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FULL ASSESSMENT OF THE AMOUNT OF FUNDS NEEDED FOR THE IMPLEMENTATION OF THE CONVENTION FOR THE SIXTH REPLENISHMENT PERIOD OF THE TRUST FUND OF THE GLOBAL ENVIRONMENT FACILITY

Note by the Executive Secretary

1. The Executive Secretary is circulating herewith the full first draft of the assessment of the amount of funds that are necessary to assist developing countries and countries with economies in transition for the sixth replenishment period of the trust fund of the Global Environment Facility prepared pursuant to decision X/26 of the Conference of the Parties. A summary of this draft has already been circulated in the annex to the note by the Executive Secretary on review of GEF-5 and needs for GEF-6 (UNEP/CBD/WG-RI/4/7) which also contains suggested recommendations for the consideration of the Working Group.
2. The document is being circulated in the form and language in which it was produced by the Expert Team.

* UNEP/CBD/WGRI/4/1.

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**FULL ASSESSMENT OF THE AMOUNT OF FUNDS NEEDED FOR THE
IMPLEMENTATION OF THE CONVENTION FOR THE SIXTH REPLENISHMENT PERIOD
OF THE TRUST FUND OF THE GLOBAL ENVIRONMENT FACILITY**

An Assessment by the Expert Team Members

**First-Draft
28 March, 2012**

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INTRODUCTION

Among its core findings, the Cost of Policy Inaction study (Braat & ten Brink, (eds), 2008 - COPI, 2008) highlighted that the cost of failure to halt the losses of biodiversity and ecosystem resources in just over the past 10 years (2000-2010), would grow to approximately €545 billion (around \$740 billion US) a year in 2010 and this, only for the land based ecosystems (i.e. excluding marine areas, coral reefs and wetlands the loss of which could be substantial as well). The costs are expected to continue increasing as long as biodiversity and ecosystem losses are not halted and, even if halted, they would still continue long into the future. Furthermore, the welfare losses due to ecosystem and biodiversity losses will vary from region to region (across geographic areas) and range from very small 0.2% (MEA¹) to 17% in Africa, 23%-24% in Brazil, Russia and other Latin American and Caribbean (LAC) countries to highest losses of around 40% in Australia/New Zealand even though on average they represent only 7% of global GDP². COPI indicated also that a significant portion of the losses was found to be due to loss of the value of carbon storage and that the highest losses were from tropical forest biomes and hence, of global impact nature. Additionally, *"The Sunken Billions"* (World Bank, 2009) indicated that the world's capture fishery resources are assets with rates of return not exceeding zero but that cost the global economy about \$50 billion US per year in forgone resource rent (FAO, 2010). The social welfare loss of inaction is simply too high, even before accounting for the costs of the complex negative impacts on health, economic activities, trade relations, income distribution etc that may arise and cause challenges not only to policy-makers but also affect the overall welfare of society.

TEEB (2009) estimated the annual value of biodiversity loss and ecosystem degradation at around \$2-\$4.5 trillion US amounting to about 3.3% to 7.5% of global GDP. TEEB also indicated that annual losses as a result of deforestation and forest degradation alone may be equivalent to these estimates which could be secured by an annual investment of just \$20-\$45 billion US per year: i.e. with a 100:1 return to investment. Even at the lowest range of return to investment (i.e. 25:1), it takes only \$80-\$180 billion per year. The significance of the value of the loss of biodiversity and ecosystem degradation becomes even more alarming when the cost of climate change of \$1.7 trillion per annum³ is also considered (Evison, 2010).

However, while these and similar other studies highlight the huge and alarming cost of losing biodiversity and natural resources, and the substantial amount of opportunity costs of policy inaction, only few provide the costs of securing it or the amount of funds that is needed for different biodiversity conservation and sustainable use activities. When such estimates are found, most of them are already a few years old and need updating in order to help assess current financial needs. This is particularly true since changes in biodiversity and ecosystem resources are continuous and dynamic. One big challenge is that biodiversity conservation and sustainable use often involve large monitoring and evaluation expenses that most countries rich in biological resources do not have the capacity to readily absorb without assistance. Hence, the value of the overall loss of biodiversity and ecosystem resources keeps increasing and the resources are being run down without understanding the real value of what is being lost (TEEB, 2009).

The key drivers or direct causes of the loss in biodiversity are identified to consist of land use changes and fragmentation, loss of habitats due to conversion of land into other uses such as agriculture and urbanization, unsustainable use of natural resources, invasive alien species, climate change and pollution, not excluding the complex interactions between these and other socio-economic forces among other (GBO3, 2010). Insufficient awareness, knowledge and information on the importance and value of biodiversity, lack of governance, institutional and policy frameworks and integration of biodiversity in decision-making processes, and *uncertainties* surrounding the overall complex and changing economic and climatic conditions are found among the underlying or indirect causes.

Globally, the current level of financing for biodiversity and ecosystem services is estimated to be between \$6-\$10 billion (Gutman and Davidson, 2008; Djoghlaif and Dodds, 2011), and \$36-\$38 billion annually considering all possible

¹ MEA refers to Middle East and Asia.

² <http://www.cbd.int/incentives/doc/biodiv-economic-value-en.pdf>

³ 2008 net greenhouse gas emissions, Stern social cost of carbon \$85 per tonne of CO₂e (Evison, 2010).

sources, and only less than half of this is spent in developing countries (Parker and Cranford, 2010) where the funds are much needed. There is still no agreement as to how much is exactly currently spent to biodiversity conservation efforts. Additionally, even the highest of these amounts is found to be far below what is required for biodiversity conservation and sustainable use (Parker and Cranford, 2010) considering the rate of the losses. The funding needs of protecting natural capital is in the order of hundreds of billions annually and very hard to estimate precisely and investment on securing it is not precisely known and is estimated to be less than \$38 billion per year from all sources. So far, the estimation of the financial needs of pursuing the three objectives of the CBD has also proven to be difficult and elusive with just few exceptions such as the case of in-situ conservation especially as it relates to the costs of implementing a globally representative system of protected areas (Djoghla and Dodds eds, 2011). The literature indicates also that 30%-50% of the funds are used for protected areas (conservation) leaving 50% to 70% of the funds for sustainable use and ABS.

Since the GEF pilot phase, in 1991, 1084 biodiversity projects have been approved (including enabling activities, Medium Sized Projects (MSPs) and Full Sized projects (FSPs) and implemented or are under implementation totalling over \$2.93 billion of GEF resources (this does not include the November 2011 work program). The GEF has also leveraged over \$8 billion US in co-financing⁴. During the GEF-3 to GEF-5 period (2003-2010), 68 Multi-Focal Area (MFA) projects, that only began in GEF-3, that used biodiversity and other focal area resources have been approved and implemented or are under implementation totalling \$589 million of GEF resources (excluding the November 2011 work program). However, the introduction of the Aichi Goals and 20 Targets and the ambition that these targets should be met by 2020, implies that past trends in biodiversity related projects and funding should be scaled up in order to meet all of the Goals.

Therefore, the present financial needs assessment is an attempt to assess the financial implications of the Aichi Goals and 20 Targets up to 2020 for the GEF-6 investments for the period 2014-2018. The exercise was mandated by COP-10 in decision X/26 and comprises the first assessment ever on financial needs of the CBD targets.

⁴ <http://gefonline.org/>

PREAMBLE

Guidance to the Financial Mechanism

“In accordance with Article 21 of the Convention, the Conference of the Parties (COP) will determine the policy, strategy, programme priorities and eligibility criteria for access to and utilization of financial resources available through the financial mechanism, including monitoring and evaluation on a regular basis of such utilization. The Global Environment Facility (GEF), in operating the financial mechanism under the Convention, will finance activities that are in full conformity with the guidance provided to it by the Conference of the Parties...” ... MOU, paragraph 2.1

The financial mechanism operates under the guidance of the COP to the Convention. The first set of guidance to the financial mechanism was developed by the COP at its first meeting in 1994, and additional guidance was provided by subsequent meetings of the COP. In October 2010, the tenth meeting of the COP adopted the consolidated list of guidance to the financial mechanism, including programme priorities, and agreed to retire the previous decisions and elements of decisions, as related to the financial mechanism and limited only to those provisions related to the financial mechanism (Decision X/24). While this decision presented the consolidated guidance to the financial mechanism of the Convention, Decision X/25 further provided additional guidance to the financial mechanism.

At its ninth meeting, the COP adopted the four-year outcome-oriented framework of programme priorities as related to utilization of Global Environment Facility (GEF) resources for biodiversity for the period from 2010 to 2014 (Decision IX/31 B). It was used as input to the development of the biodiversity focal area strategy for the fifth replenishment period of the GEF.

A new paradigm of providing guidance has emerged. In October 2010, the COP decided that guidance to the financial mechanism, for a specific replenishment period, consists of a consolidated list of programme priorities that defines what to be financed, and an outcome oriented framework, taking into account the Strategic Plan of the Convention, including its associated indicators and targets.

For the biennium 2011-2012, the following activities are expected:

- Parties and relevant stakeholders, including indigenous and local communities, to submit information and views on the further development of programme priorities, taking into account the 2011-2020 Strategic Plan of the Convention, including its associated indicators and targets, by 30 November 2011;
- The Executive Secretary to compile the information from Parties and relevant stakeholders, for consideration by the fourth meeting of the Ad Hoc Open-ended Working Group on Review of Implementation;
- The Ad Hoc Open-ended Working Group on Review of Implementation to review the implementation at its fourth meeting of the four-year outcome-oriented framework of programme priorities as related to utilization of GEF resources for biodiversity for the period from 2010 to 2014, taking into account the Strategic Plan of the Convention, including its associated indicators and targets.

At its eleventh meeting, the Conference of the Parties will consider a four-year outcome-oriented framework of programme priorities, taking into account the Strategic Plan of the Convention including its associated indicators and targets, as well as the outcome of the review, for consideration during the sixth replenishment of the Global Environment Facility Trust Fund, as related to utilization of GEF resources for biodiversity for the period July 2014 to June 2018 (Decision X/26).

In Decision X/26, the COP adopted the terms of reference for a full assessment of the amount of funds that are necessary to assist developing countries and countries with economies in transition, in accordance with the guidance provided by the COP, in fulfilling their commitments under the Convention for the sixth replenishment period of the GEF Trust Fund, as contained in the annex to the decision. The present study is part of an overall assessment of the financial needs of biodiversity by the Expert Team members, a report on the target by target approach to estimate the funding needs for the GEF-6 replenishment period. The WGRI-4 will consider the expert team's assessment report and make recommendations for consideration by the eleventh meeting of the Conference of the Parties. The COP at

its eleventh meeting will make a decision on the assessment of the amount of funds that are necessary for the implementation of the Convention for the sixth replenishment period of the Trust Fund of the Global Environment Facility, and communicate the results to the Global Environment Facility accordingly.

The mandate of the GEF is to finance the incremental costs of projects related to the provision of global environmental benefits. Hence, generally, GEF projects fulfil incremental and catalytic roles by not only making a difference to the business-as-usual environment but also by bringing together government and private sector resources and NGOs. GEF Implementing Agencies (IAs) mobilise co-financing as part of all projects, consistent with the principle of incremental costs and the generation of global benefits. GEF grant to co-financing ratios reflect the nature of each project, the global environmental benefits that are to be generated, the incremental costs to achieve the global environmental benefits, the nature of the baseline which the project complements, and the presence and contributions of other co-financiers. In practice, the GEF seeks to leverage the maximum amount possible and the ratio of GEF funds to co-financing has thus ranged from 1:2 to as high as 1:10 in the biodiversity focal area with an average amount of 1:4 currently with an average amount of about 1:4 currently. This ratio is driven primarily by the global benefits that will be generated and the incremental costs of generating said benefits, all other things being equal.”

The methodology the Expert Group used has been Target by Target costing by identifying the different activities that each Target involved and costing them through the use of information from the literature, examples of similar projects and their expert opinion. Three Expert Meetings were held, in Montreal (Canada), Tokyo (Japan) and Quito (Ecuador) where the experts extensively discussed and evaluated each Target using the Strategic Plan for Biodiversity 2011-2020 and the 20 Aichi Biodiversity Targets, the various COP decisions and Guidance to the Financial Mechanism as the overall framework. Various other processes such as the Rio Conventions and Biodiversity programmes were also considered during the discussions. The Group arrived at the estimates for activities further evaluating examples, experiences, regional and global studies and using experts' consultation among other. Targets were thoroughly compared and contrasted to avoid double counting and overestimation of the financial needs of the Targets.

A range of estimates (Scenarios) was generated for each Target by taking further into account absorptive and delivery capacities for the results to enable selection of the most viable option. Scenario 1 for each Target gives the lowest funding estimates since either the number of countries for the implementation of activities or the GEF funding rate - incremental reasoning (%) - or the amount of investment cost is relatively lower. Scenario 2 and 3 gradually increase the number of countries, projects, funding rate (%) or investment cost. Scenario 2 represents mid level estimates since it covers 2/3rd of GEF eligible countries where applicable. Scenario 3 often includes all 155 GEF eligible countries where country level activities are recommended. Overall, while most of the selected activities are on country basis, some regional or global projects are also recommended. First, total investment need is estimated for each of the selected activities under each Target. Then, for each Scenario the *incremental reasoning approach* and GEF's role as the financial mechanism and catalyst to further leverage more fund from other sources are accounted for to finally estimate the financial needs for the GEF-6 replenishment under each of the Scenario during the period 2014-2018.

A detailed Target by Target feedback and comments were received from the GEF during the Third Expert Meeting in Quito (Ecuador). For instance for Target 3 (Subsidies) the use of lower estimates of funding rate (or incremental reasoning) was advised. The GEF had further raised numerous points and issues related to each Target regarding the number of GEF eligible countries, types of activities that the GEF could or could not fund and related estimates. The GEF had also recommended re-estimation of certain costs in some cases, for instance Target 15 regarding ecosystem resilience. The comments and feedbacks were taken into account during the Third Expert meeting and the Targets were re-evaluated.

Even though at an early stage of the replenishment period, GEF has already programmed over \$350 million US in grants that leveraged 4.5 times more in co-financing resources. The Expert Group further took the success of GEF-5 to help achieve the Strategic Plan and the Aichi Targets to recommend a much greater involvement of the GEF in its

6th replenishment biodiversity portfolio. The financial needs assessment exercise of the Group was also presaged on the supposition that projects proposed will enable additional improvements in terms of outcomes, efficiencies, adherence to performance benchmarks, and revenue generation.

One of the main findings is that to reach the Aichi Targets, GEF would need to continue strengthening country driven capacity-building activities through its biodiversity portfolio. The most important constraint to the present assessment was time considering the huge task of Target by Target costing, the fact that the assessment was being done for the first time, and availability of up-to-date data and information was difficult to come by. This Needs Assessment has been a challenge to perform and it is important to note that the study is a beginning of such needs assessments and that the methodology has to be refined over time, for potential future needs assessments.

Target 1: By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

1. Technical Rationale

Addressing the drivers of biodiversity loss requires behavioral change by individuals (e.g., to reduce waste or consumption) and by governments (e.g., to change regulations or incentives). Understanding, awareness and appreciation of the diverse values of biodiversity, are necessary to underpin the ability and willingness of individuals to make such changes and to create the “political will” for governments to act. Nearly all Parties indicate in their fourth national reports that they are undertaking actions related to education and public awareness, however further efforts are needed to increase overall public awareness of the various values of biodiversity. The target covers the three objectives of the Convention.

2. Reference to Relevant COP Decisions and GEF Guidance

This target is related to Article 13 of the Convention and relevant decisions on communication, education and public awareness (CEPA).

Article 13: Public Education and Awareness

The Contracting Parties shall:

- (a) Promote and encourage understanding of the importance of, and the measures required for, the conservation of biological diversity, as well as its propagation through media, and the inclusion of these topics in educational programmes; and
- (b) Cooperate, as appropriate, with other States and international organizations in developing educational and public awareness programmes, with respect to conservation and sustainable use of biological diversity.

The COP has urged Parties, when requesting assistance through the financial mechanism (the GEF), to propose projects which promote measures for implementing Article 13 [*Decision IV/10 B, paragraph 9*]. The Programme of Work on Communication, Education and Public Awareness, or CEPA, aims to assist Parties, educators and civil society to provide answers to various questions such as what biodiversity is and why society should be concerned, how biodiversity can be used in a sustainable manner, what the various activities of the Convention of Biological Diversity, and its contribution to the objectives of conservation, sustainable use and equitable sharing of the benefits from the use of genetic resources are, for a variety of audiences.

The CEPA programme of work seeks to:

- Communicate the scientific and technical work of the Convention in a language that is accessible to many different groups;
- Integrate biodiversity into Education systems in all Parties to the Convention;
- Raise Public Awareness of the importance of biodiversity in livelihoods, as well as its intrinsic value⁵.

Numerous decisions have also been taken regarding Article 13, including Decisions V/17, VI/19, VII/24, VIII/6, IX/32, and IX/33 on the International Year of Biodiversity, and also Decision X/18 among other direct or indirect references to this important issue for biodiversity conservation, sustainable use and equitable access and benefit sharing.

COP 10 Decision X/18: Communication, education and public awareness and the International Year of Biodiversity invites Parties and requests the Executive Secretary to start executing various tasks to improve CEPA activities⁶.

⁵ <http://www.cbd.int/cepa/>

⁶ (<http://www.cbd.int/decision/cop/?id=12284>)

*COP 10 - Decision X/24: Review of guidance to the financial mechanism,
Programme priorities: 4.10: Public education and awareness (Article 13)*

- (a) Capacity development for education, public awareness and communication in biological diversity at the national and regional levels, as prioritized in the Global Initiative on Communication, Education and Public Awareness;
- (b) Implementation of national communication, education and public-awareness strategies, programmes and activities, in accordance with its mandate;
- (c) Implementation of the identified communication, education and public awareness priority activities at national and regional levels in support of biodiversity strategies and action plans;
- (d) Project components addressing promotion of the understanding of the importance of and measures required for, the conservation and sustainable use of biological diversity⁷.

Proposed Milestones

The possible milestones for this Target are:

- By 2011, basic public awareness campaigns about biodiversity and the steps people can take to protect it are initiated;
- By 2014, national baseline surveys are carried out and comprehensive national strategies to promote awareness of the values of biodiversity are prepared and adopted;
- By 2016, relevant educational curricula have been developed and implemented.

3. Activities and Investment

The Communication, Education and Public Awareness (CEPA) programme is the main instrument under the Convention for this target and activities and costs should be focused on enabling activities and implementation of CEPA programmes taking into account the GEF guidance of Dec. X/24.

3.1 Activities

Initiatives to achieve this target include CEPA related activities on various levels reflecting COP decisions and GEF guidance.

1. Develop enabling conditions and capacity in countries (Dec X/24, 4.10, a) to engage with CEPA to encourage and support collaboration with governments, civil society and others for developing public awareness programmes about biodiversity and its contribution to human wellbeing. This includes carrying out a national baseline survey.

During the United Nations Decade on Biodiversity 2011–2020, CEPA will play an important role in building awareness amongst all stakeholders whose actions have an impact on the ecosystems of our planet. In addition, the International Day for Biological Diversity, held every 22 May and organised around special themes, provides an excellent opportunity for countries and individuals to celebrate biodiversity. *The Green Wave* is an ongoing worldwide campaign that uses social media and the internet to bring together children and youth to raise awareness about biodiversity.

2. Implement CEPA programmes on national level (Dec X/24, 4.10, b and c) with active engagement and collaboration of various institutions, groups and stakeholders like national and regional governmental agencies, schools and universities, museums and parks, business, non-governmental organizations and civil society groups etc. using material and tools adequate to target groups like the broad public, children, students,

⁷ <http://www.cbd.int/decision/cop/?id=12290>

stakeholders, business etc. Awareness and learning about biodiversity should be linked to and mainstreamed into the principles and messages of education for sustainable development.

In order to achieve broader outreach and cost-efficiency cooperation with other Parties in regions and with other international organizations is recommended regarding Art 13 b) of the CBD. The United Nations Educational, Scientific and Cultural Organization (UNESCO) could be one key partner in carrying out work towards this target.

3. Integrate CEPA activities into projects or programmes as components (Dec X/24, 4.10, d) to promote the understanding of the importance of and measures required for the conservation and sustainable use of biological diversity within the project or programme supported by the GEF.

Although the milestones indicate that CEPA campaigns should have already been initiated by 2011, and national baseline surveys by 2014 it does not appear to be the case in many CBD Parties due to capacity constraints and lack of enabling conditions. Hence, to achieve target 1 in GEF eligible countries the task still requires funding for the GEF-6 and GEF-7 period to reach the expected level of awareness and behaviour change for the values, effective conservation, sustainable use and ABS of biological diversity.

3.2 Estimates of Investment

Three elements of activities have been considered for GEF funding to achieve target 1. However, element 3 should be an integrated component of GEF funded projects and as cost estimates are case specific they are not carried out in detail in this report.

Ultimately only element 1 and 2 are taken into consideration to estimate the range of investment for GEF-6.

