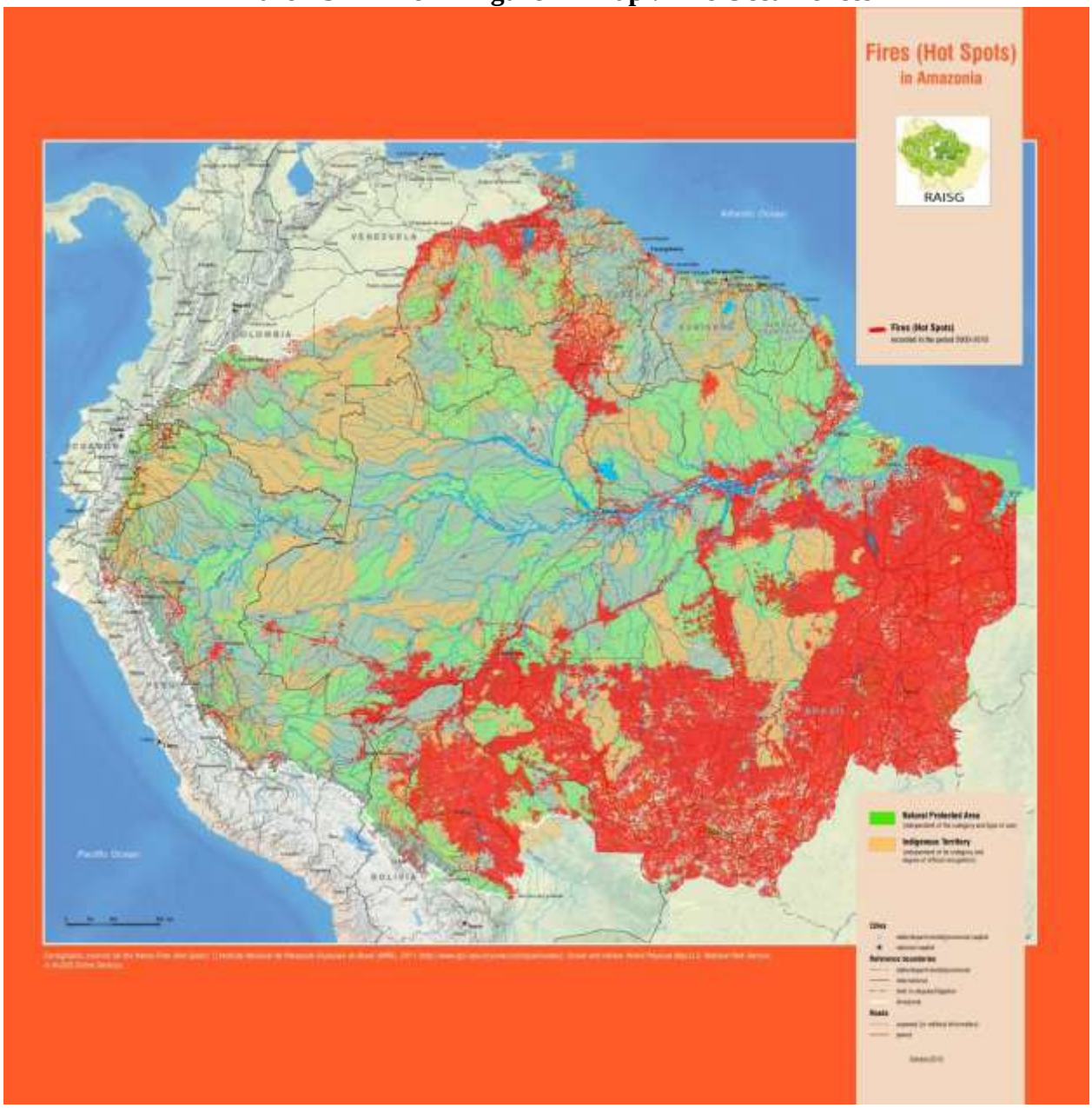
Annex 1. Maps of threats and protected areas (including indigenous territories) in the Amazon

