GREEN CLIMATE FUND | Simplified Approval Process

SIMPLIFIED APPROVAL PROCESS (SAP) SECTORAL GUIDELINES

Ecosystems and Ecosystem Services

INTRODUCTION

The thematic area of ecosystems and ecosystem services encompasses all natural environments and the productive uses that are based on them. This can range from environments not directly impacted by human activities – for example, remote rainforests, alpine regions or coral reefs – to environments that are intensively managed – such as agricultural areas or managed forests for timber production. Given that there are thematic areas specifically addressing water security, agriculture and food production, and forest management, the emphasis in this thematic area is on natural or less intensively managed environments.

DEFINITIONS

"Ecosystem" refers to a dynamic complex of plant, animal, and microorganism communities and their non-living environment interacting as a functional unit.[1] For practical purposes, it is important to define the spatial dimensions of concern.[2]

"Ecosystem services" are defined as the benefits to humans that arise from the interactions between components of an ecosystem, which include provisioning (e.g. food), regulating (e.g. flood control), cultural (e.g. recreation) and supporting services (e.g. nutrient cycling).[3] The provisioning services provide the most direct and tangible support to humans, while the supporting and regulating services enable and facilitate the provisioning services.

LINKS TO CLIMATE CHANGE

Climate change impacts natural systems, affecting ecosystem service flows. More specifically, climate change is a driver of ecosystem degradation, the impact of which is increasing rapidly, although there is uncertainty about scope and the specific economic implications of this change.[4]

1. *Millennium Ecosystem Assessment (2005a)*
2. *The Economics of Ecosystems and Biodiversity – Glossary of terms (www.teebweb.org/resources/glossary-of-terms)*
3. *Provisioning services include food, fuel and water; regulating services include natural hazard mitigation, erosion control and water purification; supporting services include soil formation and nutrient cycling; and cultural services include recreational and other nonmaterial benefits.*
4. *James Boyd. "Ecosystem Services and Climate Adaptation", Issue Brief 10-16 (Resources for the Future, 2010).*

Globally, with increasing temperatures and changes in precipitation patterns, arid and semi-arid regions may become drier and the frequency and intensity of natural weather-related events are likely to increase. Coastal areas, on the other hand, may become flooded as a result of sea level rise, which can also negatively affect mangroves and wetlands that provide important regulating and supporting services. In some cases, changes in the structure and functioning of ecosystems can result in the introduction of invasive species, whose long-term impacts are difficult to gauge.[5]

Intact ecosystems have been shown to reduce exposure to natural hazards and build adaptive capacity, which contributes to climate-resilient livelihoods. The contribution of ecosystems and ecosystem services to human resilience to climate change has been increasingly recognised,[6] and there is a growing economic case for investing in ecosystem-based approaches.[7]

APPROACH

KEY AREAS / COMPONENTS

Ecosystems and ecosystem services as defined above are diverse and can apply to multiple environments. A description of these environments is given in the table below, following the classification of the Millennium Ecosystem Assessment Reporting Categories.

Project proposals under SAP should be formed by the following guidelines, building on the SAP funding proposal preparation guidelines.[8] For projects that relate to other thematic areas, such as agriculture, forestry or water management, please refer to the specific guidelines for those thematic areas, in addition to the information provided on ecosystems and ecosystem services.

5. *Millennium Ecosystem Assessment (2005a)*

6. *For more information about economic valuation of ecosystem services, please visit the Economics of Ecosystems of Biodiversity (TEEB), www.teebweb.org.*

7. *E. Carabine, C. Cabot Venton, T. Tanner, and A. Bahadur. (2014) "The Contribution of Ecosystem Services to Human Resilience: A Rapid Review. Rapid review paper for the Rockefeller Foundation. (Overseas Development Institute (ODI), UK, 2014).*