1. Develop enabling conditions and capacity in countries (Dec X/24, 4.10, a):

Preparing enabling conditions for CEPA and strengthen capacity including carrying out a national baseline survey vary from country to country. On an average it is estimated to allocate *\$100,000 US per country* to accomplish a better enabling environment as a prerequisite to implement a national CEPA programme in the years up to 2020. Enabling activities must be achieved as soon as possible, what means that the total amount should be allocated to GEF-6.

Hence, such activities in 155 countries would require *\$15.5 million US* in GEF-6.

2. Implement CEPA programmes on national level (Dec X/24, 4.10, b and c)

The investment into CEPA programme implementation varies from country to country and could be elaborated with higher or lower budgets taking into account the cost conditions for producing material or the intensity of carrying out a set of adequate CEPA tools.

Examples: In terms of regional coverage, e.g. Europe spends about \$2-\$3 million Euros per year for 30 to 40 countries. In Japan, \$2-\$3 million US expenditure is under discussion and whether \$300,000 US per year would be sufficient for the country is also being evaluated. In India, the project 'train going around with biodiversity promotion' to raise awareness costs about \$400,000 US; In India, the estimate is around \$300,000 US per year including education.

The present estimate at the Secretariat for International Year of Biodiversity is \$750,000 US per year, at the global level, for producing materials and distributing them to countries (coming to about \$15,000 US - \$20,000 US per country).

Given these examples national public awareness campaigns may cost between \$300,000 US - \$400,000 US per year, depending of the range of activities. However, as a conservative investment attempt it is proposed to allocate at least **\$200,000 US per country per year** to CEPA implementation activities up to 2020, **in total \$1.2 million US per country from 2014 - 2020**. Hence, such activities in 155 countries would require **\$186 million US**. It is proposed to allocate **60% of the amount to the GEF-6 period - \$112 million US in total** and 40% to the GEF-7 period - **\$74 million US in total**. This is to reflect the importance of encouraging many countries to elaborate measures and activities to be taken as early as possible and continue in order for Target 1 to be met

by 2020. Nevertheless some countries need to develop enabling conditions and capacity first in GEF-6 and finally should continue with CEPA implementation in GEF-7. The results are presented in **Table 1**.

In order to achieve broader outreach and cost-efficiency cooperation with other Parties in regions and with other international organizations is recommended and should be eligible for funding.

3.3 Incremental Reasoning

“GEF grant to co-financing ratios reflect the nature of each project, the global environmental benefits that are to be generated, the incremental costs to achieve the global environmental benefits, the nature of the baseline which the project complements, and the presence and contributions of other co-financiers. In practice, the GEF seeks to leverage the maximum amount possible and the ratio of GEF funds to co-financing has thus ranged from 1:2 to as high as 1:10 in the biodiversity focal area with an average amount of 1:4 currently. This ratio is driven primarily by the global benefits that will be generated and the incremental costs of generating said benefits, all other things being equal.”

Given the importance of awareness raising as necessary prerequisite to achieve the other Aichi targets and the 2050 mission GEF financing to developing countries is very important. Creating an enabling environment for CEPA programmes is crucial and will provide the necessary conditions to implement nation-wide CEPA programmes. Hence, in a broader sense to achieve global benefits with the Strategic Plan implementation in developing countries this activity should be funded 100% by the GEF (**Table 1**).

In terms of the implementation of national CEPA programmes national and global benefits may vary from country to country. Hence, three options regarding incremental reasoning are proposed, 10%, 50% and 100%. Assuming that without GEF funding full-size CEPA programmes will not be implemented in time it is justifiable to allocate at least 50% as GEF-6 and GEF-7 contribution to this activity.

Table 1: Estimated GEF-6 investments need for Target 1

Selected Activities For Target 1	Estimated Investment		Incremental Reasoning	Estimated GEF-6 Investments Need					
	GEF-6 Periods	GEF-7		GEF-6 Scenario 1	GEF-7	GEF-6 Scenario 2	GEF-7	GEF-6 Scenario 3	GEF-7
Element 1:	(In Million US \$)			(In Million \$ US)					
CEPA enabling activity	15.5		100%	15.5		15.5		15.5	
Element 2:									
CEPA program implementation									
Option 1: Splitting 60/40 %	112	74	10%	11.2	7.4				
Option 2: Splitting 60/40 %	112	74	50%			11	7		
Option 3: Splitting 60/40%	112	74	100%					112	74
Total for Target 1	127.5	74.0		26.7	7.4	71.5	37.0	127.5	74.0

Note: Element 1: \$100,000 US/country and 155 countries; Element 2, \$200,000 US/year/country for six years and 155 countries. 60% of this amount is recommended to be allocated to GEF-6 and 40% to GEF-7.

Source: Based on estimates by the Experts at the Second Expert Meeting in Tokyo, Japan, 18-20 December 2011 and the Third Expert Meeting in Quito, Ecuador, 3-5 March, 2012.

4. Estimated Total Investment and GEF-6 Investments Need

The estimated total investment in the two main activities to achieve Target 1, and the options of GEF investments⁸ taking into account various incremental reasoning are compiled in **Table 1**. Estimated investment for the two identified elements is \$127.5 million US during the GEF-6 period and \$74 million during the GEF-7 period. Opportunities to leverage funds from other sources might be achievable, like national funds, NGOs, sponsors etc. Co-financing possibilities could be worked out with UNESCO.

The estimated GEF-6 investments are \$26.7 million, \$71.5 million and \$127.5 million US for Scenario 1 to 3 respectively. The amounts left for the two years of GEF-7 (2018-2020) are \$7.4 million, \$37 million and \$74 million US for Scenario 1 to 3 respectively.

Financial Needs for the GEF-6 Investments:

Scenario 1: GEF-6 Investments: \$26.7 million US

Scenario 2: GEF-6 Investments: \$71.5 million US (recommended)

Scenario 3: GEF-6 Investments: \$127.5 million US

For Target 1, Scenario 2 with \$71.5 million US is recommended for the GEF-6 investments. However, Scenario 3 would still be ideal to speed up activities or cover most or all of the GEF eligible countries.

5. Indicators and Baseline Information

Headline indicators: Relation to CBD decisions and SBSTTA 16 UNEP/CBD/COP/11/2 - ANNEX 1

- Trends in awareness, attitudes and public engagement in support of biological diversity and ecosystem services
 - Trends in awareness and attitudes to biodiversity
 - Trends in public engagement with biodiversity
 - Trends in communication programmes and actions promoting social corporate responsibility
- The three indicators are for consideration for use at the national or other sub-regional levels.

Possible indicators and baseline information: the number of visits to natural history museums, zoos, botanical gardens, protected areas, and parks; the number of school biodiversity education programmes or officially accredited teaching materials; volunteer participation in relevant activities; the number of activities carried out by indigenous peoples, local communities and local citizen groups; and the development and use of lists of recommended actions for citizens, the private sector, and other stakeholders. As a secondary step, the impact of public awareness campaigns could be monitored through surveys of awareness and attitudes, such as the eurobarometer survey conducted in 2007 which provides a baseline for the European region. Other possible indicators could include the number of biodiversity related news articles published in national newspapers as well as changes in the demand for environmentally friendly products.

⁸ For the purpose of this report, "investment" includes both what might be provided through the replenishment of the GEF trust fund for the biodiversity focal area, as well as the additional funds leveraged through the financial mechanism to meet the incremental cost reasoning.

Target 2: By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.

1. Technical Rationale

It is widely recognized that the values of biodiversity are not widely reflected in decision-making. The objective of this target is to ensure that the diverse values of biodiversity and opportunities derived from its conservation and sustainable use are recognized and reflected in all relevant public and private decision-making. For example, though numerous studies, at various scales, have illustrated the economic value of biodiversity and the ecosystem services it underpins many Parties report that the absence of economic valuations of biodiversity is an obstacle to its conservation and sustainable use. Including the values of biodiversity in national and local development and poverty reduction strategies and planning processes and into national accounting, as appropriate, and reporting systems, places biodiversity into the same decision framework as other goods and services, and would help give it greater visibility amongst policy-makers and contribute to the “mainstreaming” of biodiversity issues in decision-making processes. Reflecting the values of biodiversity in the planning processes of governments at all levels, including economic, financial, spatial planning, and the application of strategic environmental assessment, will help internalize the costs and benefits of the conservation and sustainable use of biodiversity in decision-making.

2. Reference to Relevant COP Decisions and GEF Guidance

This target is related to Articles 6(b) and 11 of the Convention as well as relevant decisions on economics, trade and incentive measures and biodiversity for development.

Article 6: General Measures for Conservation and Sustainable Use

Each Contracting Party shall, in accordance with its particular conditions and capabilities:

- (b) Integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies.

Article 11: Incentive Measures

Each Contracting Party shall, as far as possible and as appropriate, adopt economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biological diversity.

COP 10 Decision X/24: Review of guidance to the financial mechanism

4.1. Biodiversity planning

- (a) Capacity building, including human resources development and institutional development and/or strengthening, to facilitate the preparation and/or implementation of national biodiversity strategies and action plans;
- (b) Elaboration, development, review, revision and updating of national biodiversity strategies and action plans;
- (c) Priority actions identified in the national plans and strategies of developing countries and countries with economies in transition;
- (d) Projects aimed at the conservation of biological diversity and sustainable use of its components that integrate social dimensions, including those related to poverty;
- (e) Capacity-building to implement development activities in ways that are consistent with, and do not compromise, the achievement of the objectives of the Convention on Biological Diversity, including by improving environmental policies in relevant development agencies and sectors such as through integrating concerns relating to biodiversity and the Millennium Development Goals more directly into environmental impact assessments, strategic environmental assessments and other such tools, including at the national level through the national strategies for sustainable development and poverty reduction strategies and programmes.

4.24 National reporting

- (a) The preparation of national reports by developing country Parties and Parties with economies in transition, bearing in mind the need for timely, easy and expeditious access to funding.

COP-10 – Decision X/25: Additional guidance to the financial mechanism

National biodiversity strategies and action plans

2. *Requests* the Global Environment Facility to provide adequate and timely financial support for the updating of national biodiversity strategies and action plans and related enabling activities, and *requests* the Global Environment Facility and its implementing agencies to ensure that procedures are in place to ensure an expeditious disbursement of funds;
3. *Recalling* its "Four-year framework of programme priorities related to utilization of GEF resources for biodiversity for the period from 2010 to 2014" proposed in [decision IX/31](#) and *noting* that objective 5 of the GEF-5 Biodiversity Focal Area Strategy is to "Integrate CBD obligations into national planning processes through enabling activities", *requests* the Global Environment Facility to provide support to eligible Parties in a expeditious manner, for revising their national biodiversity strategies and action plans in line with the Strategic Plan for Biodiversity 2011-2020;
4. *Urges* Parties, in particular developed country Parties, and invites other Governments and international financial institutions, the Global Environment Facility, regional development banks, and other multilateral financial institutions to provide adequate, predictable and timely financial support to eligible country Parties to enable the full implementation of the Strategic Plan for Biodiversity 2011-2020, and reiterate that the extent to which developing country Parties will effectively implement their commitments under this Convention will depend on the effective implementation by developed country Parties of their commitments under this Convention related to financial resources and transfer of technology;

Biodiversity integration

5. In accordance with Article 20 of the Convention, *invites* developed country Parties, other Governments and donors, and the financial mechanism to provide financial and technical support to eligible countries to further develop approaches on the integration of biodiversity into poverty eradication and development processes;

Country-specific resource mobilization strategies,

6. *Requests* the Global Environment Facility to provide timely and adequate financial support to updating national biodiversity strategies and action plans, which may include the development of country-specific resource mobilization strategies;

Indicators and monitoring

8. *Requests* the Global Environment Facility to provide support to respond to the capacity needs of eligible Parties in developing national targets and monitoring frameworks in the context of updating their national biodiversity strategies and action plans;

National reporting

17. *Requests* the Global Environment Facility to provide adequate and timely financial support for the preparation of the fifth and future national reports, and *further requests* the Global Environment Facility and its implementing agencies to ensure that procedures are in place to ensure an early and expeditious disbursement of funds.

Proposed Milestones

The possible milestones for this Target are:

- By 2012, work on biophysical inventories of biodiversity and associated ecosystem services is initiated and, by 2014, a work programme for reflecting biodiversity and ecosystem values in national accounts is developed;
- By 2014, the opportunities derived from the conservation and sustainable use of biodiversity, and the fair and equitable sharing of benefits arising from the use of genetic resources, are integrated into Poverty Reduction Strategy Papers (PRSPs) and other national development plans, and are routinely included in environmental impact assessment, strategic environmental assessment and spatial planning;
- By 2018, the most important aspects of biodiversity and ecosystem services are reflected in national statistics.

3. Activities and Investment

Integrating the values of biodiversity into national and local development and poverty reduction strategies and planning processes as well as into national accounting or reporting systems will require Parties to appropriately value biodiversity and increase coordination among government ministries and levels of government. Given different national circumstances, this integration may require *capacity building* as well as *developing flexible approaches*.

- Efforts to improve the *valuation of biodiversity* should include *tools and methods* that recognize social and cultural values, in addition to economic values, and should be conducted in ways that encourage the sustainable use of biodiversity at all levels. Tools to assess the values of biodiversity are now being made more widely available:
 - Convention's work on economic, trade and incentive measures,
 - The Economics of Ecosystems and Biodiversity (TEEB) study, and
 - The UN System of Economic and Environmental Accounting (SEEA)
 - The World Bank's experience in integrating natural capital (e.g., forests) into national accounts could be further developed and built upon to incorporate the value of biodiversity and ecosystem services

Tools are also available for integrating biodiversity into spatial planning exercises through the mapping of biodiversity ecosystem services and through systematic conservation planning. Strategic environmental assessment and similar tools provide useful methodologies to assess impacts on biodiversity and allow for the assessment of trade-offs in decision-making.

- *Payment for ecosystem services mechanisms and the development of private sector guidelines* for the appropriate reflection of the values of biodiversity are additional implementation mechanisms which could be used to meet this target. Depending on national circumstances, such processes could be undertaken in a step wise or incremental manner by first including those values of biodiversity which are easiest to account for and then further developing or enhancing systems for integrating biodiversity values into decision making processes.

3.1 Activities

This Target is primarily related to policy related work such as policy formulation. The main challenge would be bringing all the different stakeholders to the Table. The target includes the following activities:

1. **Facilitation and coordination of a strategic analysis and programmatic planning** for covering national biodiversity funding needs involving activities which need to be encouraged.
2. **National Accounting:** Only a normative suggestion can be provided at best in this case. Fund that will be needed will be for *studies, capacity building, institutional development* and strategy for implementation on national accounting for biodiversity valuation and statistics. The amount needed will vary according to scope of the exercises that will be proposed nationally.
3. **Costing NBSAPs:** This has already started and the GEF is covering NBSAP related costs. The enabling activities include the Clearing House Mechanism (CHM) as well. Funding for the revisions of the NBSAPs is also being provided in GEF-5. Hence, there is no need for a budget line for this during the GEF-6 period.

3.2 Estimates of Investment

Cost estimates of Target 2 for GEF-6 investments are based on the following assumptions and figures drawn from national experiences⁹. Since the first activity has already funding from the GEF-5, only the first two activities are considered.

1. **Facilitation and coordination of a strategic analysis and programmatic planning** for covering national biodiversity funding needs, as a one off participatory process cost of *\$100 000 US per country* and *recurring animation and monitoring* cost of *\$25 000 US per year per country*, i.e. a total of **\$200 000 US per country** for the GEF-6 period.
2. **National accounting related TEEB studies**, capacity building, and national natural capital accounting systems, all considered as a one off activity, costed at an estimated **\$250 000 US per country** based on past and on-going experiences¹⁰.

Different levels of ambition for this target are:

- Option 1: Both (a) and (b) implemented in 10 countries;
- Option 2: Both (a) and (b) implemented in 30 countries; or
- Option 3: Both (a) and (b) implemented in 50 countries.

The three options lead to estimated total investment of *\$4.5 million*, *\$13.5 million* and *\$22.5 million US* respectively for the GEF-6 period. The preferred option is option 2, as this would allow to reach a critical level of experience and to respond to most demand in intermediate developing economies with proved diversified funding opportunities for biodiversity.

3.3 Incremental Reasoning

“GEF grant to co-financing ratios reflect the nature of each project, the global environmental benefits that are to be generated, the incremental costs to achieve the global environmental benefits, the nature of the baseline which the project complements, and the presence and contributions of other co-financiers. In practice, the GEF seeks to leverage the maximum amount possible and the ratio of GEF funds to co-financing has thus ranged from 1:2 to as high as 1:10 in the biodiversity focal area with an average amount of 1:4 currently. This ratio is driven primarily by the global benefits that will be generated and the incremental costs of generating said benefits, all other things being equal.”

The more countries undertake the activities identified for this target the clearer the global status of biodiversity and the easier the estimation of needs and therefore the setting of priorities for intervention to meet the objectives of the Convention. Since the selected activities are essential to the achievement of the remaining Aichi Targets, a 50% funding is recommended. The results are found in **Table 2**.

4. Estimated Total Investment and GEF-6 Investments Need

Total investment for strategic financial analysis is estimated to range between \$2 million US and \$10 million US and for national TEEB studies and accounting between \$2.5 million US and \$12.5 million US depending on whether the projects are implemented in 10, 30 or 50 countries. At 50% GEF funding rate, the implementation of such projects in 10 countries (Scenario 1) would require \$2.25 million US, in 30 countries (Scenario 2), \$6.75 million US and in 50 countries (Scenario 3), \$11.25 million US (**Table 2**).

Table 2: Estimated GEF-6 investments need for Target 2

⁹ Costing of NBSAP animation and monitoring ref. (FR, RSA, Kenya...)

¹⁰ World Bank WAVES programme.

<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/0,,contentMDK:23056708~pagePK:148956~piPK:216618~theSitePK:244381,00.html>

Selected Activities For Target 2	Estimated Investment	Incremental Reasoning	Estimated GEF-6 Investments Need		
	GEF-6 period		GEF-6 Scenario 1	GEF-6 Scenario 2	GEF-6 Scenario 3
Option 1: 10 countries	(in Million US \$)			(in Million US \$)	
1) Facilitation and coordination of a strategic analysis and programmatic planning	2.00	50%	1.00		
2) National accounting related TEEB studies	2.50	50%	1.25		
Total	4.50		2.25		
Option 2: 30 countries				3.00	
1) Facilitation and coordination of a strategic analysis and programmatic planning	6.00	50%			
2) National accounting related TEEB studies	7.50	50%		3.75	
Total	13.50			6.75	
Option 3: 50 countries					5.00
1) Facilitation and coordination of a strategic analysis and programmatic planning	10.00	50%			
2) National accounting related TEEB studies	12.50	50%			6.25
Total	22.50				11.25
Cost range for activity 1)	2 - 10				
Cost range for activity 2)	2.5 - 12.5				
Total for Target 2	4.5 - 22.5		2.25	6.75	11.25

Source: Based on estimates by the Experts at the Second Expert Meeting in Tokyo, Japan, 18-20 December 2011 and the Third Expert Meeting in Quito, Ecuador, 3-5 March 2012.

Financial Needs for the GEF-6 Investments:

Scenario 1: GEF-6 Investments: \$2.25 million US

Scenario 2: GEF-6 Investments: \$6.75 million US (recommended)

Scenario 3: GEF-6 Investments: \$11.25 million US

Scenario 2: i.e. option 2, implementation in 30 countries with a GEF-6 investment of \$6.75 million is the Scenario that is recommended. However, Scenario 3 would still be ideal to speed up activities by covering more GEF eligible countries.

5. Indicators and baseline information

Headline indicators: Relation to CBD decisions and SBSTTA 16 UNEP/CBD/COP/11/2 - ANNEX 1

- Trends in integration of biodiversity, ecosystem services and benefits sharing into planning, policy formulation and implementation and incentives
 - Trends in number of countries incorporating natural resource, biodiversity, and ecosystem service values into national accounting systems (Global level)
 - Trends in number of countries that have assessed values of biodiversity in accordance with the Convention
 - Trends in guidelines and applications of economic appraisal tools
 - Trends in integration of biodiversity and ecosystem service values into sectoral and development policies
 - Trends in policies considering biodiversity and ecosystem service in environmental impact assessment and strategic environmental assessment

Apart from the first indicator, the rest are for consideration for use at the national or other sub-global level.

Possible indicators and baseline information: the number of countries with biophysical inventories of biodiversity and ecosystem services; the number of countries with national accounts reflecting the state of biodiversity and ecosystem services and, if appropriate, stocks and flows of natural capital; the number of countries with poverty reduction strategies and national development plans which incorporate biodiversity; and the number of companies (or their market share) with policies for biodiversity-friendly practices. Baseline information for 2010

could be obtained through desk studies, from the TEEB study, from the World Business Council for Sustainable Development (WBCSD) and business and biodiversity initiative.

Target 3: By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.