Amazon SP Annex 1 _Figure 1 - Map of the existing road network in Amazonia



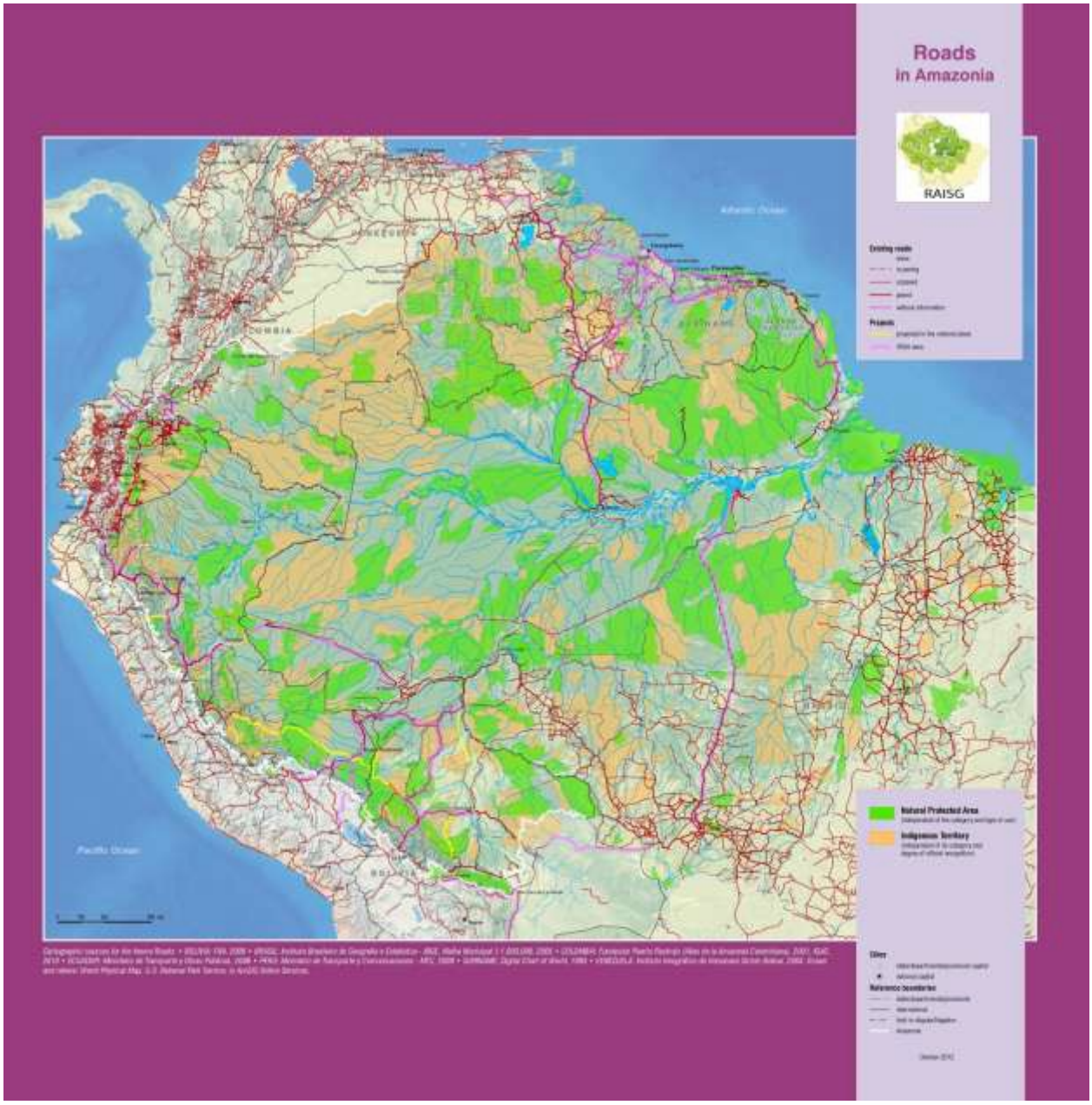
The existing road network in Amazonia (in red). It includes paved and unpaved roads, as well as the network of protected areas and indigenous territories. From: Amazonian Network of Georeferenced Socio-environmental Information - RAISG (2012). Amazonia under pressure 68p.