8. *Please refer to here, https://g.cf/sap-fp-guidelines*

CATEGORY	CENTRAL CONCEPT	BOUNDARY LIMITS FOR MAPPING
Marine	Ocean with fishing typically a major driver of change	Marine areas where the sea is deeper than 50 meters
Coastal	Interface between ocean and land, extending seawards to about the middle of the continental shelf and inland to include all areas strongly influenced by the proximity to the ocean	Area between 50 meters below mean sea level and 50 meters above the high tide level or extending landward to a distance 100 kilometers from shore. Includes coral reefs, intertidal zones, estuaries, coastal aquaculture, and seagrass communities.
Inland water	Permanent water bodies inland from the coastal zone, and areas whose ecology and use are dominated by the permanent, seasonal, or intermittent occurrence of flooded conditions	Rivers, lakes, floodplains, reservoirs, and wetlands; includes inland saline systems.
Forest	Lands dominated by trees; often used for timber, fuelwood, and non-timber forest products	Note: Refer to guidelines on Forest and Land use for SAP projects.
Dryland	Lands where plant production is limited by water availability; the dominant uses are large mammal herbivory, including livestock grazing, and cultivation	Drylands as defined by the Convention to Combat Desertification, namely lands where annual precipitation is less than two thirds of potential evaporation, from dry subhumid areas, through semiarid, arid and hyper arid, but excluding polar areas; drylands include cultivated lands, scrublands, shrublands, grasslands, semi-deserts and true deserts
Island	Lands isolated by surrounding water, with a high proportion of coast to hinterland	
Mountain	Steep and high lands	
Polar	High – latitude systems frozen for most of the year	Includes ice caps, areas underlain by permafrost, tundra, polar deserts and polar coastal areas. excludes high altitude cold systems in low latitudes
Cultivated	Lands dominated by domesticated plant species, used for and substantially changed by crop, agroforestry, or aquaculture production	Note: Refer to guidelines on Forest and Land use for SAP projects.

Ecosystem-based sectors have traditionally been confined to boxes defined by government structure, commodity markets, professional communities and small-scale geographic boundaries, creating problems of ineffective institutional coordination. The resultant policy and market failures across sectors and their related commodity production systems have led to the deterioration of the natural asset base (e.g., deforestation and land degradation), GHG emissions, loss of potential growth opportunities and productivity and poor social inclusion,[9] reducing both the scope and quality of previously available ecosystem services that are fundamental basis to the economy. To overcome these barriers, projects in this thematic area should aim to have an integrated systems approach, which means they can be multisectoral in nature.

As discussed above, climate change has been affecting the growth and productivity of ecosystem-based sectors, through changes in precipitation pattern, extreme weather events and other factors. One method of addressing the negative impacts of climate change on these sectors includes the concept of Ecosystem-based Adaptation (EbA). The EbA approach uses ecosystems and ecosystem services as part of an overall strategy to help people adapt to the adverse effects of climate change.[10] In other words, it is a nature-based solution that harnesses ecosystems and ecosystem services to reduce vulnerability and enhance resilience to climate change.[11] EbA projects offer flexible and cost-effective measures to address risks at multiple scales that can also deliver co-benefits for mitigation, livelihood protection and poverty alleviation,[12] along with other economic, social and environmental co-benefits.

Financing this sector is often seen as net-cost projects by governments and businesses because they are based on incomplete and often faulty cost-benefit analyses, leaving out the external costs associated with pollution of the environment, including the atmosphere with GHGs. An assessment on ecosystem services in nine biomes[13] ranging from coral reefs to tropical forests, found that the benefit-to-cost ratios of over 200 investments in ecosystem restoration (based on net present values) ranged from a worst-case scenario of 0.05:1 to as much as 35:1,[14] indicating that financing this sector usually brings economic benefits. The only limitation would be the absence of a comprehensive and consistent measurement system to determine the monetary value of ecosystems and their services.

PARADIGM SHIFT POTENTIAL

A paradigm shift for climate change occurs when there is a fundamental change in the way one perceives and responds to a climate change issue. For the ecosystems and ecosystems services thematic area, one of the recurring problems that prevent a paradigm shift is the lack of sustainability of the investments in this sector, which is often trumped by more mainstream sectors of economic development. Gross domestic product (GDP), the main parameter to measure national wealth, does not account for the value of ecosystem services. A paradigm shift for the sector would, therefore, be indicated by the support for and the development of a Natural Capital Accounting (NCA) system.[15] NCA plays an integral role in policy development and implementation for natural resources management, with the quantification, valuation and attribution of ecosystem services being critical features of the decision-making processes. From a perspective of developing a SAP project, a paradigm shift would, among others, demonstrate 1) explicit quantification, valuation and attribution of ecosystem services in the project; and 2) capacity building to incorporate NCA into national planning, thereby strengthening the long-term sustainability of the investments.

9. TEEB (2010), The poorest and most vulnerable communities heavily depend on ecosystem services for their economic livelihoods. In Indonesia and India, it was estimated that ecosystem services and other non-marketed goods account for between 75% and 47% of the so-called 'GDP of the poor', whereas in share of agriculture, forestry and fisheries in the classical GDP accounts for only 11% and 17%, respectively.

10. UN Environment, http://web.unep.org/coastal-eba/what-is-eba

11. IUCN, https://www.iucn.org/resources/issues-briefs/ecosystem-based-adaptation

12. Richard Munang et al. "The role of ecosystem services in climate change adaptation and disaster risk reduction". Current Opinion in Environmental Sustainability, No.5 (2013).