1. Technical Rationale

Substantial and widespread changes to incentives, including subsidies, are required to ensure sustainability. Ending or reforming incentives, including subsidies, harmful to biodiversity is a critical and necessary first step that would also generate net socio-economic benefits. In addition, the creation or further development of positive incentives for the conservation and sustainable use of biodiversity, provided that such incentives are in harmony with the Convention and other relevant international obligations, could also help in the implementation of the Strategic Plan by providing financial or other incentives to encourage actors to undertake actions which would benefit biodiversity. Fishery subsidies that contribute to over capacity, and overfishing globally are potential areas for reform as is the continued and deepened reform of production-inducing agricultural subsidies still prevalent in most Organization for Economic Co-operation and Development (OECD) countries. Bearing in mind the principle of common but differentiated responsibilities, this target would not imply a need for developing countries to remove subsidies that are necessary for poverty reduction programmes.

2. Reference to Relevant COP Decisions and GEF Guidance

This target is related to Article 11 of the Convention as well as relevant decisions on economics, trade and incentive measures as well as impact assessment.

Harmful Subsidies Guidance: COP 8 – Decision VIII-26

The Conference of the Parties (COP) recognized that perverse incentives harmful for biodiversity are frequently not cost-efficient and/or not effective in meeting social objectives while in some cases use scarce public funds, and urged Parties and other Governments to prioritize and significantly increase their efforts in actively identifying, eliminating, phasing out, or reforming, with a view to minimizing or avoiding negative impacts from, existing harmful incentives for sectors that can potentially affect biodiversity. The Conference of the Parties acknowledged that identifying, eliminating, phasing out, or reforming existing harmful incentives requires:

- The conduct of careful analyses of available data; and
- Enhanced transparency, through ongoing and transparent communication mechanisms on the amounts and the distribution of perverse incentives provided, as well as of the consequences of doing so, including for the livelihoods of indigenous and local communities.

CBD Technical Series no. 56 provides also succinct lessons learned and good practices cases in identifying and removing or mitigating perverse incentive measures, based on the work of an international expert workshop which took place in Paris, France, in October 2009 ---- <http://www.cbd.int/incentives/perverse.shtml>.

COP-10 – Decision X/24 - Review of guidance to the financial mechanism
4.8 Incentive measures (Article 11)

- (a) Design and approaches relevant to the implementation of incentive measures, including, where necessary, assessment of biological diversity of the relevant ecosystems, capacity-building necessary for the design and implementation of incentive measures and the development of appropriate legal and policy frameworks;
- (b) Projects that incorporate incentive measures promoting the development and implementation of social, economic and legal incentive measures for the conservation and sustainable use of biological diversity;
- (c) Projects that assist with the implementation of the Programme of work on incentive measures;
- (d) Innovative measures, including in the field of economic incentives and those which assist developing countries to address situations where opportunity costs are incurred by local communities and to identify ways and means by which these can be compensated.

Proposed Milestones

The possible milestones for this Target are:

- By 2012, transparent and comprehensive subsidy inventories and inventories of possible positive incentive measures are established by all OECD countries, and an assessment of their effectiveness against stated objectives, of their cost-efficiency, and of their impacts on biodiversity, is being initiated;
- By 2014, prioritized plans of action for the removal or reform of subsidies that are harmful to biodiversity and for the development and application of positive incentives, are prepared and adopted;
- By 2020, subsidy programmes identified in the plans of action are being effectively reformed or phased out, and positive incentive measures identified in the plans of action are being effectively phased in.

3. Activities and Investment

Current negotiations under the Doha Trade Round aim to clarify and improve World Trade Organization (WTO) disciplines on fisheries, taking into account the importance of this sector to developing countries, and to achieve substantial reductions in trade-distorting agricultural subsidies, with special and differential treatment for developing countries being an integral part of the negotiations. These negotiations have the potential to generate high synergies with this target, and are therefore a key vehicle for achieving the target. However, as these negotiations focus on overcapacity/overfishing or trade-distorting effects of subsidies, approaches which focus specifically on subsidies that are harmful to biodiversity may be required.

- In addition, countries or regional groups may, where necessary, take their own *initiatives to phase out and/or reform environmentally harmful incentives*, including subsidies, bearing in mind the principle of common but differentiated responsibilities. The recent decision of the G20 to phase out or rationalize inefficient fossil fuel subsidies by 2020 could be taken as an example, and would also contribute to the target.
- A more effective use of *strategic environmental assessment* could also be one mechanism to help implement effective policies and actions towards this target. The Convention's work on economic, trade and incentive measures and on impact assessment are relevant to this target.

3.1 Activities

The elimination of harmful subsidies that is, indeed, a political process has started gaining more and more attention on the international agenda. This implies attempts to move towards a greener economy. Many countries have perverse subsidies. The identification of such subsidies requires:

- 1. Studies, research, evaluation and strategy design to identify harmful subsidies;** to phase-out or reform harmful subsidies and supports, or to replace them by beneficial ones. This would require **\$250,000 US per country**.
- 2. Stimulation of public awareness and mobilization and/or stakeholder engagement** in order to facilitate removal of subsidies which are harmful to biodiversity. This activity would require \$400,000 US per country.

Option 1: Introduction of the activities in 55 countries

Option 2: Introduction of the activities in 100 countries

Option 3: Introduction of the activities in 155 countries if they were not covered by GEF-5

Most of the eligible funding for such studies and evaluation should have already been made available during the GEF-5 replenishment period. However, where this is not the case, GEF-6 should absorb the costs in order for the Target to be met by the required time. It can be assumed that some of the work is already being done in GEF-5 because the benchmark milestones are expected to be achieved prior to GEF-6 so that the target could be achieved by 2020. The GEF cannot pay for the elimination process, i.e. implementation part of it, but only for the study.

3.2 Estimates of Investment

At \$250,000 US per country the first activity (studies...) would require a total investment of \$13.75 million US in the case of 55 countries (Scenario 1) to \$38.75 million US in 155 countries (Scenario 3). The second activity (Stimulation of public awareness...) will require \$22 million US in Scenario 1 to \$62 million US in Scenario 3. Where GEF has never funded such activities in the past, the total investment requirement during the GEF-6 period would be \$100.8 million US for the two activities (Scenario 3) (Table 3).

Table 3: Estimated GEF-6 investments need for Target 3

Selected Activities For Target 3	Estimated Investment	Incremental Reasoning	Estimated GEF-6 Investments Need		
	GEF-6 Period		GEF-6 Scenario 1	GEF-6 Scenario 2	GEF-6 Scenario 3
Scenario 1: 55 countries	(in Million US\$)			(in Million US\$)	
1) Studies, research and strategy design to identify Harmful subsidies	13.75	10%	1.38		
2) Stimulation of public awareness and mobilization and/or stakeholder engagement	22.00	10%	2.20		
Total	35.75		3.58		
Scenario 2: 100 countries					
1) Studies, research and strategy design to identify Harmful subsidies	25.00	10%		2.50	
2) Stimulation of public awareness and mobilization and/or stakeholder engagement	40.00	10%		4.00	
Total	65.00			6.50	
Scenario 3: 155 countries					
1) Studies, research and strategy design to identify Harmful subsidies	38.75	10%			3.88
2) Stimulation of public awareness and mobilization and/or stakeholder engagement	62.00	10%			6.20
Total	100.8				10.08
Total for Target 3	35.8 -100.8		3.58	6.50	10.08

Source: Based on estimates by the Experts at the Second Expert Meeting in Tokyo, Japan, 18-20 December 2011 and the Third Expert Meeting in Quito, Ecuador, 3-5 March 2012.

3.3 Incremental Reasoning

“GEF grant to co-financing ratios reflect the nature of each project, the global environmental benefits that are to be generated, the incremental costs to achieve the global environmental benefits, the nature of the baseline which the project complements, and the presence and contributions of other co-financiers. In practice, the GEF seeks to leverage the maximum amount possible and the ratio of GEF funds to co-financing has thus ranged from 1:2 to as high as 1:10 in the biodiversity focal area with an average amount of 1:4 currently. This ratio is driven primarily by the global benefits that will be generated and the incremental costs of generating said benefits, all other things being equal.”

Reform or phase-out of subsidies and supports that are harmful to the environment and biodiversity could release fund for the countries taking such measures, reduce of negative externalities on the environment, biodiversity, human health and could have benefits to the global environment and the well-being of societies. Hence, it is justifiable to help countries that attempt to take the first steps of identifying, studying, and designing and strategically planning options to remove or phase-out subsidies and supports that are harmful to biodiversity. So far, there is no much information on countries presently conducting this type of exercise. Given the number of existing subsidies and supports, their implications to any economy, and the high cost of the study that should be undertaken before any measures could be taken, financing the study part could be done at 10% to encourage countries to jump start serious measures. If countries could release funds in such manners; they may be less dependent on international assistance in the long-run as well.

4. Estimated Total Investment and GEF-6 Investments Need

The estimated funding needs after accounting for incremental reasoning are presented in the Table 3 above for the three funding Scenarios. Hence, the required GEF-6 investment ranges between \$3.58 million US (Scenario 1) and \$10.08 million US (Scenario 3). The details are found in **Table 3**.

Financial Needs for the GEF-6 Investments:

Scenario 1: GEF-6 Investments: \$3.58 million US

Scenario 2: GEF-6 Investments: \$6.50 million US

Scenario 3: GEF-6 Investments: \$10.08 million US (recommended)

Since there are no such projects in GEF-5, the recommended Scenario for the GEF-6 investment is the third at \$10.086 million US or at least Scenario 2 with \$6.5 million US. The recommended amounts are expected to encourage more GEF eligible countries to start preparing reform or phase-out of subsidies and supports that are harmful to biodiversity. GEF could play the role of a catalyst to leverage the necessary fund from other sources.

5. Indicators and Baseline Information

Headline indicators: Relation to CBD decisions and SBSTTA 16 UNEP/CBD/COP/11/2 - ANNEX 1

- Trends in integration of biodiversity, ecosystem services and benefits-sharing into planning, policy formulation and implementation and incentives
 - Trends in the number and value of incentives, including subsidies harmful to biodiversity removed, reformed or phased out
 - Trends in identification, assessment and establishment and strengthening of incentives that reward positive contribution to biodiversity and ecosystem services and penalize adviser impacts
- The first indicator is for possible use at global level and the second at national or sub-global level.

Possible indicators and baseline information: Estimates of the value of harmful subsidies, using criteria developed by WTO and OECD, would be an indicator. Baseline data is already published. Process indicators might include the successful conclusion of WTO negotiations on fisheries subsidies and on agricultural domestic support. Possible indicators for the application of positive incentive measures include the number and types of positive incentive mechanisms being developed and applied. The economic and financial values of biodiversity and ecosystem services captured via payments for ecosystem services, user fees, taxes and other mechanisms could also be used to track progress.

Target 4: By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

1. Technical Rationale

Most Parties indicated in their fourth national reports that the unsustainable use or overexploitation of resources was a threat to biodiversity. Bringing the use of natural resources within safe ecological limits is an integral part of the Vision of the Strategic Plan, thus steps towards this must be taken by 2020. Reducing total demand and increasing efficiency contribute to the target and can be pursued through government regulations and/or incentives, education, and social and corporate responsibility. This target will build upon, and contribute to, the achievement of the target established in the Johannesburg Plan of Implementation (para. 26) to develop integrated water resources management and water efficiency plans by 2005.

2. Reference to Relevant COP Decisions and GEF Guidance

This target is related to Article 10 of the Convention as well as relevant decisions on Business and Biodiversity Initiative (IX/26: promotion of business engagement; X/21: business engagement), sustainable use of biodiversity, and impact assessment.

Decision IX/26: Promotion of business engagement

4. *Requests* the Global Environment Facility, and *invites* Parties, other Governments, and relevant organizations to support capacity-building in developing countries, in particular the least developed and the small island developing States among them, and Parties with economies in transition, for engaging the business community in the implementation of the Convention.

Decision X/21: Business engagement

In addition to inviting Parties and encouraging businesses and the private sector to start various activities to engage the business sector, the decision also requests the Executive Secretary, subject to the availability of resources and in collaboration with relevant organization and initiatives to take various measures to encourage business and biodiversity initiatives. The details are found at <http://www.cbd.int/decision/cop/?id=12287>.

Decision X/24 - 4.7 Sustainable use (Article 10)

- (a) Implementation of the Addis Ababa Principles and Guidelines at the national level to ensure that the use of biological diversity is sustainable.

The Addis Ababa Principles and Guidelines for the Sustainable use of Biodiversity consist of fourteen interdependent practical principles, operational guidelines and a few instruments for their implementation that govern the uses of components of biodiversity to ensure the sustainability of such uses. The principles provide a framework to assist Governments, resource managers, indigenous and local communities, the private sector and other stakeholders on how to ensure that their use of the components of biodiversity will not lead to the long-term decline of biological diversity. The principles are intended to be of general relevance, although not all principles will apply equally to all situations, nor will they apply with equal rigor. Their application will vary according to the biodiversity being used, the conditions under which they are being used, and the institutional and cultural context in which the use is taking place¹¹.

2.9 Sustainability

- (a) Promoting exchange of experience and lessons learned in addressing sustainability of funded projects on biological diversity.

Proposed Milestones

¹¹ The extensive details about the fourteen principles are found at <http://www.cbd.int/sustainable/addis.shtml>.

The possible milestones for this Target are:

- By 2014, Governments and major private-sector actors, at sector or company level, have developed assessments of their ecological footprint, and have developed sustainability plans to reduce it;
- By 2018, Governments and major private-sector actors can demonstrate progress towards sustainability.

3. Activities and Investment

Currently, many individuals, businesses and countries are making efforts to substantially reduce their use of fossil fuels, with a view to mitigating climate change. Similar efforts are needed to also ensure that the use of other natural resources is within sustainable limits. Early action would involve each production- and consumption-related sector developing and implementing plans for this purpose. The target will be achieved through:

- *Dialogue among sectors and stakeholders*, supported by planning tools such as strategic environmental impact assessment and economic tools such as incentive measures that integrate biodiversity issues.
- The creation of inter-ministerial committees, nationally developed guidelines, sectoral guidelines and the promotion of ecosystem management in city districts and other local authorities;
- The programme of work on the sustainable use of biodiversity, the business and biodiversity initiative as well as the work on impact assessment that would be particularly relevant to this target;
- The Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity;
- Support to indigenous and local communities for the development and implementation of community-based sustainable management plans.

3.1 Activities

The focus here is on promoting enabling environment for businesses and biodiversity (not projects), and scaling up investment on renewable energies among other. Ensuring sustainability requires also good communication, public awareness, and stakeholder participation among other.

It is recommended that financial resources should concentrate on institutional strengthening initiatives in 20 countries with emerging economies and the following activities to start with:

1. **Support enabling activities/environment for businesses** (not projects) in 155 countries;
2. **Enabling activities for institutional strengthening** in 20 countries with emerging economies;
3. **Assessment of ecological footprint** in 20 countries with emerging economies.

3.2 Estimates of Investment

For instance, what World Wildlife Fund (WWF) is attempting to do with 'one living planet' is to reduce ecological footprint. Another example is the contribution of Brazil Development Bank that contributed over \$50 million in co-financing with businesses to ensure sustainable development in the Amazon Region. Business awareness meetings could help raise awareness among stakeholders and ensure engagement in order to attain Target 4.

1. Support Enabling activities/environment for businesses (not projects):

- Biodiversity conservation presents opportunities for business—Taking the initiatives and encouraging business participation can have invaluable benefits. This is because household consumption expenditure is expanding very fast over \$20 trillion in DCs and around \$4 trillion in developing countries according;
- Scaling up investment for renewable energies is also another way to approach the problem;
- Assessment of ecological footprint—(ecological footprints in mainly developing countries and countries with emerging economies (The G-20 criteria));
- GEF is already creating the enabling environment since markets cannot be funded. At times there is also the problem of absorptive capacity that should not be forgotten;

- Eliminating unsustainable tourism projects, for instance, could also possibly release \$100-\$150 billion US; but what is not known precisely is how much it would cost to do this.

For the support of enabling activities/environment for business (not projects), the experts postulated three options: **\$200,000 US**, **\$300,000 US** and **\$400,000 US per country** or a total of *\$31 million US*, *\$46 million US* and *\$62 million US* for 155 countries for options 1, 2 and 3 respectively (**Table 4**).

- 2. Enabling activities for institutional strengthening: \$10 million US in seed money** for GEF-6 investments that could, maybe, be used on a new focal area for 20 countries with emerging economies (different from a small grants program).
- 3. Assessment of ecological footprint:** three options were proposed at **\$500,000 US**, **\$750,000 US** and **\$1 million US** to each of the 20 countries with emerging economies: i.e. a total of *\$10 million US*, *\$15 million US* and *\$20 million US* under the three options.

Therefore, the grand total investment need for Target 4 is estimated to be between \$51 million US and \$92 million US (**Table 4**) before accounting for incremental reasoning depending on option. For this Target, the experts concluded that GEF could be viewed as a catalyst for further fund to be supplied by other sources for the purpose of the Target.

Table 4: Estimated GEF-6 investments need for Target 4

Selected Activities For Target 4	Estimated Investment	Incremental Reasoning	Estimated GEF-6 Investments Need		
	GEF-6 Period		GEF-6 Scenario 1	GEF-6 Scenario 2	GEF-6 Scenario 3
Option 1:	(in Million US \$)		(in Million US\$)		
1) Support EA/Environment for businesses	31.0	40%	12.4		
2) Seed Money: EA for institutional strengthening	10.0	100%	10.0		
3) Assessment of ecological footprint	10.0	40%	4.0		
Total	51.0		26.4		
Option 2:					
1) Support EA/Environment for businesses	46.5	40%		18.6	
2) Seed Money: EA for institutional strengthening	10.0	100%		10.0	
3) Assessment of ecological footprint	15.0	40%		6.0	
Total	71.5			34.6	
Option 3:					
1) Support EA/Environment for businesses	62.0	40%			24.8
2) Seed Money: EA for institutional strengthening	10.0	100%			10.0
3) Assessment of ecological footprint	20.0	40%			8.0
Total	92.0				42.8
Total for Target 4	51 - 92		26.4	34.6	42.8

Note: The seed money is proposed at 100% because it is to jump start enabling activities for institutional strengthening and it does not refer to the actual cost of the activities.

Source: Based on estimates by the Experts at the Second Expert Meeting in Tokyo, Japan, 18-20 December 2011 and the Third Expert Meeting in Quito, Ecuador, 3-5 March 2012.

3.3 Incremental Reasoning

“GEF grant to co-financing ratios reflect the nature of each project, the global environmental benefits that are to be generated, the incremental costs to achieve the global environmental benefits, the nature of the baseline which the project complements, and the presence and contributions of other co-financiers. In practice, the GEF seeks to leverage the maximum amount possible and the ratio of GEF funds to co-financing has thus ranged from 1:2 to as high as 1:10 in the biodiversity focal area with an average amount of 1:4 currently. This ratio is driven primarily by the global benefits that will be generated and the incremental costs of generating said benefits, all other things being equal.”

Since the selected activities imply very important first step in the achievement of the crucial objectives of sustainable consumption and production that have also significant global benefits, GEF-6 investment is estimated at 40% of total cost for the support and assessment activities and at 100% for the seed money. The seed money can help jump start activities in the selected 20 countries with emerging economies.

4. Estimated Total Investment and GEF-6 Investments Need

Total required investment for this target ranges between \$51 million and \$92 million US depending on Scenario. The estimated GEF-6 investment need is \$26.4 million US in Scenario 1. In Scenario 2 and Scenario 3, at the exception of the seed money, the amounts are increased to allow more activities and speed up the process of the achievement of the Target. The purpose of this is to encourage activities that attempt to enhance sustainable consumption and production, and alleviate poverty that is now a threatening problem in the world. The lack of sustainability is currently a major cause of global biodiversity losses. GEF-6 investments need increases to \$34.6 million US and \$42.8 million US in Scenario 2 and 3 respectively. The details of the results are found in **Table 4**.

Financial Needs for the GEF-6 Investments:

Scenario 1: GEF-6 Investments: \$26.4 million US

Scenario 2: GEF-6 Investments: \$34.6 million US (recommended)

Scenario 3: GEF-6 Investments: \$42.8 million US

Scenario 2, \$34.6 million US is recommended for this Target. However, Scenario 3 would still be ideal to speed up activities in order to achieve the Target on time.

5. Indicators and baseline information

Headline indicators: Relation to CBD decisions and SBSTTA 16 UNEP/CBD/COP/11/2 - ANNEX 1

- Trends in pressures from unsustainable agriculture, forestry, fisheries and aquaculture
 - Trends in ecological footprint and/or related concepts (Decisions VII/30 and VIII/15) (A)
 - Trends in population and extinction risk of utilized species, including species in trade (also used by CITES) (A)
 - Ecological limits assessed in terms of sustainable production and consumption (C)
 - Trends in pressures from habitat conservation, pollution, invasive species, climate change, overexploitation and underlying drivers
 - Trends in biodiversity of cities (C) decision X/22)
 - Trends in integration of biodiversity, ecosystem services and benefits sharing into planning, policy formulation and implementation and incentives
 - Trends in extent to which biodiversity and ecosystem service values are incorporated into organizational accounting and reporting (B)
- A: refers to consideration for use at global level, B: possibly at global level and C: at national and other sub-global level.