Amazon SP Annex 1 Figure 2 - Map : Fire Occurrences



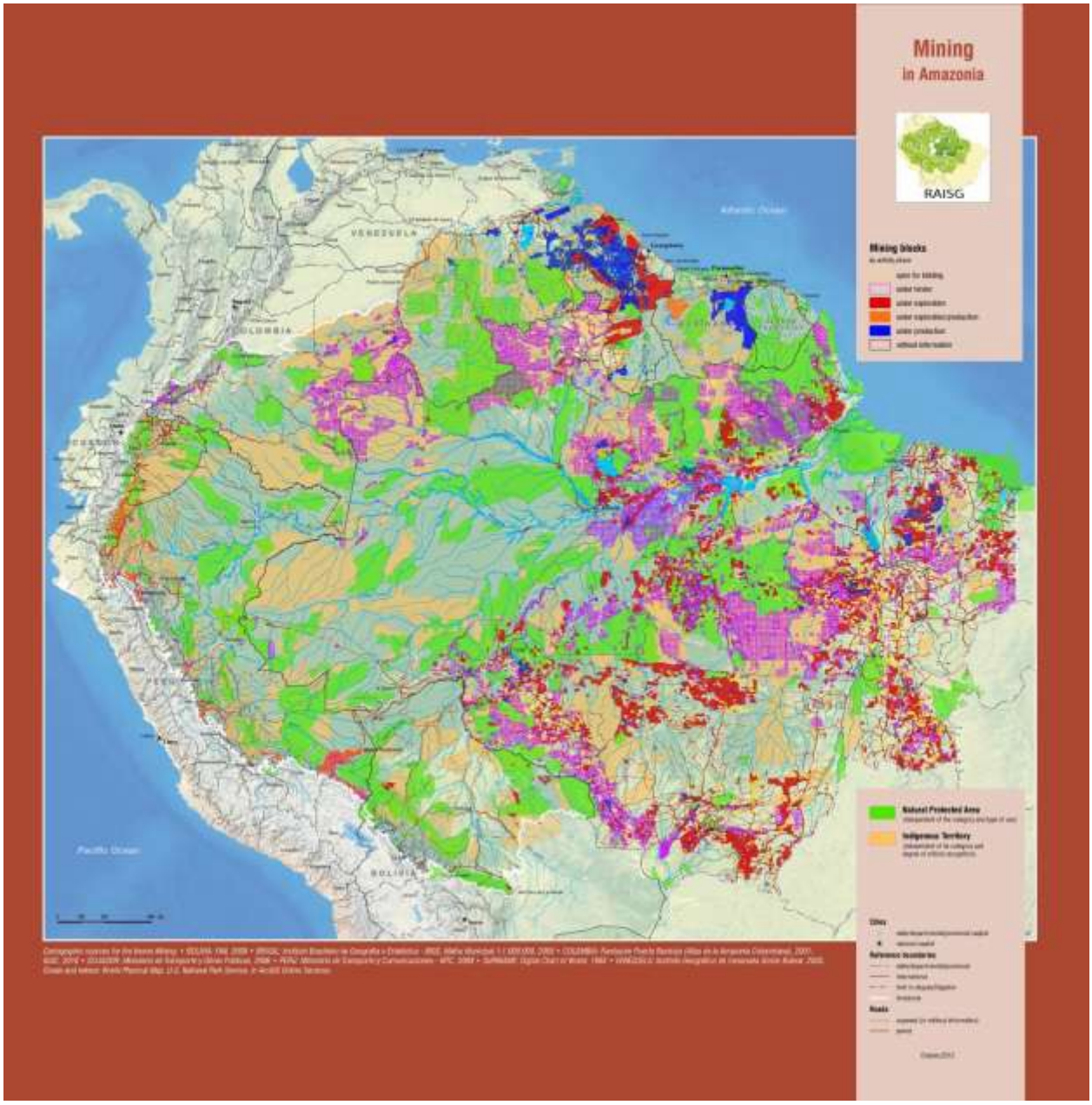
Fire occurrences (red dots) in Amazonia in the period 2000-2010. There are also roads (red lines), protected areas and indigenous territories. From: Amazonian Network of Georeferenced Socio-environmental Information - RAISG (2012). Amazonia under pressure 68p.