13. This includes coral reefs, coastal systems, coastal wetlands, inland wetlands, freshwater (river/lakes), tropical forest, temperate forest, woodlands, and grasslands.

14. R. De Groot and others, "Benefits of Investing in Ecosystem Restoration", Conservation Biology vol. 27 No. 6 (2013). This study screened over 200 studies on restoration projects that had reliable data. Costs included capital investment and maintenance of the restoration project, and benefits were based on the monetary value of the total bundle of ecosystem services provided by the restored ecosystem. The results provide only partial estimates of benefits at one point in time and reflect the lower limit of the welfare benefits of ecosystem restoration because both scarcity of and demand for ecosystem services is increasing and new benefits of natural ecosystems and biological diversity are being discovered.

15. For more information about the NCA methodology, often referred as System of Environmental Economic Accounting (SEEA), please refer the link following, https://seea.un.org/content/about-seea

IMPACT MEASUREMENT

The project proponent should clearly indicate the expected impact of the intervention in both qualitative and quantitative terms. Note that GCF's primary interest is in the impact that the project will generate. Hence, it is important to align them with GCF's priorities to ensure that you present a strong and persuasive case.

It is required that the proponent refer to GCF's Performance Measurement Frameworks[16] and adopt the language therein when describing the impact. The document contains a list of indicators used by GCF to assess the expected benefits of the project. A table with *fund-level impacts* and *project/programme-level outcomes* with indicators relevant to potential projects in the ecosystem and ecosystem services sector are presented in the table below.

In describing the outcomes and the targets, the proposal needs to be as explicit as possible, with quantitative targets presented wherever possible.

16. *GCF (2014), Annex VIII: Mitigation and adaptation performance measurement frameworks (GCF/B.08/45, pg. 71-81).*

EXPECTED RESULTS	INDICATORS	NOTES
Fund-level Impacts		
Improved resilience of ecosystems and ecosystem services	Coverage/ scale of ecosystems protected and strengthened in respond to climate variability and change	Disaggregated by ecosystem type To examine how impact on people can be captured Informed by Adaptation Fund (core-4); LDCF/SCCF 2
	Value (US$) of ecosystem services generated or protected in respond to climate change	Informed by LDCF/SCCF 2
Project/Programme Outcomes		
Strengthened institutional and regulatory systems for climate responsive planning and development	Number of technologies and innovative solutions transferred or licensed to promote climate resilience as a result of Fund support	Might include number of technology transfer licences, number of facilities created to produce local technologies, and/or projects/ programmes that include transfer of technology and innovative solutions that support climate adaptation and resilience
	Institutional and regulatory systems that improve incentives for climate resilience and their effective implementation.	The indicator measures the institutional and regulatory systems that improve incentives for climate resilience and are accompanied by evidence of their effective implementation. The evidence may be a qualitative assessment (e.g. through a standardised scorecard) of the various strategic plans and documents is needed at regular intervals to observe changes in terms of climate change streamlining and quality Informed by Adaptation Fund 7; CIF PPCR A2.1, B2; Adaptation Fund 7.1; LDCF/SCCF 12
	Number and level of effective coordination mechanisms	Seeks to measure evidence of measures taken for promoting coordination and synergy at the regional and international levels, including between and among relevant agencies and with regard to other multilateral environmental agreements
Increased generation and use of climate information in decision making	Proposed: 6.2 Use of climate information products/services in decision-making in climate-sensitive sectors	Disaggregated by stakeholder (government, private sector, and general population). This indicator is qualitative in nature and country-specific. It will require an in-depth analysis and/or a scorecard approach to capture the understanding of the political economy determining decisions Informed by CIF PPCR B3
Strengthened adaptive capacity and reduced exposure to climate risks	Number of males and females made aware of climate threats and related appropriate responses	This indicator is qualitative and/or quantitative in nature and country-specific. The qualitative aspects will require an in-depth analysis or a scorecard approach to determine the extent of progress Disaggregated by sex Informed by CIF PPCR B1
Strengthened awareness of climate threats and risk reduction processes	Number of males and females made aware of climate threats and related appropriate responses	Disaggregated by sex Informed by Adaptation Fund 3.1, 3.2

INDICATIVE SAP ACTIVITY MATRIX FOR ECOSYSTEMS AND ECOSYSTEM SERVICES[17]

SAP-ABLE EXAMPLES

Increased resilience of ecosystems and ecosystem services

It is important to note that this list is not exhaustive; rather, it presents examples of activities that could be considered under SAP.