Possible indicators and baseline information: Initially, process indicators, such as the establishment of plans with clear and measurable targets, would be the main indicators. Other process indicators include the presence of strategic environmental impact assessment or similar assessment tools, and their application at multiple levels of government. One relevant outcome indicator is the Ecological Footprint (and related concepts) for which baseline data is available. Other possible indicators could include the total demand for natural resources, the proportion of products derived from sustainable sources and the number of community-based sustainable management plans.

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.

1. Technical Rationale

Nearly all Parties report that habitat loss is the most important factor driving biodiversity loss. Largely undisturbed or primary habitat is a particular priority for reducing this loss. Degradation, which reduces the capacity of ecosystems to provide goods and services, is similarly important. Habitat fragmentation, though more difficult to quantify at a global level, is a related pressure driving biodiversity loss. While economic, demographic and social pressures are likely to mean continued habitat loss, degradation and fragmentation, particularly due to land use change beyond 2020, the rate of change needs to be substantially reduced. While for some ecosystems it may be possible to bring the rate of habitat loss close to zero by 2020, for others a more realistic goal is to halve the rate of loss. Significantly reducing habitat degradation and fragmentation will also be required in order to ensure that those habitats which remain are capable of supporting biodiversity.

Ultimately, there must be limits to the conversion or degradation of natural habitats. This is particularly the case for some ecosystems, where continued loss risks passing “tipping points” that could lead to large scale negative effects on human well being. The target refers to rate of loss, and should be regarded as a step towards halting the loss of natural habitats. Further it should be noted that the use of net rather than gross rates of loss could obscure the loss of mature ecosystems as a result of restoration. Whilst restoration activities can restore many of the attributes of primary ecosystems, they cannot be restored completely in the short to medium term. The emphasis of this target should be on preventing the loss of high-biodiversity value habitats, such as primary forests and many wetlands. Recent evidence suggests that the global rate of deforestation is already decreasing. It is important to note the convergence of objectives between the Rio Conventions on the subject of reducing habitat loss, in particular of reducing deforestation and forest degradation, as outline in **Table 5A**, and to aim for synergies when considering investments into Aichi Target 5.

Table 5A: Convergence of global objectives to reduce deforestation and forest degradation

Aichi Biodiversity Targets (CBD Decision X/2)	REDD+ elements ¹² (UNFCCC Decision 1/CP.16)	DLDD and Sustainable Forest Management (SFM) (UNCCD Decision 4/COP.8)
Target 5: By 2020, the rate of loss of all natural habitats, including forest, is brought close to zero, and degradation and fragmentation is significantly reduced	<p>Reducing emissions from deforestation</p> <p>Reducing emissions from forest degradation</p> <p>Conservation of forest carbon stocks</p>	<p>Reinforce SFM as a means of preventing soil erosion and flooding, thus increasing the size of atmospheric carbon sinks and conserving ecosystems and biodiversity.</p> <p>Strengthen the capacity of LFCCs to combat desertification, land degradation and deforestation.</p>

Source: Adapted from Joint Liaison Group of the Rio Conventions, 2012.

2. Reference to Relevant COP Decisions and GEF Guidance

This target is related to relevant decisions on forest biodiversity (X/36), marine and coastal biodiversity (X/29), inland water biodiversity (X/28), dry and sub-humid lands biodiversity (X/35), and sustainable use (X/32)¹³.

¹² Reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forest and enhancement of forest carbon stocks in developing countries (REDD-plus), cf. UNFCCC decision 1/CP.16

¹³ Complete details of these decisions are provided in the CBD Secretariat's Website at <http://www.cbd.int/climate/decision.shtml>

*COP 10: Decision X/24 - Guidance to the financial mechanism**4.16: Forest biological diversity specifies among other:*

- (a) Projects and capacity-building activities for implementing the programme of work of forest biological diversity at the national, regional and subregional levels and the use of the clearing-house mechanism to include activities that contribute to halting and addressing deforestation, basic assessments and monitoring of forest biological diversity, including taxonomic studies and inventories, focusing on forest species, other important components of forest biological diversity and ecosystems under threat;
- (b) Projects focusing on the identified national priorities, as well as regional and international actions that assist the implementation of the expanded work programme considering conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits from genetic resources in a balanced way, underscoring the importance of ensuring long-term conservation, sustainable use, and benefit-sharing of native forests.

4.18 Inland water biological diversity

- (a) Projects which help Parties to develop and implement national, sectoral and cross-sectoral plans for the conservation and sustainable use of biological diversity of inland water ecosystems, including comprehensive assessments of the biological diversity of inland waters, and capacity-building programmes for monitoring the implementation of the programme of work and the trends in inland water biological diversity and for information gathering and dissemination among riparian communities;
- (b) Projects that assist with the implementation of the programme of work on biological diversity of inland water ecosystems.

4.19 Marine and coastal biological diversity

Projects that implement the elaborated programme of work on marine and coastal biodiversity;

- (a) Country-driven activities aimed at enhancing capabilities to address the impacts of mortality related to coral bleaching and physical degradation and destruction of coral reefs, including developing rapid response capabilities to implement measures to address coral-reef degradation, mortality and subsequent recovery;
- (b) Projects that promote the conservation and sustainable use of marine and coastal biodiversity under threat

4.21 Dry and sub-humid lands

- (a) Projects that implement the Convention's programme of work on biodiversity of dry and sub-humid lands;
- (b) Projects that promote the conservation and sustainable use of biological diversity in arid and semi-arid areas.

4.7 Sustainable use (Article 10)

- (a) Implementation of the Addis Ababa Principles and Guidelines at the national level to ensure that the use of biological diversity is sustainable.

*COP 10: Decision X/25 – Additional guidance to the financial mechanism**Marine and coastal biodiversity*

18. *Invites* the Global Environment Facility and other donors and funding agencies, as appropriate, to consider extending support for capacity-building to eligible countries, in order to implement decision X/29, and in particular, with respect to the invitation in paragraph 38 of decision X/29;

19. *Invites* the Global Environment Facility and other donors and funding agencies as appropriate to extend support for capacity-building to eligible countries, in order to identify ecologically or biologically significant and/or vulnerable marine areas in need of protection, as called for in paragraph 18 of decision IX/20 and develop appropriate protection measures in these areas, within the context of paragraphs 36 and 37 of decision X/29;

Proposed Milestones

Possible milestones for this Target include:

- By 2012, common indicators for monitoring and assessing *forest degradation, biomass, forest health, and forest goods* have been agreed and widely used;

- By 2015, activities on REDD+ under the UNFCCC have broad participation across developing countries and receive significant financial flows, including for results-based actions that should be fully measured, reported and verified (third phase REDD+);
- By 2015, the enhancement of multiple benefits of REDD+ for biodiversity and indigenous and local communities is an explicit objective in the majority of all national REDD+ strategies and programmes;
- By 2014, national legislation and land use plans or zonation maps have been reviewed and updated in relation to national targets for the maintenance of natural habitats, and spatial planning tools are made available for wide use;
- By 2014, additional measures are taken, as necessary, including for example for the enhancement of land tenure, the enhancement of law enforcement and the use of incentive measures.

3. Activities and Investment

Reduction in the loss and degradation of natural habitats through *land use change* could be achieved through:

- Improvements in production efficiency and land use planning, and
- Enhanced mechanisms for *natural resource governance* combined with recognition of the economic and social value of ecosystem services provided by natural habitats.¹²
- In particular, catchment value (water provision), erosion control, the value of carbon sequestration by forests and wetlands, and other ecosystem services (such as denitrification by wetlands) provide contemporary incentives for reducing the net loss of these habitats, and reversing their decline.

Taking a landscape-wide perspective to land use planning offers a useful way to integrate global level ecosystem services (e.g., climate change mitigation) with local level ones (e.g., biodiversity conservation, water supply and quality, timber and non-timber forest products).

- The programmes of work on forest, marine and coastal, inland water and dry and sub-humid lands biodiversity and the Convention's work on sustainable use are particularly relevant to this target.
- An initiative that could be further built upon in working towards this goal relates to the signing, by Ministers of 68 Parties to the Convention on Biological Diversity during the ninth meeting of the Conference of the Parties, of WWF's call to stop net deforestation by 2020.

3.1 Activities

Examples of activities include: improved spatial planning (for example: development of tools and processes to address trade-offs between forests and other land-uses at landscape level); enforcement of existing laws and regulations; implementation of Reducing Emissions from Deforestation and Forest Degradation (REDD+); improvements in production efficiency; recognition of the value of ecosystem services; and prevention of loss of primary forests and other high-value habitats.

This target aims to reduce habitat loss, including forests, by 50% and if possible close to zero, and degradation and fragmentation to be substantially reduced as well. Such activities include landscape planning, fresh water, production land, land tenure, public and private PAs. Here it will be useful to support projects that reduce poverty and offer opportunities for preventing habitat loss through sustainable development projects according to Addis Ababa Principles and Guidelines for long-term sustainable use of biodiversity. It would also be important to consider projects that favour, for example, payment for ecosystem services (PES), sustainable forest management (SFM), and land tenure.

Hence, considering the milestones what is required is:

- Efficient production on less land, peri-urban projects, food security; Forest planning to prevent fragmentation, reduction of deforestation; Nexus approach: Water; reduction of wetland losses;
- Use of sub-global assessment that implies GEF financing. For instance, regional and sub regional ecosystem assessments – (*The Millennium assessment has data on global assessment; Vision 2050*).

All of the activities for this target have to be accomplished without conflict (e.g. more cattle in Brazil – the main issue is about increasing efficiency). Another challenge is to increase production on a smaller area, keeping forest and respecting biodiversity by avoiding the conflict between the two.

- Poverty environment strategies, capacity and resource assessments, technical assessment and technical assistance programme;
- Capacity building for improved decision making;
Example: what can GEF do about illegal logging and encroachment for instance? How can this kind of problems be approached and solved since they represent serious problems in numerous countries;
- Implementation of the Addis Abeba principle and guidelines – 14 principles. There may not even be need for landscape planning. There may not even be need for landscape planning.

3.2 Estimates of Investment

The activities identified for this Target are not only important but also require a large amount of fund. The Expert Team members found that one of the most important activities would be the reduction of deforestation that should be given high priority attention. To this end, synergies with efforts on reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (REDD+) under the UNFCCC should be sought. There are several global estimates of the combined annual costs for implementing REDD+ (including implementation costs, transaction costs, and opportunity costs). For the purpose of this assessment, the study of Kinderman et al (2008) is used as a basis, which notes that for halving deforestation by 2030, an annual financial flow of between \$17 and \$28 billion US would be required.

Actual GEF investment on Sustainable Forest Management (SFM) is \$250 million US in SFM own envelope and an additional \$700 million US from the funds of the different Conventions for a total of \$950 million US.

The Expert Team recommended big **projects to stop deforestation**. These projects should focus on providing additional biodiversity and indigenous and local community benefits in comparison to 'business as usual' REDD+ projects. They estimated that such activities, building on investment in REDD+ and aiming to increase the biodiversity benefits of REDD+ projects would require a total of \$2 to \$5 billion US and on average \$3 billion US during the GEF-6 period, 2014-2018 before the application of incremental reasoning (**Table 5B**). The lowest investment of \$2 billion US applies to situations where there are REDD+ projects in operation, \$3 billion US with fewer REDD activities and the \$5 billion US in the absence of REDD+ projects. Hence, Table 5B also includes the possibility that substantial funding under REDD+ may not materialize, in which case GEF funding for Target 5 should be increased substantially as in Scenario 3.

3.3 Incremental Reasoning

"GEF grant to co-financing ratios reflect the nature of each project, the global environmental benefits that are to be generated, the incremental costs to achieve the global environmental benefits, the nature of the baseline which the project complements, and the presence and contributions of other co-financiers. In practice, the GEF seeks to leverage the maximum amount possible and the ratio of GEF funds to co-financing has thus ranged from 1:2 to as high as 1:10 in the biodiversity focal area with an average amount of 1:4 currently. This ratio is driven primarily by the global benefits that will be generated and the incremental costs of generating said benefits, all other things being equal."

Forest degradation is a serious problem. It not only destroys habitats for plants and animals, results in soil erosion and siltation of rivers and streams and often destroys the livelihoods of poor forest dependant people but it also impact carbon emission and climate change in a substantial way. The activities pinpointed in this section come with significant global benefits not only in preserving and protecting biodiversity but also assisting in carbon sequestration and reduction of impacts of future climate change which in turn will have substantial global contributions and benefits. Hence, countries need to be able to monitor the state of changes in forests so that

they can develop management measures that lead to the restoration of degraded forest and the rehabilitation of degraded forest lands, as well as to report to international processes¹⁴. Hence, GEF-6 investment levels are estimated at 50% funding rate in each of the Scenarios in the table.

Given the importance of stopping deforestation to protect biodiversity, three Scenarios were considered at \$2 billion US, \$3 billion US and \$5 billion US total investment and evaluated at 50% of funding for the GEF-6 investments. As in the case of SFM, the reduction of forest degradation is among the goals of all of the Conventions that also share the costs in some ways. Scenario 2 and 3 are presented to scale up financing and accelerate the reduction of deforestation as early as possible where required by increasing the number of projects.

Table 5B: Estimated GEF-6 investments need for Target 5

Selected Activities For Target 5	Estimated Investment	Incremental Reasoning	Estimated GEF-6 Investments Need		
	GEF-6 Period		GEF-6 Scenario 1	GEF-6 Scenario 2	GEF-6 Scenario 3
	(in Million US\$)				
Scenario 1: Projects to stop deforestation (with REDD+ in operation)	2,000	50%	1,000	1,500	2,500
Scenario 2: Projects to stop deforestation (with some REDD+ activities)	3,000	50%			
Scenario 3: Projects to stop deforestation (without any REDD+ activity)	5,000	50%			
Total for Target 5	2,000 - 5,000		1,000	1,500	2,500

Source: Based on estimates by the Experts at the Second Expert Meeting in Tokyo, Japan, 18-20 December 2011 and the Third Expert Meeting in Quito, Ecuador, 3-5 March 2012.

4. Estimated Total Investment and GEF-6 Investments Need

Estimated total investment requirement for this Target ranges between \$2 billion and \$5 billion US. In **Table 5B**, the results show that \$1 billion US to \$2.5 billion US will be needed for the GEF-6 investments depending on the presence of REDD projects or not (Scenarios 1-3).

Financial Needs for the GEF-6 Investments:

Scenario 1: GEF-6 Investments: \$1 billion US

Scenario 2: GEF-6 Investments: \$1.5 billion US (recommended)

Scenario 3: GEF-6 Investments: \$2.5 billion US

Scenario 2, with \$1.5 billion US for the GEF-6 investment is recommended assuming that there would be some REDD+ projects but not enough during the GEF-6 period. However, Scenario 3 would still be ideal to speed up the activities to stop deforestation particularly if REDD+ projects do not get implemented during the GEF-6 period 2014-2018.

5. Indicators and Baseline Information

¹⁴ <http://www.fao.org/forestry/cpf/degradation/en/>

Headline indicators: Relation to CBD decisions and SBSTTA 16 UNEP/CBD/COP/11/2 - ANNEX 1

- Trends in extent, condition and vulnerability of ecosystems, biomes and habitats
 - Extinction risk trends of habitat dependent species in each major habitat type (A)
 - Trends in extent of selected biomes, ecosystems and habitat (Decision VII/30 and VIII/15) (A)
 - Trends in proportion of degraded/threatened habitats (B)
 - Trends in fragmentation of natural habitats (Decision VII/30 and VIII/15) (B)
 - Trends in condition and vulnerability of ecosystems (C)
 - Trends in the proportion of natural habitats converted
 - Trends in pressures from unsustainable agriculture, forestry, fisheries and aquaculture
 - Trends in primary productivity (C)
 - Trends in proportion of land affected by desertification (also used by UNCCD) (C)
 - Trends in pressures from habitat conversion, pollution, invasive species, climate change, overexploitation and underlying drivers
 - Population trends of habitat dependent species in each major habitat type (A)
- Once again, indicators (A) are for use at global level, (B) possibly at global level and (C) at national and other sub-global level.

Possible indicators and baseline information: In order to determine if the rate of habitat loss has been reduced, there will be a need to establish a baseline against which to gauge progress towards this goal. Relevant indicators include: trends in the extent of selected biomes, ecosystems, and habitats (forest area; mangroves); trends in the abundance and distribution of selected species and the connectivity/fragmentation of ecosystems. Reasonably good data are available for some habitats, such as forests, while for other habitats improvements in data would be needed. The Degradation Initiative of the Collaborative Partnership on Forests has identified, and is further developing, common indicators for monitoring and assessing forest degradation.

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.

1. Technical Rationale

Over-exploitation, including that resulting from illegal, unreported and unregulated (IUU) fishing, is the main pressure on marine ecosystems globally, leading to the loss of biodiversity and ecosystem structure. Global marine capture fisheries are yielding lower harvest and contributing less to the global economy than they could do under stronger policies to manage fish stocks in a way that is sustainable. The World Bank estimates that this situation represents a lost profitability of some \$50 billion per year and puts at risk some 27 million jobs directly and the well-being of more than one billion people. The main drivers of overexploitation, such as subsidies leading to over capacity, generally reflect governance failure at international, regional and national levels. Better management of harvested marine resources, such as through the increased use of ecosystem based approaches and the establishment of recovery plans for depleted species, is needed to reduce pressure on marine ecosystems and to ensure the sustainable use of marine resource stocks. For example it is estimated that the global fishing fleet is currently 2.5 times larger than what the oceans can sustainably support. However, models suggest that, for some fisheries, on average, modest (~10%) reductions in catch could halve the pressure on marine ecosystems while also contributing to the long-term profitability and sustainability of fishing. (Where fisheries are already managed sustainably, no further reductions in fishing pressure may be needed, while in some areas greater reductions might be warranted.) Such a reduction in fishing pressure would substantially diminish the likelihood of fishery collapses. Other examples of destructive harvesting and management practices include bottom trawling and dynamite fishing, which physically damage marine environments, such as coral reefs and seamounts, which serve as habitats for marine biodiversity.

2. Reference to Relevant COP Decisions and GEF Guidance

This target is related to relevant decisions on sustainable use of biodiversity, marine and coastal biodiversity, and inland waters biodiversity¹⁵.

COP 10 – Decision X/24: Guidance to the financial mechanism

4.8 Sustainable use (Article 10)

- (b) Implementation of the Addis Ababa Principles and Guidelines at the national level to ensure that the use of biological diversity is sustainable.

4.19 Marine and coastal biological diversity

Projects that implement the elaborated programme of work on marine and coastal biodiversity;

- (c) Country-driven activities aimed at enhancing capabilities to address the impacts of mortality related to coral bleaching and physical degradation and destruction of coral reefs, including developing rapid response capabilities to implement measures to address coral-reef degradation, mortality and subsequent recovery;
- (d) Projects that promote the conservation and sustainable use of marine and coastal biodiversity under threat

4.19 Inland water biological diversity

- (c) Projects which help Parties to develop and implement national, sectoral and cross-sectoral plans for the conservation and sustainable use of biological diversity of inland water ecosystems, including comprehensive assessments of the biological diversity of inland waters, and capacity-building

¹⁵ Numerous decisions deal with these subjects: Decision X/32 (sustainable use of biodiversity), Decision VIII/21 (Marine and coastal biological diversity, conservation and sustainable use of deep seabed genetic resources beyond the limits of national jurisdiction; Decision VII/12 (Sustainable use (Article 10); Decision VI/13 (Sustainable use); Decision V/24 (Sustainable use as a cross-cutting issue); Decision IV/4 (Status and trends of the biological diversity of inland water ecosystems and options for conservation and sustainable use) among other.

- programmes for monitoring the implementation of the programme of work and the trends in inland water biological diversity and for information gathering and dissemination among riparian communities;
- (d) Projects that assist with the implementation of the programme of work on biological diversity of inland water ecosystems.

COP-10 Decision X-25 198-19 Marine and coastal biodiversity

18. *Invites* the Global Environment Facility and other donors and funding agencies, as appropriate, to consider extending support for capacity-building to eligible countries, in order to implement decision X/29, and in particular, with respect to the invitation in paragraph 38 of decision X/29;
19. *Invites* the Global Environment Facility and other donors and funding agencies as appropriate to extend support for capacity-building to eligible countries, in order to identify ecologically or biologically significant and/or vulnerable marine areas in need of protection, as called for in paragraph 18 of decision IX/20 and develop appropriate protection measures in these areas, within the context of paragraphs 36 and 37 of decision X/29;

Proposed Milestones

Possible milestones for this target include:

- By 2012, Parties should have taken steps to address the management of fishing capacity for international fisheries requiring urgent attention, with priority being given to those harvesting transboundary, straddling, highly migratory and high seas stocks which are overexploited, depleted or recovering;
- By 2012, Parties should have eliminated destructive fishing practices;
- By 2012, Parties should develop or update national assessments of fishing capacity and national plans for the management of fishing capacity, in line with the Ecosystem Approach, in order to halve the pressure on marine ecosystems by 2015 and end overfishing in both domestic and foreign waters by 2020;
- By 2012, Parties should have submitted alternative fishing plans that comply with the principles of sustainability (economic and ecosystem) and should have begun to implement them so that, by 2020, they are fulfilling their goal to eliminate destructive fishing practices;
- By 2012, Parties have taken steps to address the management of international fisheries requiring urgent attention, with priority being given to transboundary, highly migratory and high seas stocks that are significantly overfished;
- By 2012, Parties should develop or update national assessments of fishing capacity and national plans for the management of fishing capacity, in line with the Ecosystem Approach, in order to halve the pressure on marine ecosystems from unsustainable fishing by 2015;
- By 2012, Parties should have taken all actions relevant to a responsible Flag State, especially with respect to its fishing vessels operating on the high seas;
- By 2012, Parties have prohibited subsidies that contribute to overcapacity and overfishing through the implementation of a transparent and enforceable mechanism;
- By 2012(2014), Parties have agreed, through appropriate Regional Fisheries Management Organizations, arrangements, or through the Food and Agriculture Organization, to collect, exchange and publish basic fisheries data necessary for the proper management of fisheries;
- By 2015, Parties should have restored stocks to levels that can produce maximum sustainable yield;
- By 2015, pressure on marine ecosystems from fishing is halved at the global level;
- By 2015, Parties should have restored XX per cent of fish stocks to levels that can produce maximum sustainable yield;
- By 2015, Parties are implementing measures for the sustainable management of bycatch and have reduced the level of discard by 50 per cent.