Amazon SP Annex 1 Figure 3 - Roads (in red), protected areas and indigenous territories in the Amazon



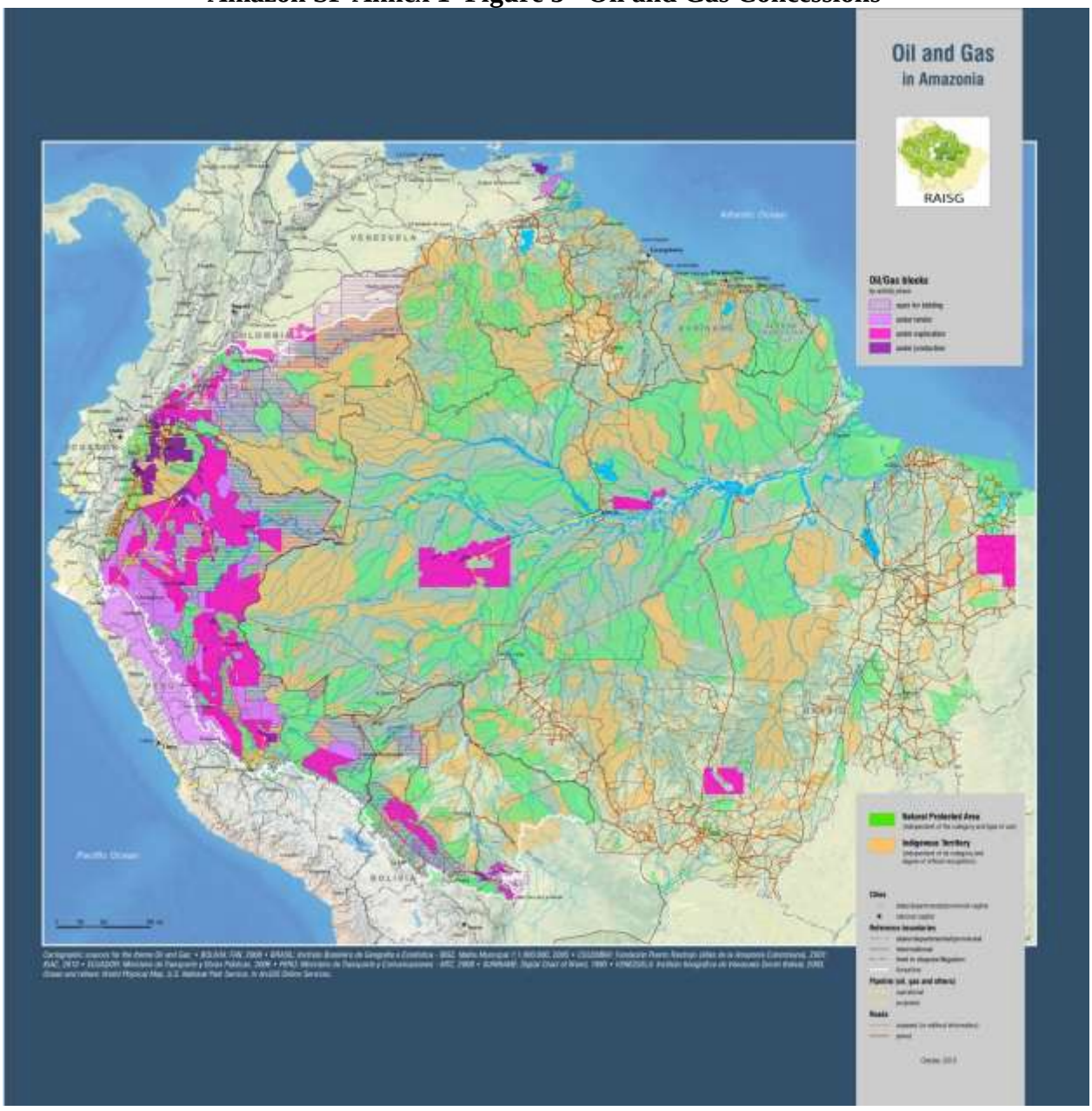
Roads (in red), protected areas and indigenous territories in the Amazon. From: Amazonian Network of Georeferenced Socio-environmental Information - RAISG (2012). Amazonia under pressure. 68 p.

Amazon SP Annex 1 Figure 4 - Mining concessions under different stages of development in Amazonia



Mining concessions under different stages of development in Amazonia. It includes roads and the network of protected areas and indigenous territories. From: Amazonian Network of Georeferenced Socio-environmental Information - RAISG (2012). Amazonia under pressure 68p.