17. These activities may not be eligible under the SAP under certain conditions. AEs will need to screen their projects to determine if they are low risk and therefore eligible for consideration under SAP. Factors such as the scale of operations may increase the risk level.

SAMPLE SAP-ABLE ACTIVITY	SAMPLE INDICATOR	NOTES
Restoration of degraded coastal mangroves	Area covered by mangroves	Typical activities include restoration of degraded mangrove areas and substitution of utilisation of mangrove products (e.g. firewood). Activities like aquaculture may not be supported under SAP due to the associated environmental and social risks
Development of spatial information systems and applications to measure ecosystem properties	Land area mapped out using spatial tools	This activity should be a part of a larger programme rather than a standalone activity
Develop activities that limit negative impacts on inshore coral reefs	Area of coral reefs under protected zone	Such activities need to delve further to outline detailed activities. Attention should be given to demonstrating the impact of and relevance to climate change and avoid activities that are focused on coral reef protection for biodiversity purposes
Conduct coastal zone assessment and modeling to determine adverse impacts	Data from in country climate observatories	Could be a part of a larger project on ecosystems and ecosystem services
Protection of inshore fishery resources	Area of sea protected	Such activities need to delve further to outline detailed activities
Policies for Natural Capital Accounting	Number of ecosystem services integrated into national accounts and planning tools	Unless NCA is integrated in national accounting and development planning, development of a green economy is not possible
Ecosystem services quantification, valuation and attribution	As above	NCA requires that ecosystem services be made explicit
Wetland management	Number of crops farmed/harvested in wetlands on seasonally dry lands Amount of fish sustainably caught Biomass of vegetation Hectares revegetated	Restoration of existing wetlands has associated environmental (and social) risks so it is typically not SAP-able. Eligible activities include adaptation of existing livelihood systems to changing hydrological conditions
Dryland management	Hectares with water conservation measures Crop yield Erosion reduced	Micro/small-scale water conservation and erosion control activities (e.g. contour bunds, green strips, half-moon terracing) are usually eligible, but only if required bulk materials are locally sourced
Watershed management	Length of the season where crops can be grown Erosion reduced Watershed outlet stream flow volume/length of time	As above. Extensive changes in hydrology (e.g. stream diversion) are not eligible

NON SAP-ABLE EXAMPLES

SAMPLE NON-SAP-ABLE ACTIVITY	NOTES
Planting new invasive mangrove species for restoration	The activity does not meet ESS requirements
New vegetation could potentially negatively impact existing natural habitats of animal wildlife	The activities could potentially impact or be dependent on ecosystem services including production of living natural resources
Small scale infrastructure/public facilities that include waste management	Small scale infrastructure and maintenance of existing public facilities is acceptable, but the waste management component may not meet ESS requirements

PROJECT SCENARIO

CONTEXT

- Country A is considered one of the world's megadiverse countries. Forests cover one-third of the land area and provide a home for millions of people living in extreme poverty. However, its ecosystems are also under stress. For the last 50 years, the area covered by tropical forests declined by more than 10%, with high deforestation rate due to the rising needs of agriculture and built-up infrastructure.
- The Ministry of Environment of the country plans to strengthen its conservation policy and institutions while hoping to receive more public investment from the central government to invest in them. However, it confronts difficult trade-offs in the pursuit of economic and social goals, and it is difficult to quantify the value and benefits of ecosystem and its services they would like to invest in.

PROJECT ACTIVITIES:

The objective of the project is to advance the knowledge agenda on Natural Capital Accounting, in particular ecosystem accounting, by initiating pilot testing of the SEEA Experimental Ecosystem Accounting (SEEA EEA).

- Improvement in measurement system for valuation of ecosystems and their services (both in physical and monetary terms) at the national and/or subnational levels;
- Application of natural capital accounting in national and/or subnational policy-planning and implementation;
- Raising awareness of natural capital accounting; and,
- Capacity building and knowledge sharing as a way to enlarge the community of practitioners on natural capital accounting in the country

This project is SAP-able, since the project is to directly address the bottleneck that can trigger a paradigm shift. The economic value of ecosystem services is not visible in the current economic system, thus receiving less attention, i.e. less public (and private) investment than required. Once the natural capital accounting system is introduced and applied with increasing awareness, it will change a way of thinking, particularly about the public investment decision to be more informed through quantified economic benefits of ecosystem and ecosystem services.

IMPACT POTENTIAL

- The project will, through public investment based on more informed decisions, increase the coverage and scale of ecosystems protected and strengthened in response to climate variability and change.

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