3. Activities and Investment

The specific target should be regarded as a step towards ensuring that all marine resources are harvested sustainably, are within safe ecological limits and that fisheries have no significant adverse impacts on threatened species of vulnerable ecosystems. Actions that build upon existing initiatives such as the Code of Conduct for Responsible Fishing could help to ensure this. Actions taken to reach this target would help to ensure implementation, with respect to marine living resources, of the United Nations Convention on the Law of the Sea and its 1995 Implementation Agreement of its Provisions relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks.

Progress towards this target would also contribute to fisheries targets set during the 2002 World Summit on Sustainable Development and build upon the diverse approaches and tools agreed upon there: the Ecosystem Approach; the elimination of destructive fishing practices; the establishment of representative networks of marine protected areas; and time/area closures for the protection of nursery grounds. This target would also contribute to the Johannesburg Plan of Implementation (JPOI). In situations where fisheries are shared by several countries in a region, mechanisms, such as multilateral strategies, may need to be developed to allow for a coordinated approach to resource management. The programme of work on marine and coastal biodiversity is the most relevant to this target, along with the sustainable use cross-cutting issue.

3.1 Activities

Examples of activities include: reduction of fishing intensity and areas through collaborative partnerships with local communities and fishery organizations; Code of Conduct for Responsible Fisheries; 2002 World Summit on Sustainable Development; and development of regional mechanisms to manage share fisheries

Focusing on sustainable fishery, and considering that this target falls within FAO's mandate and budgeting, assistance can be provided in the form of support to policy design and sustainable management, certified fish production including seascape planning. Currently fisheries contribute approximately \$274 billion US to global GDP (World Bank, 2009). The World Bank also indicates that global revenue from capture fisheries in 2009 represented \$93.9 billion US. FAO estimates that 37% of fish is traded globally, making it the most traded protein commodity and generating \$102 billion US in export value (TGSF, 2012). The information that would be required would be:

- a) The number of fisheries in the world;
- b) Ranges and average values of certification of fisheries. Currently the value of certification of fisheries varies between from a few thousands of dollars to half a million.

Cost of certification has four main components: pre-assessment, fishery assessment, chain of custody assessment and also Logo license fees. The first two elements depend on the size and complexity of the fishery. From the limited experience to date, costs of pre-assessment may range from a few thousand USD to over \$20,000 US and the cost of full fishery certification between \$10,000 (for a small) to \$100,000 for a large complex fishery to \$100,000-\$500,000 US. The cost of custody assessment varies also depending on the size and complexity of the supply chain and varies between \$1,000 - \$5,000 US. Another cost is the annual audit fee. For companies wanting to use Marine Stewardship Council (MSC) Logo, they must enter into agreement with MSC International – the fee for on-product use of the logo is set at 0.05% of product value, i.e. \$500 per \$1,000,000 of product with a minimum fee of \$500. The benefits of certification are numerous for the fishing industry, retailers and also customers. Currently 42 fisheries are certified and over 100 in some stage of assessment accounting for about 6 million tons or 7% of global wild harvested seafood and over 2,500 individual seafood products with the MSC label¹⁶.

Target 6 is one with the longest list of measures that need to be taken care of even prior to the end of 2012. The overall aim of this target is to achieve a situation of sustainable fisheries globally.

- National assessment and national capacity of fishing plan;
- Fisheries outside national jurisdictions- Management of international fisheries (e.g. the case of Tuna Fish);

¹⁶ <http://www.friendsofthector.org/images/uploads/MSCFactsheet.pdf>; <http://oregonstate.edu/dept/iifet/2000/papers/peacey.pdf>

- Measures of sustainable management of catch (e.g. Tuna sustainable fisheries);
- Evaluation of fisheries subsidies;
- Issues of restoring a certain percentage of fish stocks in order to get more sustained yield – Pilot projects (This is the mandate of FAO);
- Therefore: sustainable fishery has to be funded (e.g. GEF - Coral Triangle funding).

3.2 Estimates of Investment

One approach in this case could be cost of certification times the number of fisheries: \$100,000-\$250,000 times the number fisheries. Even taking the lower range of the cost per fishery, the cost could be very high or the various sizes of fisheries may complicate the estimation. Using the number of vessels (nearly 4 million) and taking that about 50% of the vessels are found in Least Developed Countries (LDCs) the following result can be obtained. For instance, \$100,000 X 2 million vessels at 10% certification level: \$100,000X200,000 vessels may represent \$20 billion US for GEF-6 period. However is certification the right way to go? FAO may give indications as to how to approach this issue: How many fisheries to cover, which ones represent priorities; How much does it cost to certify fisheries (also coral triangles) – So that the problem can be solved without running into extremely high costs.

Hence the following points are considered in the estimation of the cost:

1. Rebuilding fish stocks would lead to increased sustainable yields and lower fishing costs and this is achieved by Target 11.
2. Under Target 6 the focus should be on improving governance by strengthening fishing rights that provide fishers and fishing communities with incentives to harvest responsibly and efficiently.
3. **Replicating comprehensive projects** in one region of the world would cost **\$30-\$70 million US** in GEF contribution to **\$300-\$700 million US in project investments**.
4. Demand side efforts such as certification of sustainable fisheries to continue from GEF-5 with the objective of expanding it to developing countries and developing viable models for small-scale fisheries.
5. **Developing good practices in national and local fisheries management** with greater transparency in allocation of fish resources and greater public accountability for the health of fish stocks helping private initiatives to certify sustainable fisheries would cost **\$8-12 million US** in GEF investment to total project costs of **\$25-40 million US**.
6. Phasing out fishery subsidies will improve efficiency in many cases and this is to be dealt with in Target 3.

Hence, activities 3 and 5 require *\$325 to \$740 million US* in total and *\$38 million to \$82 million US* in GEF investments. The results for Target 6 are presented in Table 6.

3.3 Incremental Reasoning

“GEF grant to co-financing ratios reflect the nature of each project, the global environmental benefits that are to be generated, the incremental costs to achieve the global environmental benefits, the nature of the baseline which the project complements, and the presence and contributions of other co-financiers. In practice, the GEF seeks to leverage the maximum amount possible and the ratio of GEF funds to co-financing has thus ranged from 1:2 to as high as 1:10 in the biodiversity focal area with an average amount of 1:4 currently. This ratio is driven primarily by the global benefits that will be generated and the incremental costs of generating said benefits, all other things being equal.”

Fisheries are very important in numerous developing countries as sources of income including export earnings and contributing significantly to employment, nutrition and hence poverty alleviation. Although the global benefits of sustainable fisheries are important, their benefits at national level are even more significant. So, for activity 1 involving replication of comprehensive projects, 10% level of funding is recommended and for activity 2, national fisheries management, 30% level of funding is proposed.

Table 6: Estimated GEF-6 investments need for Target 6

Selected Activities For Target 6	Estimated Investment GEF-6 Period	Incremental Reasoning	Estimated GEF-6 Investments Need		
			GEF-6 Scenario 1	GEF-6 Scenario 2	GEF-6 Scenario 3
Scenario 1:	(in Million US \$)			(in Million US \$)	
1) Replicating comprehensive projects in one region of the world	300	10%	30		
2) Developing good practices in national and local fisheries management...	25	30%	8		
Total	325		38		
Scenario 2:					
1) Replicating comprehensive projects in one region of the world	450	10%		45	
2) Developing good practices in national and local fisheries management...	30	30%		9	
Total	480			54	
Scenario 3:					
1) Replicating comprehensive projects in one region of the world	700	10%			70
2) Developing good practices in national and local fisheries management...	40	30%			12
Total	740				82
Total for Target 6	325 - 740		38	54	82

Source: Based on estimates by the Experts at the Second Expert Meeting in Tokyo, Japan, 18-20 December 2011 and the Third Expert Meeting in Quito, Ecuador, 3-5 March 2012.

4. Estimated Total Investment and GEF-6 Investments Need

The estimated total investment requirement for this Target ranges between \$325 million and \$740 million US. The three scenarios indicate that \$38 million US to \$82 million will be needed for the GEF-6 investment depending on Scenario (**Table 6**). The Scenarios are based on the estimates of values indicated in 3.2. The amounts for Scenarios 2 and 3 are estimated by increasing the investment amounts in order to speed up the process by increasing the number of projects or their scale, area coverage to achieve sustainable fisheries sooner. However, Scenario 3 would still be ideal to increase and speed up activities or cover a larger region.

Financial Needs for the GEF-6 Investments:

Scenario 1: GEF-6 Investments: \$38 million US

Scenario 2: GEF-6 Investments: \$54 million US

Scenario 3: GEF-6 Investments: \$82 million US

Hence, Scenarios 2 and 3 at \$54 million US and \$82 million would be the most ideal to achieve the Target on time by helping increase coverage area or increasing and speeding up activities.

5. Indicators and Baseline Information

Headline indicators: Relation to CBD decisions and SBSTTA 16 UNEP/CBD/COP/11/2 - ANNEX 1

- Trends in pressures from unsustainable agriculture, forestry, fisheries and aquaculture
 - Trends in extinction risk of target and bycatch aquatic species (A)
 - Trends in population of target and bycatch aquatic species (A)
 - Trends in proportion of utilized stocks outside safe biological limits (MDG indicator 7.4) (A)
 - Trends in catch per unit effort (C)

- Trends in fishing effort capacity (C)
 - Trends in area, frequency, and/or intensity of destructive fishing practices (C)
 - Trends in integration of biodiversity, ecosystem services and benefits sharing into planning, policy formulation and implementation and incentives
 - Trends in proportion of depleted target and bycatch species with recovery plans (B)
- Once again, indicators (A) are for use at global level, (B) possibly at global level and (C) at national and other sub-global level.

Possible indicators and baseline information: Indicators to measure progress towards this target include the Marine Trophic Index, the proportion of products derived from sustainable sources and trends in abundance and distribution of selected species. However, for several of these indicators, additional data would assist with monitoring progress. Other possible indicators include the proportion of collapsed species, fisheries catch, catch per unit effort, and the proportion of overexploited stocks. Baseline information for several of these indicators is available from the work conducted by the Food and Agriculture Organization of the United Nations. Possible process indicators could include the incidence of cooperation with the scientific bodies of Regional Fisheries Management Organizations.

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

1. Technical Rationale

The ecologically unsustainable consumption of water, use and run-off of pesticides and excess fertilizers, and the conversion of natural habitats to uniform monocultures, amongst other factors, have major negative impacts on biodiversity inside and outside of agricultural areas, as well as on forest, inland water and coastal ecosystems. The increasing demand for food, fibre and fuel will lead to increasing losses of biodiversity and ecosystem services if issues related to sustainable management are not addressed. On the other hand, sustainable management not only contributes to biodiversity conservation but can also deliver benefits to production systems in terms of services such as soil fertility, erosion control, enhanced pollination and reduced pest outbreaks, as well as contributing to the well-being and sustainable livelihoods of local communities engaged in the management of local natural resources.

2. Reference to Relevant COP Decisions and GEF Guidance

This target is related to relevant decisions on sustainable use of biodiversity (Addis Ababa Principles and Guidelines), business and biodiversity initiative, agricultural biodiversity, forest biodiversity, inland water biodiversity, marine and coastal biodiversity, and dry and sub-humid lands biodiversity the details of which are found in the Secretariat's websites.

COP 10: Decision X/24 – Guidance to the financial mechanism

4.7 Sustainable use (Article 10)

- (a) Implementation of the Addis Ababa Principles and Guidelines at the national level to ensure that the use of biological diversity is sustainable.

The Addis Ababa Principles and Guidelines for the Sustainable use of Biodiversity consist of fourteen interdependent practical principles, operational guidelines and a few instruments for their implementation that govern the uses of components of biodiversity to ensure the sustainability of such uses. The principles provide a framework to assist Governments, resource managers, indigenous and local communities, the private sector and other stakeholders on how to ensure that their use of the components of biodiversity will not lead to the long-term decline of biological diversity. The principles are intended to be of general relevance, although not all principles will apply equally to all situations, nor will they apply with equal rigor. Their application will vary according to the biodiversity being used, the conditions under which they are being used, and the institutional and cultural context in which the use is taking place¹⁷.

2.9 Sustainability

- (a) Promoting exchange of experience and lessons learned in addressing sustainability of funded projects on biological diversity.

4.17: Agricultural biological diversity

- (a) Projects that assist with the implementation of the Plan of Action for the International Initiative for the Conservation and Sustainable Use of Pollinators;
- (b) Projects which implement the Convention's programme of work on agricultural biodiversity.

4.16: Forest biological diversity specifies among other:

- (c) Projects and capacity-building activities for implementing the programme of work of forest biological diversity at the national, regional and subregional levels and the use of the clearing-house mechanism to include activities that contribute to halting and addressing deforestation, basic assessments and monitoring of forest biological diversity, including taxonomic studies and inventories, focusing on forest species, other important components of forest biological diversity and ecosystems under threat;

¹⁷ The extensive details about the fourteen principles are found at: <http://www.cbd.int/sustainable/addis.shtml>.

- (d) Projects focusing on the identified national priorities, as well as regional and international actions that assist the implementation of the expanded work programme considering conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits from genetic resources in a balanced way, underscoring the importance of ensuring long-term conservation, sustainable use, and benefit-sharing of native forests.

4.20: *Inland water biological diversity*

- (e) Projects which help Parties to develop and implement national, sectoral and cross-sectoral plans for the conservation and sustainable use of biological diversity of inland water ecosystems, including comprehensive assessments of the biological diversity of inland waters, and capacity-building programmes for monitoring the implementation of the programme of work and the trends in inland water biological diversity and for information gathering and dissemination among riparian communities;
- (f) Projects that assist with the implementation of the programme of work on biological diversity of inland water ecosystems.

4.19: *Marine and coastal biological diversity*

Projects that implement the elaborated programme of work on marine and coastal biodiversity;

- (a) Country-driven activities aimed at enhancing capabilities to address the impacts of mortality related to coral bleaching and physical degradation and destruction of coral reefs, including developing rapid response capabilities to implement measures to address coral-reef degradation, mortality and subsequent recovery;
- (b) Projects that promote the conservation and sustainable use of marine and coastal biodiversity under threat.

4.21: *Dry and sub-humid lands*

- (a) Projects that implement the Convention's programme of work on biodiversity of dry and sub-humid lands;
- (b) Projects that promote the conservation and sustainable use of biological diversity in arid and semi-arid areas.

Proposed Milestones

Possible milestones for this Target include:

- By 2012, all Parties have identified or developed and promoted sustainability criteria and/or good practices for agriculture, aquaculture and forestry;
- By 2015, the area of agriculture, aquaculture and forestry managed according to sustainability criteria has doubled.

3. Activities and Investment

Criteria for sustainable forest management have been adopted by the forest sector and there are many efforts by governments, indigenous and local communities, NGOs and the private sector to promote good agricultural, aquaculture and forestry practices and to apply law and governance mechanisms. While, as yet, there are no universally-agreed sustainability criteria, given the diversity of production systems and environmental conditions, each sector and many initiatives have developed their own criteria which could be used pending the development of a more common approach. In addition, customary use of biodiversity by indigenous and local communities can often offer lessons of wider applicability and could be enhanced by increasingly delegating governance and management responsibility to the local level. Similarly, the use of certification and labeling systems or standards could be promoted as part of this target.

The Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity developed under the Convention on Biological Diversity could serve as a framework for developing further sustainability criteria. The application of the Ecosystem Approach would also assist with the implementation of this target. The programmes of work on agricultural, forest, inland water, marine and coastal, dry and sub-humid lands biodiversity, and the Convention's work on sustainable use, as well as the International Initiatives on Soil Biodiversity and on Pollinators are particularly relevant to this target.

3.1 Activities

Examples of activities are to: apply the ecosystem approach; implement sustainable forest, agriculture and aquaculture management; apply law and governance mechanisms; apply good agricultural practices; reduce pesticide use and apply integrated pest management; promote certification and labelling; and implement *Satoyama* and similar initiatives.

- **Sustainable Agriculture:** FAO should have the information on the area under sustainable agriculture. The main challenge in this case will be balancing food production and biodiversity protection: pollinator, cattle grazing, best practices...- Since, small scale production generally has less impact on biodiversity, GEF could help micro projects that are quickly productive and have less negative impacts.
 - Importance of focus on smaller and medium projects—GEF could also finance model projects such as pilot demonstration projects for a cluster of small farms;
 - Protection through green value chain and the provision of quality products on the market;
 - Since there are already many such pilot projects, the best way is to learn from them and do better than that to achieve Target 7: GEF should start these replicable projects;
 - All GEF funded projects like the ones through IFAD need to integrate biodiversity in their activities;
 - Efficient; organic production projects; through enabling production conditions linked to markets.
- **Sustainable Aquaculture:** This involves cost of conversion into sustainable production schemes focusing on biodiversity issues.
- **Sustainable Forestry** – The Global Forest Resources Assessment – 2010 interactive database provides useful information¹⁸. This can be calculated through financing few projects by ensuring the area to double by 2020. It consists of finding the cost and baseline and doubling it.

3.2 Estimates of Investment

1. **Sustainable agriculture:** To the bi-annual statistics of FAO for 2004/2005, the total area under such practices was 98.8million ha, roughly about 6% of arable land in the world. Approximately, one fourth is in developing countries, i.e. approximately 25 million hectares. GEF investments are needed to double this area by 2020, through GEF-5, GEF-6 and GEF-7 investments. Financial need to accomplish sustainable agriculture is recommended to be a total investment of **\$2-\$3 billion US** with GEF-6 contribution of **\$200-\$300 million US**.
2. **Sustainable aquaculture:** In the next few years, consumption of farm-raised fish will surpass that caught in the wild for the first time, according to the United Nations Food and Agriculture Organization. But most fish farms, even the ones heralded as "sustainable", create as many problems as they solve, from fecal contamination to the threat that escaped cultivated fish pose to the gene pool of their wild cousins. Application of best aquaculture practices such as The Global Aquaculture Alliance Best Aquaculture Practices standards, a certification system or Global Aquaculture Alliance that advance environmentally and socially responsible aquaculture and a safe supply of seafood to meet growing world food needs. The financial need for this activity is estimated to be GEF investments of **\$30-\$45 million US** on total project costs of **\$100-\$150 million US** to promote the application of certification, including capacity building in the leading aquaculture producing countries to ensure a certain percentage of production to be certified by 2020.
3. **Sustainable forestry:** The financial need for this activity is estimated to be GEF investments of **\$120-\$180 million US** on total project costs of **\$400-\$600 million US** to promote sustainable forestry in developing countries and countries with economies in transition.

Overall these major activities imply a total investment of **\$2.5-\$3.75 billion US**. The details are presented in Table 7.

Table 7: Estimated GEF-6 investments need for Target 7

¹⁸ <http://countrystat.org/for/cont/pxwebquery/ma/t04fo000/en>

Selected Activities For Target 7	Estimated Investment	Incremental Reasoning	Estimated GEF-6 Investments Need		
	GEF-6 Period		GEF-6 Scenario 1	GEF-6 Scenario 2	GEF-6 Scenario 3
Scenario 1:	(in Million US \$)			(in Million US\$)	
1) Sustainable agriculture	2,000	10%	200		
2) Sustainable aquaculture	100	30%	30		
3) Sustainable forestry	400	30%	120		
Total	2,500		350		
Scenario 2:					
1) Sustainable agriculture	2,500	10%		250	
2) Sustainable aquaculture	125	30%		38	
3) Sustainable forestry	500	30%		150	
Total	3,125			438	
Scenario 3:					
1) Sustainable agriculture	3,000	10%			300
2) Sustainable aquaculture	150	30%			45
3) Sustainable forestry	600	30%			180
Total	3,750				525
Total for Target 7	2,500 - 3,750		350	438	525

Source: Based on estimates by the Experts at the Second Expert Meeting in Tokyo, Japan, 18-20 December 2011 and the Third Expert Meeting in Quito, Ecuador, 3-5 March 2012.