Amazon SP Annex 1 Figure 5 - Oil and Gas Concessions

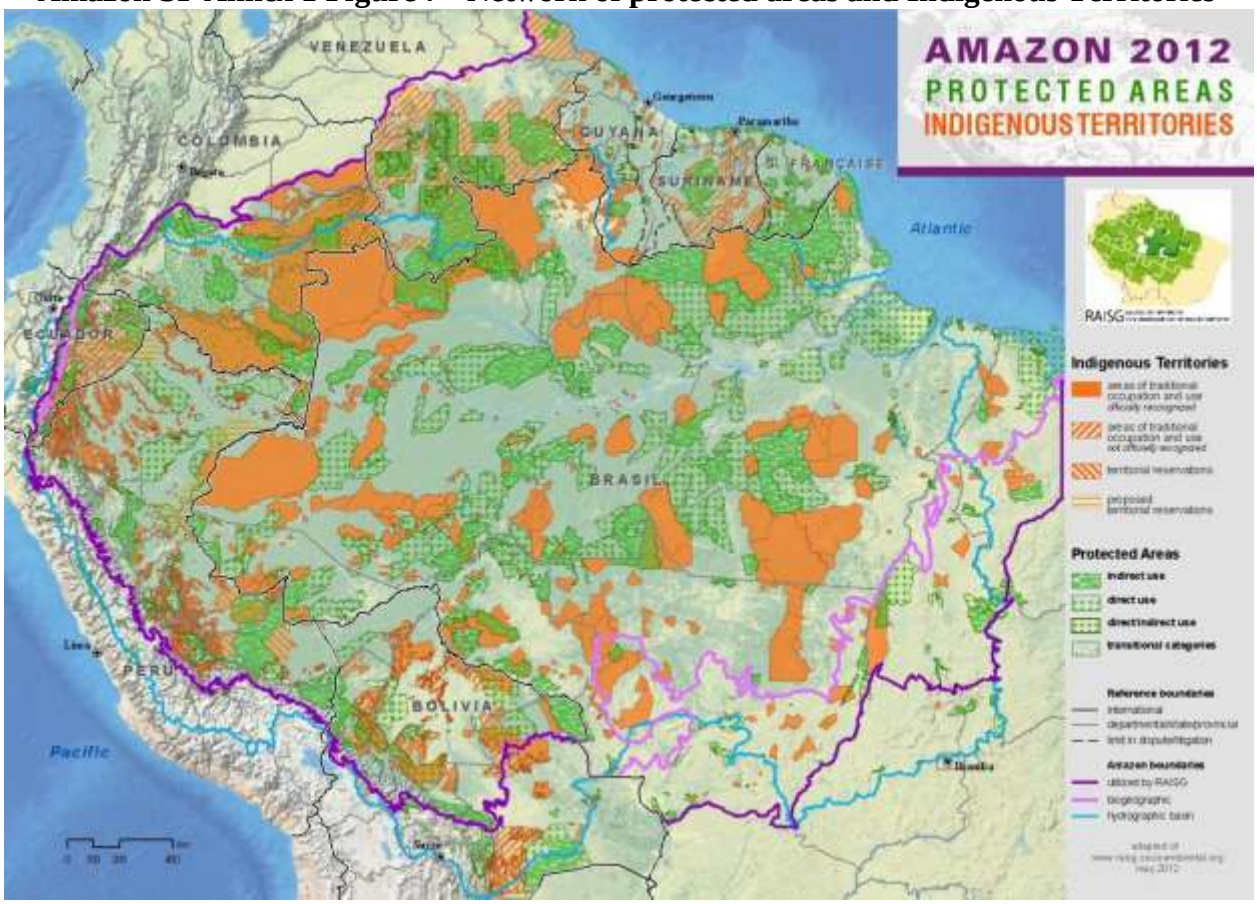


Oil and gas concessions under different stages of development in Amazonia. It includes roads and the network of protected areas and indigenous territories. From: Amazonian Network of Georeferenced Socio-environmental Information - RAISG (2012). Amazonia under pressure 68p.

Amazon SP Annex 1 Figure 6 - Hydroelectric Plans

Hydroelectric plans of different types and stages of development in Amazonia. It includes roads and the network of protected areas and indigenous territories. From: Amazonian Network of Georeferenced Socio-environmental Information - RAISG (2012). Amazonia under pressure 68p.

Amazon SP Annex 1 Figure 7 - Network of protected areas and Indigenous Territories



Network of protected areas and indigenous territories under different types of management in Amazonia. From: Amazonian Network of Georeferenced Socio-environmental Information - RAISG (2012). Amazonia under pressure. 68 p.