3.3 Incremental reasoning

“GEF grant to co-financing ratios reflect the nature of each project, the global environmental benefits that are to be generated, the incremental costs to achieve the global environmental benefits, the nature of the baseline which the project complements, and the presence and contributions of other co-financiers. In practice, the GEF seeks to leverage the maximum amount possible and the ratio of GEF funds to co-financing has thus ranged from 1:2 to as high as 1:10 in the biodiversity focal area with an average amount of 1:4 currently. This ratio is driven primarily by the global benefits that will be generated and the incremental costs of generating said benefits, all other things being equal.”

10% of funding is recommended for sustainable agriculture and 30% for sustainable aquaculture and sustainable forestry on the basis of the importance of contribution to global benefits.

4. Estimated Total Investment and GEF-6 Investments Need

Estimated total investment required for this Target ranges between \$2.5 billion and \$3.8 billion US. At the above indicated rates of funding, \$350 million US to \$525 million US will be required for GEF-6 investment depending on the Scenario. The amount of investment needed for sustainable agriculture range between \$200 and \$300 million US, for sustainable aquaculture between \$30 and \$45 million US and for sustainable forestry between \$120 and \$180 million US. Scenario 2 and 3 estimates are expected to speed up and increase activities towards sustainability of the sectors that could assist in the alleviation of poverty (Table 7).

Financial Needs for the GEF-6 Investments:

Scenario 1: GEF-6 Investments: \$350 million US

Scenario 2: GEF-6 Investments: \$438 million US (recommended)

Scenario 3: GEF-6 Investments: \$525 million US

Once again, Scenario 2 at \$438 million US is recommended for GEF-6 investment. However, Scenario 3 would still be ideal to increase activities or cover more GEF eligible countries.

5. Indicators and Baseline Information

Headline indicators: Relation to CBD decisions and SBSTTA 16 UNEP/CBD/COP/11/2 - ANNEX 1

- Trends in pressures from unsustainable agriculture, forestry, fisheries and aquaculture
 - Trends in population of forest and agriculture dependent species in production systems (B)
 - Trends in production per unit (B)
 - Trends in proportion of products derived from sustainable sources (Decision VII/30 and VIII/15) (C)
- Trends in integration of biodiversity, ecosystems services and benefits sharing into planning, policy formulation and implementation and incentives
 - Trends in area of forest, agricultural and aquaculture ecosystems under sustainable management (Decision VII/30 and VIII/15) (B)

Indicators (A) are for use at global level, (B) possibly at global level and (C) at national and other sub-global level.

Possible indicators and baseline information: Relevant indicators for this target include: the area of forest, agricultural and aquaculture ecosystems under sustainable management; the proportion of products derived from sustainable sources; and trends in genetic diversity of domesticated animals, cultivated plants and fish species of major socioeconomic importance. Other possible indicators could include: the Ecological Footprint and related concepts; the extent of the use of good agricultural practices; the quality of forest governance; and the proportion of products derived from sustainable sources. Existing sustainability certification schemes could provide baseline information for some ecosystems and sectors.

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

1. Technical Rationale

Water pollutants can easily find their way into aquatic creatures, which on account of their critical location in the food chain can carry the adverse impacts onwards to mammals. Wetlands, swamps and other inland water systems have declined in area and are contaminated or polluted in large parts of the world. According to Vorosmarty et al (2010) pollution and invasive species, threaten rivers that serve 80% of the world's population. These same stressors, according to the authors, endanger the biodiversity of 65% of the world's river habitats putting thousands of aquatic wildlife species at risk. Efforts to abate fresh water degradation through highly engineered solutions are effective at reducing the impact of threats but at a cost that can be an economic burden and often out of reach for developing nations. The authors have identified zones of critical concern involving African and Asian countries. Wetlands International (2010) reckons that an estimated 126,000 known species rely completely on freshwater habitats. This figure according to Wetlands International includes 15,000 fish species (some 45% of all fish species), 4,300 species of amphibians, and 5,600 species of dragonflies and damselflies and pollution of water streams and rivers has adverse global environmental impacts.

Nearly all Parties indicated in their fourth national reports that pollution was posing a threat to biodiversity. Nutrient loading, primarily of nitrogen and phosphorus, is a major and increasing cause of biodiversity loss and ecosystem dysfunction, particularly in wetland, coastal and dryland areas, including through eutrophication and the creation of hypoxic "dead zones" associated with severe losses of valuable ecosystem services. *These issues are increasing threat to biodiversity conservation in the world.* Humans have already more than doubled the amount of "reactive nitrogen" in the biosphere, and business-as-usual trends would suggest a further increase of the same magnitude by 2050. This target is consistent with, and complementary to, work under the Rotterdam and Stockholm Conventions and the target established in the Johannesburg Plan of Implementation (parag. 23) to achieve, by 2020, a situation where chemicals are used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment. Target 8 is expected to pay due attention to this aspect.

2. Reference to Relevant COP Decisions and GEF Guidance

This target is related to relevant decisions on inland water biodiversity, marine and coastal biodiversity (already presented in the other targets), impact assessment, and the International Initiative on Soil Biodiversity. Decisions IX/16, X/34 and IX/1 of the COP are germane to Target 8. GEF has funded projects. The Decisions on Article 14 are about impact assessment and minimizing adverse impacts¹⁹.

International Initiative for the conservation and sustainable use of soil biodiversity: framework for action:

Strategic principles:

The strategy for the implementation of the International Initiative for the Conservation and Sustainable Use of Soil Biodiversity should adhere to the following principles, many of which have already been emphasized through other processes and/or forums:

- (a) Focus on the improvement of farmers' livelihoods in relation to food security, soil biodiversity and other relevant land-use activities;
- (b) Build on previous experience and knowledge, combining the skills and wisdom of farmers with modern scientific knowledge;
- (c) Focus on integrated holistic solutions and technical adaptation to local contexts within a clear framework that builds on the principles for application of the ecosystem approach;

¹⁹ The decisions include V/18 on impact assessment, liability and redress, VI/7 Section A, identification, monitoring, indicators and assessments, VII/7 environmental impact assessment and strategic environment assessment, VIII/28 impact assessment, voluntary guidelines on biodiversity-inclusive impact assessment, X/29 marine and coastal biodiversity – Identification of ecologically or biologically significant areas (EBSAs) and scientific and technical aspects relevant to environmental impact assessment in marine areas (paragraphs 21-51).

- (d) Use participatory technology development and adaptive approaches to develop agricultural systems and land resource management practices for specific situations and farmer typologies that are technically and environmentally appropriate, economically viable, and socially and culturally acceptable;
- (e) Develop partnerships and alliances that demonstrate multidisciplinary and foster synergies and ensure multi-stakeholder participation;
- (f) Promote cross-sectoral and interdisciplinary approaches to address different perspectives (social, political, economic, environmental - including soil ecosystem services);
- (g) Prioritize actions on the basis of country goals and the needs of direct beneficiaries and locally validate such actions through the full participation of all actors;
- (h) Promote innovative and flexible solutions, that are adapted to local conditions, to the problems caused by the unsustainable use of soil biodiversity;
- (i) Promote dissemination and exchange of information and data, in line with Articles 8(j) and 8(h) of the Convention on Biological Diversity;
- (j) Promote entrepreneurship and marketing strategies for agro-production, especially for household agriculture and food security.

Proposed Milestones

Possible milestones for this Target include:

- By 2014, Parties have developed national assessments of the impact of heavy metal, chemical and nutrient loading and other pollution on ecosystems and have developed strategies and policies to reduce such pollution;
- By 2015, most ecosystems show declining heavy metal, chemical and nutrient loads and levels of other pollutants.

3. Activities and Investment

The better control of sources of pollution, including prevention of discharge of heavy metal wastes, efficiency in fertilizer use and the better management of animal wastes, coupled with the use of wetlands as natural filtration plants where appropriate, can be used to bring nutrient levels below those that are critical for ecosystem functioning, while also allowing for increased fertilizer use in areas where it is necessary to meet soil fertility and food security needs.

The EU has successfully promoted regulations to this end, and the evidence suggests that similar approaches are feasible in other developed and emerging economies. Similarly, the development of national water quality guidelines could help to limit pollution and excess nutrients from entering freshwater and marine ecosystems. This target is relevant to several programmes of work but, in particular, to those dealing with inland water biodiversity and marine and coastal biodiversity and the Convention's work on impact assessment.

3.1 Activities

Examples of activities are to: promote appropriate and efficient fertilizer use and disposal of wastes from livestock (good agricultural practices); to improve sewage treatment; wise use of wetlands; to have better control of point and non-point sources of pollution, deposition of heavy metals and to develop national water quality guidelines.

The target deals with pollution, excess chemical, heavy metal contamination and nutrient loading from agriculture and industries all of which require national interventions through integrated watershed management projects.

- Currently baseline situation for this target is weak and sporadic. It is also carried out in an unscientific manner. GEF assistance can fund a series of pilot projects in critically affected countries;

- Representative zones for carrying out integrated watershed management projects can be identified and interventions that address pollution and contamination of water streams and wetlands based on cost effective, effective technological interventions be introduced.
- Analyzing results from watershed projects on soil/edaphic, water and flora, fauna and habitats of the zone concerned.
- Arriving at technologies, policies to achieve source reduction and elimination of nutrient overloading from non-point agricultural sources and industrial agglomerations;
- Propose a strategy for implementing remedial technology implementation plan through good agricultural practices and sound disposal of toxic wastes.

3.2 Estimates of Investment

GEF 4 has (sought to) support(ed) two projects viz "Modelling the Carrying Capacity of the South China Sea Marine Basin" with respect to Nutrient Loading from Land-Based Sources in the Context of the UNEP/GEF Project Entitled: "Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand" and 'The Living Water Exchange: A GEF/UNDP Project Promoting Nutrient Reduction Best Practices in Central and Eastern Europe' with focus on off shore ecosystems (for a demonstration grant of \$150,000 US). The former focused on developing a modeling system while the latter focused on best practices in nutrient reduction.

In GEF-6, it is proposed to carry out at least *50 integrated watershed management projects* in zones where biodiversity status has been adversely affected by poor water quality also on account of contamination/ pollution of riverine ecosystems. The focus will involve all sources of pollution/contamination that adversely impact biodiversity. Average costs are expected to be slightly higher than **\$5 million per project**. **The 50 projects will require a total investment of \$250 million US** in Scenario 1 (Table 8). Two additional Scenarios were also considered. **80 projects will require \$400 million US** (Scenario 2) and **120 projects, \$600 million US** (Scenario 3). Though the range of countries/regions covered by the study is large, projects will be chosen for GEF funding in zones involving developing countries where pollution, chemical/toxic wastes and nutrient loading has damaged aquifers and aquatic fauna across river basins some of which straddle countries. The focus of GEF projects can be on engineering novel technological solutions (including good agricultural practices) that are efficient, source-reducing and cost effective.

3.3 Incremental Reasoning

"GEF grant to co-financing ratios reflect the nature of each project, the global environmental benefits that are to be generated, the incremental costs to achieve the global environmental benefits, the nature of the baseline which the project complements, and the presence and contributions of other co-financiers. In practice, the GEF seeks to leverage the maximum amount possible and the ratio of GEF funds to co-financing has thus ranged from 1:2 to as high as 1:10 in the biodiversity focal area with an average amount of 1:4 currently. This ratio is driven primarily by the global benefits that will be generated and the incremental costs of generating said benefits, all other things being equal."

GEF's incremental reasoning describes the expected global environmental benefits to be contributed by the project and as reflected by appropriate impact indicators. The three Scenarios were built by increasing the number of projects. The higher numbers of projects (Scenario 2 and 3) are justified in the sense that water is becoming a very important problem in many countries, and the integrated management of it can have important benefits to resources that are of global significance.

Table 8: Estimated GEF-6 investments need for Target 8

Selected Activities For Target 8	Estimated Investment	Incremental Reasoning	Estimated GEF-6 Investments Need		
	GEF-6 Period		GEF-6 Scenario 1	GEF-6 Scenario 2	GEF-6 Scenario 3
Scenario 1: 50 Integrated watershed management projects	(in Million US \$) 250	25%	62.5	(in Million US \$) 100	150
Scenario 2: 80 Integrated watershed management projects	400	25%			
Scenario 3: 120 Integrated watershed management projects	600	25%			
Total for Target 8	250 - 600		62.5	100	150

Source: Based on estimates by the Experts at the Second Expert Meeting in Tokyo, Japan, 18-20 December 2011 and the Third Expert Meeting in Quito, Ecuador, 3-5 March 2012.

4. Estimated Total Investment and GEF-6 Investments Need

Estimated total investment requirement of this Target ranges between \$250 million and \$600 million US. GEF-6 investment need is estimated at 25% and gave approximately \$62.5 million US in Scenario 1, \$100 million US in Scenario 2, and \$150 million US in Scenario 3.

Financial Needs for the GEF-6 Investments:

Scenario 1: GEF-6 Investments: \$62.5 million US

Scenario 2: GEF-6 Investments: \$100 million US

Scenario 3: GEF-6 Investments: \$150 million US

Scenario 2 at \$100 million US and Scenario 3 at \$150 million US would be ideal to speed up activities or cover more GEF eligible countries since watershed management problems are crucial around the world.

5. Indicators and Baseline Information

Headline indicators: Relation to CBD decisions and SBSTTA 16 UNEP/CBD/COP/11/2 - ANNEX 1

- Trends in pressures from habitat conversion, pollution, invasive species, climate change, overexploitation and underlying drivers:
 - Trends in agricultural cropping patterns and impact on non-point source based chemical/nutrient pollution on keystone micro-organisms, avian species, mammals and fisheries through contamination of aquifers and surface water source including wetlands (A)
 - Trends in incidence of hypoxic zones and algal blooms (A)
 - Trends in water quality in aquatic ecosystems (A) (decisions [VII/30](#) and [VIII/15](#))
 - Impact of pollution on extinction risk trends (B)
 - Trends in pollution deposition rate (B) (decisions [VII/30](#) and [VIII/15](#))
 - Trends in sediment transfer rates (B)
 - Trend in emission to the environment of pollutants relevant for biodiversity (C)
 - Trend in levels of contaminants in wildlife (C)
 - Trends in nitrogen footprint of consumption activities (C)
 - Trends in ozone levels in natural ecosystems (C)
 - Trends in proportion of wastewater discharged after treatment (C)
 - Trends in UV-radiation levels (C) <http://www.cbd.int/recommendation/sbstta/?id=12968>

Indicators (A) are for use at global level, (B) possibly at global level and (C) at national and other sub-global level.

Possible indicators and baseline information: Relevant indicators include nutrient/ heavy metal, nitrogen/phosphorus and heavy metal deposition on water quality in freshwater ecosystems. Other possible indicators could be the Ecological Footprint and related concepts, total nutrient use, nutrient /toxic metal loading in freshwater and marine environments, and the incidence of hypoxic zones and algal blooms. Data which could provide baseline information already exists for several of these indicators, including the incidence of marine dead zones (an example of human-induced ecosystem failure) and the global aerial deposition of reactive nitrogen.

Target 9: By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated and measures are in place to manage pathways to prevent their introduction and establishment.

1. Technical Rationale

Invasive alien species are those alien species which threaten ecosystems, habitats or species (Article 8(h)). They are a major threat to biodiversity and ecosystem services, as identified by most Parties in their fourth national reports. In addition, invasive alien species can pose a threat to food security, human health and economic development. In many island ecosystems, invasive alien species are the leading cause of biodiversity loss. Increasing trade and travel translates into greater risks of biological invasion unless prevention, eradication and control of invasive alien species are undertaken, immediately and continuously, at national and regional levels. To address the issue of invasive alien species systemically through developing the cross-sectoral policy, regulations, and institutional arrangements for the prevention, control and management of biological invasions it is important to take a risk management approach focusing on the high risk invasion pathways. Given the high cost of eradication and difficulty of its completion, projects are preferably to take prevention approaches. Priority should be given to establishing policy measures that prevent and minimize risks of the impact on the environment. The measures include prevention of new incursions, early detection and institutional frameworks to respond rapidly to new incursions.

2. Reference to Relevant COP Decisions and GEF Guidance

In recognition of the importance that the Conference of the Parties (COP) places on the threat that invasive alien species pose to biodiversity, particularly in islands and island states, and most often in productive lands and oceans, GEF will continue to support the development of regulatory and management frameworks to prevent, control and manage these species.

Implement Invasive Alien Species Management Frameworks: GEF will support interventions that address the issue of invasive alien species systemically through developing the sectoral policy, regulations, and institutional arrangements for the prevention and management of invasions emphasizing a risk management approach by focusing on the highest risk invasion pathways. Priority will be given to establishing policy measures that reduce the impact of invasive species on the environment, including through prevention of new incursions, early detection and institutional frameworks to respond rapidly to new incursions²⁰.

Recognizing an urgent need to address the negative impact of invasive alien species, COP to the Convention on Biological Diversity (CBD) established Invasive Alien Species as a cross-cutting issue (decision IV/1C). The COP adopted the Guiding Principles for the Prevention, Introduction and Mitigation of Impacts of Alien Species that Threaten Ecosystems, Habitats or Species (decision VI/23). This target is also related to the following COP decisions VII/13, VIII/27, IX/4 and X/38 on invasive alien species.

At its tenth meeting COP reviewed guidance to the financial mechanism. In the consolidated guidance to the financial mechanism of the convention annexed to decision X/24, the programme priority for Invasive Alien Species stated:

4.5 Invasive alien species (Article 8(h))

- (a) Capacity-building to prevent or minimize the risks of the dispersal and establishment of invasive alien species at the national, subregional, or regional levels;
- (b) Projects that assist with the development and implementation, at national and regional levels, of the invasive alien species strategies and action plans, in particular those strategies and actions related to geographically and evolutionarily isolated ecosystems;

²⁰ http://www.thegef.org/gef/sites/thegef.org/files/documents/GEF.C.35.Inf_.13.pdf

- (c) Improved prevention, rapid response and management measures to address threats of alien invasive species, in accordance with its mandate.

Among other, COP-10-Decision X/38 is entirely devoted to invasive alien species²¹. In SBSSTA 15 - Recommendation XV/4 the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) presents various recommendations to the Conference of the Parties on various issues related to invasive alien species.

Proposed Milestones

Possible milestones for this Target include:

- By 2014, potential pathways for invasive alien species are identified using a risk assessment framework, and lists of the most harmful invasive species are developed;
- By 2014 action plans are developed and relevant legislation is reviewed;
- By 2016, actions have been taken to address the most important introduction pathways and the most serious invasions;
- By 2020, the measures which have been put in place have been assessed to determine their impact

3. Activities and Investment

The issue of invasive alien species and pathways for their introduction can be addressed through:

- Development or review of national legislation on invasive alien species and regional harmonization of the countries' legislations;
- Improved border controls and quarantine, including through better coordination with national and regional bodies responsible for plant and animal health;
- Early detection and rapid response mechanisms, and management plans;
- Capacity building to conduct the above activities appropriately;
- Re-establishment of the Global Invasive Species Programme or equivalent body to facilitate capacity building for implementation of Article 8(h) and the relevant COP decisions.

The activities should consider the most resource effective measures to address the issue of invasive alien species with prioritization of measures using Invasive Species Management Framework. Implementing measures to control pathways and development of early detection and rapid response mechanism require sufficient capacity to identify alien species, including sub-species or varieties level, and to report the facts to appropriate management authorities to take actions. Trainings for (i) *species identification*, (ii) *risk analysis*, (iii) *database management* and (iv) *risk communication*, including *awareness-raising* among the relevant sectors and local communities, are critical set of capacity building. The Global Invasive Species Programme (GISP) was tasked to provide advice to Governments and organizations on actions to be taken at national and regional levels to implement Article 8(h) of the CBD (paragraphs 14a, 18 and 19 in decision VI/23). Due to the closure of GISP the needed assistance for capacity building to developing countries to address invasive alien species has virtually fallen in abeyance.

- The tools developed by the GISP in earlier time had provided effective assistance. However, such tools should be revised with the recent changes of international standards and codes of conduct of the relevant international organizations that set international regulatory framework relevant to invasive alien species, as well as with the latest findings in sciences related to biological invasions.
- Given the particularly acute impact of invasive alien species on island ecosystems, the programme of work on island biodiversity is also relevant.
- Work initiated by the International Plant Protection Convention, the International Organization for Animal Health (OIE), and the World Trade Organization's Committee on the Agreement for the Application of

²¹ Decisions related to invasive alien species include IV/1C, V/8, VI/23, VII/13, VIII/27, IX/4 and X/38 among many other. The list and further details are found at <http://www.cbd.int/invasive/cop-decisions.shtml>.

Sanitary and Phytosanitary Measures and its Standards and Trade Development Facility, could also be built upon when taking actions to meet this target.

- Actions to implement the International Convention for the Control and Management of Ships' Ballast Water and Sediments, a convention adopted through the International Maritime Organization which seeks to prevent the spread of organisms carried in ships' ballast water, could also help to achieve progress towards this target.

3.1 Activities

Examples of activities are: to increase effectiveness of border controls and quarantine measures; to address pet trade; control spread of invasive species; to study and monitor emerging wildlife infectious diseases; better coordination with national and regional plant and animal health bodies; and WTO-SPS Standards and Trade Development Facility.

Target 9 requires various types of activities, such as:

1. Improvement of border control and quarantine

- Pathway identification
- Pathway control and management
- Development of national list of most harmful invasive species

2. Early warning mechanisms, rapid response measures

- Capacity building for species identification
- Development of alert system
- Engagement of public and private sectors
- Public awareness
- Capacity building for eradication

3. Implementation of International Standards, codes of conduct and other relevant measures, and development or update of National Invasive species Strategies and Action Plans

- Risk analysis
- National Invasive Species Strategies and Action Plans
- National legislation
- Regional harmonization of action plans and legislations

4. Global support program for technical assistance and capacity building support mechanism m.

- Re-establishment of Global Invasive Species Programme or its equivalent.
- Establishment of capacity building support mechanism...

3.2 Estimates of Investment

1. Improvement of border control and quarantine

- Pathway identification
- Pathway control and management
- Development of national list of most harmful invasive species

This activity would require **\$100,000 US** per country. However, if regional pathway identification has to be planned the cost would range between **\$120,000** and **\$150,000 US** per country including additional meetings, preparation and other related work. Hence, financial needs for this activity would be **\$100,000 US to \$150,000 US** per country for 155 countries. The total amount of financial needs would be between **\$15.5 million US** and **\$23.3 million US**.

Identification of pathway alone does not help much on achieving Target 9. Pathway control requires development of method to make linkage between the pathways based on ecological and socio- economical facts. This requires 2-3 comprehensive pathway control/management projects inviting Government, private sector, NGOs that are involved in pathway management. At least planning of control/management should be included under GEF-6. Making linkage would be undertaken under GEF-7.

2. Early warning mechanisms, rapid response measures

- Capacity building for species identification (training)
- Development of alert system (cross-sectoral meetings and implementation)
- Engagement of public and private sectors (meetings,)
- Public awareness (awareness raising materials preparation)
- Capacity building for eradication (training)

This activity would require **\$200,000 US** per country. However, if regional capacity building/training and regional alert system will be planned, the cost would range between **\$240,000 US and \$300,000 US** per country to have additional meetings, preparation and other related tasks. Hence, the total financial need for this activity would be between **\$31 million US to \$47 million US** taken once again 155 countries into consideration.

3. Implementation of International Standards, codes of conduct and other relevant measures, and development or update of National Invasive species Strategies and Action Plans

- Risk analysis and listing priority species to control (incl. trainings on risk analysis)
- National Invasive Species Strategies and Action Plans (meetings, documentation)
- Development or review National legislation on invasive alien species
- Regional harmonization of action plans and legislations

This activity would require **\$120,000 US** per country. However, if regional risk analysis tool/training will be planned the cost would range between **\$150,000 and \$200,000 US** per country to account for the additional meetings, preparation and other tasks. Hence, financial needs for this activity would be **\$120,000 US to \$200,000 US** per country for 155 countries. The total amount of financial needs would then be between **\$19 million US and \$31 million US for the 155 countries**

Note that priority is to develop invasive species strategies and action plans and include it as a component of updated National Biodiversity Strategies and Action Plans (NBSAPs). This is dependent on the achievement of the enabling activities under GEF-5. If countries do not have invasive species strategies and action plans in their NBSAPs yet, this component should be supported under GEF6. Regarding GEF-7, development of regional action plan and harmonization of national legislation can be a core activity in terms of achieving the objectives of the Strategic Plan for Biodiversity 2011-2020.

4. Global support program for technical assistance and capacity building support mechanism

- Re-establishment of Global Invasive Species Programme or its equivalent.
- Establishment of capacity building support mechanism...

\$600,000 US per year would be needed for global secretariat to run its activities to prepare up-to-date tools and provide trainings/workshops/review of project progress. The amount for four years (**\$2.4 million US in total**) can be split between GEF-6 and GEF-7 where necessary. However, in order to jump start the process and speed up the process of implementation, it is proposed that the entire amount be used during the GEF-6 period. This is to reflect the importance that the activities should start as early as possible in order for Target 9 to be met by 2020.

The Cost estimates for Target 9 are summarized in Table 9. Overall, this target would require investment of a total of **\$66.3 million to \$103 million US** during the GEF-6 period.

3.3 Incremental Reasoning

“GEF grant to co-financing ratios reflect the nature of each project, the global environmental benefits that are to be generated, the incremental costs to achieve the global environmental benefits, the nature of the baseline which the project complements, and the presence and contributions of other co-financiers. In practice, the GEF seeks to leverage the maximum amount possible and the ratio of GEF funds to co-financing has thus ranged from 1:2 to as high as 1:10 in the biodiversity focal area with an average amount of 1:4 currently. This ratio is driven primarily by the global benefits that will be generated and the incremental costs of generating said benefits, all other things being equal.”

Referred to as “uninvited company” by the CBD, alien species that become invasive are considered to be a main direct driver of biodiversity loss across the globe and a huge threat to businesses. The economic impact of invasive species is estimated at \$1.4 trillion US globally i.e. 5% of global GDP. Given the substantial threat presented by invasive alien species not only at national but also global level, and the significant global and national benefits that their control could have, estimates for the GEF-6 investments are generated using 30% for the first three activities and 100% for global support program for technical assistance and capacity building (Table 9).

Table 9: Estimated GEF-6 investments need for Target 9

Selected Activities For Target 9: IAS	Estimated Investment	Incremental Reasoning	Estimated GEF-6 Investments Need		
			GEF-6	GEF-6	GEF-6
	GEF-6 Period		Scenario 1	Scenario 2	Scenario 3
Scenario 1:	(in Million US \$)		(in Million US \$)		
1) Improvement of border control and quarantine	15.5	30%	4.7		
2) Early warning mechanisms, rapid response measures	31.0	30%	9.3		
3) Implementation of international standards...	18.6	30%	5.6		
4) Global support program for technical assistance and capacity building	2.4	100%	2.4		
Total	67.5		21.9		
Scenario 2:					
1) Improvement of border control and quarantine	18.6	30%		5.6	
2) Early warning mechanisms, rapid response measures	37.2	30%		11.2	
3) Implementation of international standards...	23.3	30%		7.0	
4) Global support program for technical assistance and capacity building	2.4	100%		2.4	
Total	81.5			26.1	
Scenario 3:					
1) Improvement of border control and quarantine	23.3	30%			7.0
2) Early warning mechanisms, rapid response measures	46.5	30%			14.0
3) Implementation of international standards...	31.0	30%			9.3
4) Global support program for technical assistance and capacity building	2.4	100%			2.4
Total	103.2				32.6
Total for Target 9	67.5 - 103.2		21.9	26.1	32.6

Note: the global support program (4) is estimated at \$600,000 per year for 4 years in all Scenarios.

Source: Based on estimates by a CBD Secretariat staff member

4. Estimated Total Investment and GEF-6 Investments Need

Scenario 1 is built with the minimum estimated cost while Scenario 2 and 3 are relatively more expensive since they involve more activities as described in the description of the activities above. This Target will require between \$67.5 million and \$103.2 million US in total investment. The results show also the need for GEF-6 investments of \$21.9 million US in Scenario 1, \$26.1 million US in Scenario 2 and \$32.6 million US in Scenario 3 (Table 9). An important aspect regarding IAS is that it presents an engagement opportunity to cooperate in the control and eradication of existing IAS and the prevention of possible further invasion through inspections. To combat IAS effectively, all stakeholders may need to get together and discuss measures and their implementation. To achieve the spontaneous participation of all bodies, it will be necessary to promote public awareness for Biodiversity and cost sharing, since the invasions are threats to the world (SCBD, 2009). Hence, for this reason Scenario 3 is recommended since it is the one that will yield the most global benefits.

Financial Needs for the GEF-6 Investments:**Scenario 1: GEF-6 Investments: \$21.9 million US****Scenario 2: GEF-6 Investments: \$26.1 million US****Scenario 3: GEF-6 Investments: \$32.6 million US (recommended)**

Scenario 3 at \$32.6 million US is recommended in this case since it will allow various levels of cooperation (national, regional, global) to tackle the problem of invasive alien species.

5. Indicator and Baseline Information

Headline indicators: Relation to CBD decisions and SBSTTA 16 UNEP/CBD/COP/11/2 - ANNEX 1

- Trends in pressures from habitat conversion, pollution, invasive species, climate change, overexploitation and underlying drivers:
 - Trends in the impact of invasive alien species on extinction risk trends (A)
 - Trends in the economic impacts of selected invasive alien species (B)
 - Trends in number of invasive alien species (B) (Decision VII/30)
 - Trends in incidence of wildlife diseases caused by invasive alien species (C)
 - Trends in integration of biodiversity, ecosystem services and benefits sharing into planning, policy formulation and implementation and incentives
 - Trends in policy responses, legislation and management plans to control and prevent spread of invasive alien species (B)
 - Trends in invasive alien species pathways management (C)
- (A) refers to consideration at global level, (B) possibly at global level and (C) at national and other sub-global level.

Possible indicators and baseline information: Process indicators for this target could include the number of countries with national invasive species policies, strategies and action plans, and the number of countries which have ratified international agreements and standards related to the prevention and control of invasive alien species. One outcome-oriented indicator is trends in invasive alien species while other possible indicators could include the status of alien species invasion, and the Red List Index for impacts of invasive alien species. However, well-developed and globally-applicable indicators are lacking, some basic methodologies do exist which can serve as a starting point for further monitoring or provide baseline information. The work undertaken by the Global Invasive Species Programme, as well as by IUCN's Invasive Species Specialist Group, could be useful starting points in this regard. Further, many countries do have data on invasions and pest outbreaks and therefore national-level targets might be developed.

Target 10: By 2015 the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

1. Technical Rationale

In addition to warming caused by the greenhouse effect, increased atmospheric CO₂ leads to ocean acidification. Both pressures need to be considered in elaborating policy response options to climate change for coral reefs and other vulnerable ecosystems. However, given ecological and policy inertias, it is important to urgently reduce the other anthropogenic pressures on these vulnerable ecosystems, such as land-based pollution/sedimentation, unsustainable harvesting and physical pressures, so as to increase their resilience to climate change and ocean acidification. Given this urgency a deadline for 2015 has adopted for this target.

2. Reference to Relevant COP Decisions and GEF Guidance

This target is related to relevant decisions on climate change and biodiversity, marine and coastal biodiversity, and the International Initiative on Food and Nutrition. There are numerous decisions about climate change and biodiversity²². COP 8 Decision VIII/23 on Agricultural biodiversity, addressed cross-cutting initiative on biodiversity for food and nutrition and proposed a corresponding framework. Decisions VII/5, X/29 are also on Marine and coastal biodiversity of which coral reefs are part.

COP – 10 - Decision X/24: Review of Guidance to the Financial Mechanism

4.17 *Agricultural biological diversity*

- (a) Projects that assist with the implementation of the Plan of Action for the International Initiative for the Conservation and Sustainable Use of Pollinators;
- (b) Projects which implement the Convention's programme of work on agricultural biodiversity.

4.19 *Marine and coastal biological diversity*

- (a) Projects that implement the elaborated programme of work on marine and coastal biodiversity;
- (b) Country-driven activities aimed at enhancing capabilities to address the impacts of mortality related to coral bleaching and physical degradation and destruction of coral reefs, including developing rapid response capabilities to implement measures to address coral-reef degradation, mortality and subsequent recovery;
- (c) Projects that promote the conservation and sustainable use of marine and coastal biodiversity under threat;

4.23 *Climate change and biodiversity*

- (a) Capacity-building with the aim of increasing the effectiveness in addressing environmental issues through their commitments under the Convention on Biological Diversity, the United Nations Framework Convention on Climate Change, and the United Nations Convention to Combat Desertification, inter alia, by applying the ecosystem approach;
- (b) Developing synergy-oriented programmes to conserve and sustainably manage all ecosystems, such as forests, wetlands and marine environment that also contribute to poverty eradication;
- (c) Country-driven activities, including pilot projects, aimed at projects related to ecosystem conservation, restoration of degraded lands and marine environments and overall ecosystem integrity that take into account impacts of climate change.

²²Those decisions include: Decision X/33 (Biodiversity and Climate Change); Decision IX/16 (Biodiversity and Climate Change: A. Proposals for the integration of climate-change activities within the programmes of work of the Convention; B. Options for mutually supportive actions addressing climate change within the three Rio Conventions; C. Ocean Fertilization; D. Summary of the findings of the Global Assessment on Peatlands, Biodiversity and Climate Change); Decision VIII/30 (Biodiversity and climate change: guidance to promote synergy among activities for biodiversity conservation, mitigating or adapting to climate change and combating land degradation); Decision VII/15 (Biodiversity and Climate Change).

COP 10 – Decision X/25: Additional guidance to the financial mechanism

Marine and coastal biodiversity

18. *Invites* the Global Environment Facility and other donors and funding agencies, as appropriate, to consider extending support for capacity-building to eligible countries, in order to implement decision X/29, and in particular, with respect to the invitation in paragraph 38 of decision X/29;

19. *Invites* the Global Environment Facility and other donors and funding agencies as appropriate to extend support for capacity-building to eligible countries, in order to identify ecologically or biologically significant and/or vulnerable marine areas in need of protection, as called for in paragraph 18 of decision IX/20 and develop appropriate protection measures in these areas, within the context of paragraphs 36 and 37 of decision X/29;

Biodiversity and climate change

21. *Invites* the Global Environment Facility to consult with the Executive Secretary on ways and means to better inform its Implementing Agencies about decisions made by the Conference of the Parties on biodiversity and climate change, especially those related to enhancing cooperation between the Rio conventions, in order to facilitate the Parties efforts pursuant to such decisions;

22. *Requests* the Executive Secretary, subject to the availability of financial resources to:

(a) In collaboration with the Global Environment Facility, identify indicators to measure and facilitate reporting on the achievement of social, cultural and economic benefits for biodiversity, climate change and combating desertification/land degradation;

(b) In collaboration with the Global Environment Facility and its Implementing Agencies, develop tools to evaluate and reduce the negative impacts of climate change mitigation and adaptation activities on biodiversity based on, *inter alia*, existing frameworks to analyse the potential environmental and cross-sectoral impacts of projects and the environmental safeguard policies in place within the Global Environment Facility Implementing Agencies.

Proposed Milestones

Possible milestones for this Target include:

- By 2012, assess the integrity of coral reefs and pressures arising from land-based pollution/sedimentation as well as from unsustainable fishing and recreational and other activities, and develop a strategy to minimize these;
- By 2012, identify vulnerable marine ecosystems, and undertake assessment of fishing impacts on such ecosystems, and of fishing activities on target and non-target species and to assess, on the basis of the best available scientific information, whether individual bottom fishing activities would have significant adverse impacts on vulnerable marine ecosystems;
- By 2014, fully implement the strategy to minimize pressures on coral reefs arising from land-based pollution/sedimentation as well as from unsustainable fishing and recreational activities.

3. Activities and Investment

By addressing those anthropogenic pressures which are most amenable to rapid positive changes, it may be possible to give vulnerable ecosystems time to cope with the pressures caused by climate change. This would include activities such as reducing pollution coming from coastal and inland agriculture, diver damage, dynamite fishing, overexploitation, harvesting practices, and expanding coastal tourism infrastructure which have negative consequences on ecosystems.

On the other hand about 30% of reefs are severely damaged, badly degraded or under probable risk of collapse and that 60% could be lost by 2030²³. A strong response is needed to restore damaged coral reefs.

²³ http://www.enn.com/top_stories/article/3542

Due to time constraints it is expected that the activities and milestones will not be met, and additionally the target could not be met anytime soon. Hence, activities must be considered in GEF-6 and further on in GEF-7 respectively.

The activities to accomplish this target will consist of the following two elements:

Element 1: improve resilience of coral reefs through reducing multiple pressures.

Reducing the multiple pressures on coral reefs for the benefit of biodiversity, people and their livelihoods is key to enhance the resilience of coral reefs. Improving the quality of local water as an approach could also increase the resistance of coral reefs to global climate change.

As an example, the GEF is the largest contributor of funds to the Coral Triangle Initiative (CTI). To support the Initiative, the GEF Council endorsed, in April 2008, a program of \$63 million that covers biodiversity, international waters, and adaptation to climate change activities. The program has also been able to catalyze more than \$300 million of co-financing for CTI to conserve tuna and coral ecosystems while alleviating poverty²⁴.

Element 2: restoration of damaged coral reefs

Two thirds of the world's coral reefs are under severe threats and need to be restored.

3.1 Activities

Element 1: Improve resilience of coral reefs

Following activities should be covered:

- Assessment of pressures arising from land-based pollution/sedimentation as well as from unsustainable fishing and recreational and other activities, and develop a strategy to minimize these;
- Identification of vulnerable marine ecosystems, and undertake assessment of fishing impacts on such ecosystems,
- Full implementation of the strategy to minimize pressures on coral reefs arising from land-based pollution/sedimentation from coastal and regional agriculture as well as from unsustainable fishing incl. dynamite fishing, diver damage, and coastal tourism infrastructure,
- Establish integrated coastal zone management programmes and marine spatial planning,

Establishing new or improving existing coastal and marine protected areas will be covered by Target 11.

Element 2: Restoration of damaged 30% of coral reefs

- A specific Coral Reef Rescue programme should be envisaged under the GEF International Water Focal Area and Climate Focal Area to restore the most damaged 30% coral reefs.

3.2 Estimates of Investment

Coral reefs cover an area of between 280,000 km² to 300,000 km² in the world and support myriads of species in the 'rainforest of the sea'²⁵. The annual global economic value of coral reefs has been estimated at \$375 billion US (jobs, food, and tourism) by the US the National Oceanic and Atmospheric Administration (NOAA). This represents an average value of around \$6,075 US per hectare of coral reef per year (Edwards and Gomez, 2007).

Element 1: Improvement resilience of coral reefs: This covers the investment of improving resilience for all coral reef regions excluding marine protected areas (MPAs, the costs of which are covered by Target 11).

Estimate of \$30 million US per region is recommended given 8 major coral reef regions.

²⁴ (<http://www.thegef.org/gef/CTI>)

²⁵ <http://www.globalissues.org/article/173/coral-reefs>

3 Options for GEF-6:

- Option 1: Covering programs in 3 regions = \$90 million US
- Option 2: Covering programs in 5 regions = \$150 million US
- Option 3: Covering programs in 8 regions = \$240 million US

A Splitting GEF-6 and GEF-7 (e.g. 80/20 %) can be considered.

Element 2: Restoration of damaged 30% coral reefs: Cost of restoration of coral reef varies significantly from place to place and by restoration type between a couple of thousands US per hectare to about *\$13,000 US per hectare* (e.g. in Tanzania, Fiji and Philippines) in low cost active biological restoration projects to nearly \$7 million US per hectare in ship grounding projects in the Caribbean's (Edwards and Gomez, 2007).

The estimates of community based projects are between \$2000 US/ha for transplanting two corals per m² and \$4,590US/ha for increasing coral cover on patches of reef from 10% to 20%-transplanting (Edwards and Gomez, 2007).

Coral transplantation may be the simple and cheap solution of reef restoration in some cases²⁶.

Assuming to achieve target 10 immediate intervention is required in 30% of the reefs, 84,000km² (or 8,400,000ha) to 90,000km² (or 9,000,000ha);

- Using the lowest estimate of restoration costs (**\$2,000 US/ha**) gives 16.8 billion US to 18 billion US. The \$18 billion investment is recommended. The results are presented in **Table 10**.

Remark: In terms of verifying cost estimates the Coral Reef Targeted Research & Capacity Building for Management (CRTR) Program which the GEF already works with should be consulted for review.²⁷

3.3 Incremental reasoning

““GEF grant to co-financing ratios reflect the nature of each project, the global environmental benefits that are to be generated, the incremental costs to achieve the global environmental benefits, the nature of the baseline which the project complements, and the presence and contributions of other co-financiers. In practice, the GEF seeks to leverage the maximum amount possible and the ratio of GEF funds to co-financing has thus ranged from 1:2 to as high as 1:10 in the biodiversity focal area with an average amount of 1:4 currently. This ratio is driven primarily by the global benefits that will be generated and the incremental costs of generating said benefits, all other things being equal.”

Coral reefs are very important sources of revenue in many countries. The first element, improvement of resilience of coral reefs has been evaluated at 50% of incremental costs, as all activities will generate substantial global benefits.

The second element has been evaluated at 10%, 25%, and 50% of GEF grant shares in total investment due to the level of activities in reducing carbon in place. If an ambitious carbon reduction regime is in place the share might be less, but if no carbon regime at all is envisaged the share should be higher.

4. Estimated Total Investment and GEF-6 Investments Need

This Target would require between \$18.09 billion to \$18.24 billion US in total investment. For activities related to resilience in 3 regions, the amount that would be needed for the GEF-6 investments would be \$45 million US for three regions(Scenario 1), \$75 million US for 5 regions (Scenario 2) and \$120 million US for 8 regions (Scenario 3) using the above funding rates.

²⁶ <http://www.sciencedaily.com/releases/2007/03/070315171139.htm>

²⁷ ([http://www.gefcoral.org/...](http://www.gefcoral.org/))

The restoration of the most damaged 30% would cost substantially more than activities related to resilience of coral reefs. The scenarios in this case depend on the GEF funding rates to save the most damaged 30% of the reefs. At 10% funding the amount that would be required is \$1.8 billion US; at 25%, \$4.5 billion US and at 50% \$9.0 billion US.

These funding levels are justifiable in the sense that they will help avoid costs of policy inaction by acting early to save the areas that are expected to be lost during the next 15 years or so. Coral reefs are very productive ecosystems in the sense that not only do they support enormous biodiversity but they are also of substantial value to human societies. GEF can play the role of a catalyst for leveraging more funds from other sources, by reducing its share compared to the first option.

Table 10: Estimated GEF-6 investments need for Target 10

Selected Activities For Target 10	Estimated Investment	Incremental Reasoning	Estimated GEF-6 Investments Need		
	GEF-6 Period		GEF-6 Scenario 1	GEF-6 Scenario 2	GEF-6 Scenario 3
Scenario 1:	(in Million US \$)		(in Million US \$)		
1) Resilience in 3 Regions	90	50%	45		
2) Restoration of the most damaged 30%	18,000	10%	1,800		
Scenario 2:					
1) Resilience in 5 Regions	150	50%		75	
2) Restoration of the most damaged 30%	18,000	25%		4,500	
Scenario 3:					
1) Resilience in 8 Regions	240	50%			120
2) Restoration of the most damaged 30%	18,000	50%			9,000
Element 1	90 - 240		45	75	120
Element 2	18,000		1,800	4,500	9,000
Total for Target 10	18,090 - 18,240		1,845	4,575	9,120

Source: Based on estimates by the Experts at the Second Expert Meeting in Tokyo, Japan, 18-20 December 2011 and the Third Expert Meeting in Quito, Ecuador, 3-5 March 2012.

Financial Needs for the GEF-6 Investments:

Scenario 1: GEF-6 Investments: \$1.845 billion US

Scenario 2: GEF-6 Investments: \$4.575 billion US (recommended)

Scenario 3: GEF-6 Investments: \$9.12 billion US

The Expert Team members recommended Scenario 2 with **\$4.58 billion US** for the GEF-6 investment. However, Scenario 3 would still be ideal since it will help increase the number of regions and help restore a relatively larger portion of the most damaged coral reefs.

5. Indicators and Baseline Information

Headline indicators: Relation to CBD decisions and SBSTTA 16 UNEP/CBD/COP/11/2 - ANNEX 1

- *Trends in pressures from habitat conversion, pollution, invasive species, climate change, overexploitation and underlying drivers:*
 - Extinction risk trends of coral and reef fish (A)
 - Trends in climate change impacts on extinction risk (B)
 - Trends in coral reef condition (B)
 - Trends in extent, and rate of shifts of boundaries, of vulnerable ecosystems (B)
 - Trends in climatic impacts on community composition (C)
 - Trends in climatic impacts on population trends (C)

(A) for use at the global level, (B) possibly at the global level and (C) at national or other sub-global level.

Possible indicators and baseline information: Indicators for this target include the Marine Trophic Index, the incidence of human-induced ecosystem failure, the health and well-being of communities who depend directly on local ecosystem goods and services, and trends in coral bleaching. Other possible indicators include the Ecological Footprint and related concepts. Process indicators could include the number of plans, programmes and strategies related to the protection and management of marine and coastal ecosystems.

Target 11: By 2020, at least 17 per cent of terrestrial and inland water areas and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider lands

1. Technical Rationale

Well governed and effectively managed protected areas are a proven method for safeguarding both habitats and populations of species and for delivering important ecosystem services. Currently, some 13 per cent of terrestrial areas and 5 per cent of coastal areas are protected, while very little of the open oceans are protected. The current target of 10 per cent protection for each ecological region has been achieved in approximately 55 per cent of all terrestrial eco-regions. Therefore reaching this target implies a modest increase in terrestrial protected areas globally, with an increased focus on representivity and management effectiveness. It further implies that major efforts to expand marine protected areas would be required. A focus on representivity is crucial as current protected area networks have gaps, and some fail to offer adequate protection to many species and ecosystems. These gaps include many sites of high biodiversity value such as Alliance for Zero Extinction sites and Important Bird Areas. Particular emphasis is needed to protect critical ecosystems such as tropical coral reefs, sea-grass beds, deepwater cold coral reefs, seamounts, tropical forests, peat lands, freshwater ecosystems and coastal wetlands.

2. Reference to Relevant COP Decisions and GEF Guidance

This target is related to relevant decisions on protected areas, dry and sub-humid lands biodiversity, inland waters biodiversity, island biodiversity, marine and coastal biodiversity, mountain biodiversity and Global Strategy for Plant Conservation. There are numerous decisions on Protected Areas: (Protected areas – In-Situ Conservation: X/31, IX/18; VIII/24, VII/28, III/9, II/7-8 Ex-Situ and In-Situ Conservation).

COP 10: Decision X/24: Review of Guidance to the financial mechanism

4.4 Conservation and protected areas (Article 8(A)-(F))

- i. Community-conserved areas;
- ii. National and regional systems of protected areas;
- iii. Country-driven early action activities of the programme of work on protected areas;
- iv. Addressing the long-term financial sustainability of protected areas, including through different mechanisms and instruments;
- v. Further development of the portfolio on protected areas towards comprehensive, representative and effectively managed protected area systems addressing system wide needs;
- vi. Projects that demonstrate the role-protected areas play in addressing climate change;
- vii. Capacity-building activities for the implementation of the Global Strategy for Plant Conservation;
- viii. Projects that promote the conservation and/or sustainable use of endemic species.

Programme priorities 4.19 Marine and coastal biological diversity

- (c) Projects that promote the conservation and sustainable use of marine and coastal biodiversity under threat

COP 10: Decision X/25: Additional guidance to the financial mechanism

Protected areas

10. *Recalling* paragraph 1 of its decision IX/18 B, *further urges* Parties, in particular developed country Parties, and *invites* other Governments and international financial institutions including the Global Environment Facility, the regional development banks, and other multilateral financial institutions to provide the adequate, predictable and timely financial support, to eligible countries to enable the full implementation of the programme of work on protected areas;

11. *Urges* the Global Environment Facility and its Implementing Agencies to streamline their delivery for expeditious and proportionate disbursement and to align the projects to national action plans for the programme of work on protected areas for appropriate, focused, sufficient and harmonious interventions of projects;

COP 10 decisions X/ 31 on protected areas especially sections A (strategies for strengthening implementation) and B(issues that need greater attention) and X/29 on marine and coastal biodiversity, the marine protected areas component provides impetus for undertaking activities for achieving the target.

Proposed Milestones

Possible milestones for this Target include:

- By 2012, in the marine area, a global network of comprehensive, representative and effectively-managed national and regional protected area systems is established;
- By 2012, all protected areas are effectively and equitably managed, using participatory and science-based site planning processes that incorporate clear biodiversity objectives, targets, management strategies and monitoring and evaluation protocols;
- By 2015, all protected areas and protected area systems are integrated into the wider land- and seascape, and relevant sectors, by applying the Ecosystem Approach and taking into account ecological connectivity, likely climate change impacts and, where appropriate, the concept of ecological networks.

3. Activities and Investment

Protected areas should be integrated into the wider land- and seascape, and relevant sectors, bearing in mind the importance of complementarity and spatial configuration. In doing so, the Ecosystem Approach should be applied taking into account ecological connectivity and the concept of ecological networks, including connectivity for migratory species (through, for example, “fly-ways” for migratory birds). Protected areas should also be established and managed in close collaboration with, and through equitable processes that recognize and respect the rights of indigenous and local communities, and vulnerable populations. These communities should be fully engaged in governing and managing protected areas according to their rights, knowledge, capacities and institutions, should equitably share in the benefits arising from protected areas and should not bear inequitable costs.

- IUCN'S Guidelines for applying protected area management categories recognizes four broad types of governance of protected areas, any of which can be associated with any management objective. These categories include governance by government, shared governance, private governance, and governance by indigenous peoples and local communities. These cut across all categories of protected areas.
- Other effective area based conservation measures may also include restrictions on activities that impact on biodiversity, which would allow for the safeguarding of sites in areas beyond national jurisdiction in a manner consistent with the jurisdictional scope of the Convention as contained in Article 4.
- Work towards this target could also be linked to the more specific targets under the programme of work on protected areas and the Global Strategy for Plant Conservation.
- The World Parks Congress is a further resource which can be drawn upon when taking actions towards this target.

Protected areas could be complemented by limits to processes and activities harmful to biodiversity that are under the jurisdiction or control of Parties, including in areas beyond national jurisdiction, while ensuring that such limits do not infringe on the rights of indigenous or local communities, or vulnerable populations.

Past GEF funding for protected areas: The Global Environment Facility is the largest funding mechanism for protected areas worldwide (Zimsky, 2010). The GEF has invested in over 2,302 protected areas, covering more than 634 million hectares, an area with at least 700 globally threatened species. The GEF has provided more than \$1.89 billion to fund protected areas, leveraging an additional \$5.95 billion in co-financing from project partners. In addition, the resources allocated to supporting PA system projects have increased during each

successive GEF replenishment cycle. In GEF-4 (2007-2010) approximately \$450 million out of the \$1 billion biodiversity allocation was nominally directed for PA systems. Likewise in GEF-5 (2010-2014) approximately \$700 million of the \$1.2 billion biodiversity allocation is for PAs. In addition other GEF initiatives such as the Small Grants Programme and the Critical Ecosystem Partnership Fund have also contributed significantly to protected areas. As per the guidance given by the COP in decision VII/28, the GEF launched a UNDP/GEF project to support implementation of the Program of Work on Protected Areas (PoWPA).

In GEF-4, through the international waters and biodiversity focal area, \$471 million was invested in marine and freshwater biodiversity conservation and sustainable use. Of this amount, GEF supported 25 marine biodiversity projects totaling \$101 million which leveraged \$411 million. The GEF has been a leader in helping establish sustainable financing mechanisms to support the operation of national protected area systems in developing countries through more than 90 projects that involve conservation trust funds, payment for ecosystem services schemes, revolving funds, private sector and village funds, and other innovative financial mechanisms to provide steady, reliable funding for protected area management and biodiversity conservation in developing countries. The GEF is recognized as a pioneer in supporting more than 40 conservation trust funds worldwide, investing more than \$300 million in total.

GEF-4 support to catalyzing sustainable protected area systems is being channeled through three strategic programs: a) sustainable financing of protected area systems at the national level; b) increasing representation of effectively managed national marine protected area networks in protected area systems; and c) strengthening terrestrial protected area networks. Addressing the drivers of biodiversity loss and sustainable protected area systems was the centerpiece of the GEF protected area strategy for GEF-4 (2006-2010) and GEF-5 (2010-2014) as described below:

- The vast majority of GEF-4 PA projects are focused on system sustainability;
- Sufficient and predictable resources available to support PA management costs;
- Effective protection of ecologically viable samples of a country's ecosystems (marine focus with terrestrial coverage that supports filling global gaps, i.e., inland waters) provides adequate coverage of threatened species at sufficient scale to ensure long-term persistence (GEF-5);
- Individual and institutional management capacity.

Available information on estimated needs based on submissions from Parties

In the programme of work on protected areas, the Conference of the Parties to the Convention called for establishment and implementation of country-level sustainable financing plans by 2008 for ensuring financial sustainability of national systems of protected areas²⁸. The assessment of financial needs and gaps for implementing the programme of work is one of the first steps in developing sustainable financing plans. To date, only a few countries are in the process of completing country-level sustainable financing plans. Information on financial needs assessment for implementing the programme of work is available for few least developed countries, small island developing states, other developing countries and countries with economies in transition (**Annex Table 1**). Bovarnick et al 2010, in their UNDP and TNC study described financing gaps in 18 Latin American countries estimated under both basic and optimal management scenarios (**Annex Table 2**). The financing gap in Namibia under two expenditure scenarios is presented in (**Annex Table 3**).

3.1 Activities

Examples of activities include: protection of critical areas identified in line with Annex I to the Convention on Biological Diversity (high biodiversity areas and areas providing critical services); cooperation with indigenous and local communities; effective and sustainable management of protected areas; integration of protected areas into the wider land- and seascape; application of the ecosystem approach taking into account connectivity; and limiting processes/activities harmful to biodiversity.

Establishment of comprehensive, ecologically representative, effectively managed and financially secured protected area networks is a critical strategy not only for biodiversity conservation, but for securing ecosystem

²⁸ Activity 3.4.2 of the programme of work on protected areas (Decision VII/28).

goods and services, enabling climate change adaptation and mitigation, and helping countries achieve the Millennium Development Goals. Recognizing these critical roles of protected areas, the Parties to the Convention on Biological Diversity (CBD) in February 2004 committed to a comprehensive and specific set of actions known as the Programme of Work on Protected Areas (PoWPA). By emphasizing the equitable sharing of costs and benefits, recognizing various governance types and by giving prominence to ecological representation, management effectiveness and multiple benefits, the PoWPA is the most comprehensive global plan of action for effective implementation of protected areas and is considered as a defining framework or “blueprint” for protected areas for the next decades. As the elements of Target 11 incorporate the tenets of the PoWPA, its further effective implementation and implementation of marine protected areas component of decision X/29 on coastal and marine biological diversity holds the key for achieving Target 11. PoWPA implementation also helps toward achieving other Aichi Targets 1, 2, 5, 10, 12, 14, 15 and 18. The following activities which have already been agreed in decisions XI/18 and X/31 are required to be undertaken for achieving Target 11:

- Institutionalize management effectiveness assessment towards assessing 60% of the total areas by 2015 and ensure that the results of the assessments are implemented;
- Completion of ecological gap analysis for identifying “ecologically representative areas” (including unprotected IBAs, KBAs etc) and implement the results;
- Integration of protected areas into wider land and seascapes to showcase mainstreaming of biodiversity with other sectors and ecosystem based approaches to adaptation to climate change adaptation and leading to mitigation through carbon sequestration;
- Recognition of ICCAs including through acknowledgement in national legislation or other effective means, formal inclusion in the national systems, and practicing of various governance types;
- Development and implementation of sustainable finance plans for protected area systems;
- Valuation of PA goods and services.

In GEF-5 under the biodiversity focal area, strategic objective 1 “Improve the sustainability of protected area systems” the following activities are included²⁹:

- Improve Sustainable Financing of Protected Area Systems
- Expand Marine and Terrestrial Ecosystem Representation
- Expand Threatened Species Representation
- Improve Management Effectiveness of Existing Protected

3.2 Estimates of Investment

The elements of protected area financing system addresses two key questions (i) what has to be financed ?; (ii) how much does it cost?

What has to be financed? Bruner *et al* (2004) described three categories of protected area expenses: (i) recurrent management costs for existing PAs; (ii) system wide expenses to support a network of protected areas, and (iii) costs of bringing new PAs and ensuring their effective management. An accurate and comprehensive assessment of management needs across a PA system enables informed decisions on funding needs, priorities and opportunities for savings. Bovarnick *et al* (2010) in their UNDP and TNC study reported the following six expenditure categories used in Latin American countries grouping hundreds of different items and resources needed for PA management:

Recurrent Costs (operational)

- Human resources: (salaries for park staff, scientist, community liaison officers, tourism and financial specialists etc.)
- Maintenance: office and vehicles, path maintenance, patrolling
- Utilities: water, electricity and communications
- Basic equipment: GPS devices, boots, uniforms etc.

²⁹ Presentations on GEF focal area strategies in GEF Expanded Constituency Workshops: <http://www.thegef.org/gef/node/4452>

Capital costs (investments)

- Infrastructure, capital equipment, vehicles, visitor centre, ranger towers, demarcation posts, roads etc.
- Professional services for base level studies, ongoing training etc.

Bruner *et al* (2004) added system wide expenses which include national and regional administration, new site selection, budgeting, and securing financial allocation within political system to support the network. The establishment costs for new protected areas include designation costs (e.g., stakeholder consultations, biological inventories, boundary demarcation, land purchase, and compensation) and up front purchases, construction and planning.

How much does it cost? Examples of information on cost estimates for various PA management activities in Costa Rica, Peru and Ecuador taken from Flores *et al* (2008) are given in **Annex Figure 1**. Namibia has also estimated costs attributable to the parks system (**Annex Table 4**).

3.2.1 Terrestrial Protected Areas (PAs)

Method 1 based on GEF-4 and GEF-5 cost estimates: Using data from the GEF council documents for GEF-4 and GEF-5 replenishments as a basis, the needs for GEF- 6 and GEF-7 can be estimated in order to achieve Target 11 of the Strategic Plan for Biodiversity 2011-2020. In the GEF council document GEF/C.37/3, in the summary of negotiations of the fifth replenishment of the GEF trust fund³⁰ dated May 17, 2010 paragraph 49 reads as follows:

“The achievements made by the global community with GEF support must be further consolidated through enhancing the sustainability of protected area systems such that they continue to deliver the global benefits of: (i) biodiversity (indirect use and option values, and existence values particularly with regards to threatened species); (ii) provision of ecosystem goods and services, including contributions to climate mitigation; and (iii) ecosystem-based adaptation. Therefore, an investment of \$700 million will be made to improve the management effectiveness of protected areas covering an estimated 170 million hectares, thus continuing GEF’s prioritization in helping countries implement their obligations under the CBD Programme of Work on Protected Areas. The additional investment in 170 million hectares of protected areas under effective management for biodiversity conservation would total about 14% of the area of existing terrestrial protected areas in GEF-eligible countries or about 23% of the area of existing marine protected areas in GEF-eligible countries”

- a. In the GEF council document GEF/C.29/3, in Table 3 on expected outcomes and targets for GEF-4 biodiversity strategic objectives it was suggested to support at least 80 million hectares of protected areas based on FY91-04 of GEF support to protected areas. The average conservative estimate applied towards the target was: \$5/ha per PA³¹. In GEF-5, \$700 million US is programmed for the replenishment period (four years) to improve effective management of 170 million hectares at \$4.1/ha. These 170 million hectares would cover 14% of the existing terrestrial PAs in GEF eligible countries or 23% of existing Marine PAs in GEF-eligible countries. Given the two above estimates of cost of management effectiveness (\$5/ha and \$4.1/ha) an average of the two can be used (*i.e.* \$4.55/ha) for the estimation of the amount of fund that would be needed during the GEF-6 replenishment period.
- b. **Effective management of existing PAs:** According to the MDG, 2011 report, 13.3% of the terrestrial surface or 10 738 311.73 square km is currently protected in developing countries³². This is equivalent to 1 073 831 173 hectares of which 86% or 923 494 809 hectares still need investment for effective management of existing PAs for biodiversity conservation. This amounts to: 923,494,809ha x \$4.55/ha = \$4,201,901,381 US or \$4.2 billion US for four years.

³⁰<http://www.thegef.org/gef/sites/thegef.org/files/documents/C.37.3%20Summary%20of%20Negotiations%20of%20the%20Fifth%20Replenishment%20of%20the%20GEF.pdf>

³¹ <http://www.thegef.org/gef/sites/thegef.org/files/documents/C.29.3%20Summary%20of%20Negotiations.pdf>

³² <http://unstats.un.org/unsd/mdg/Data.aspx>.

- c. **Effective management of the expanded PAs:** The results for different percentages of expansion are presented in **Table 11-1**. For example, to reach the global target of 17% terrestrial protection in developing countries, the current percentage of PA needs to increase to increase by 3.7%, or by 298 734 988 hectares³³. The cost of effective management of this additional area is 298 734 988 X\$4.55 US or \$1 359 244 195 US.

Table 11-1: Effective management costs of the expanded PAs to reach 16%, 17% and 18% global targets

To reach global targets	Expansion of PA by 2018		
	16%	17%	18%
Required increase from current (in %)	2.7	3.7	4.7
Required increase (in hectare)	217,995,802	298,734,988	379,474,174
Cost (in US \$ per hectare) for four years	4.55	4.55	4.55
Total cost of effective management of expanded area (in US \$)	991,880,899	1,359,244,195	1,726,607,491

- d. **Establishment costs of expansion:** The results for establishment costs of expanding to reach different percentages of global target are found in **Table 11-2**. The cost of expanding 311 575 442 hectares is \$2 billion US per year (Bruner et al, 2004). Hence, for example to reach a global target of 17%, the establishment cost of the additional 298 734 988 hectares becomes: \$1,917,577,240 per year or \$7.67 billion US for the four years between 2014 and 2018.

Table 11-2: Establishment costs of expanding to reach 16%, 17% and 18% global targets

To reach global targets	Expansion of PA by 2018		
	16%	17%	18%
Area to be established in hectares to reach the % increase	217,995,802	298,734,988	379,474,174
Cost per hectare (\$US) for four years	6.4	6.4	6.4
Establishment cost of expansion (in \$ US per year)	1,399,313,121	1,917,577,240	2,435,841,358
Total Establishment cost of expansion (in \$ US for 4 years)	5,597,252,483	7,670,308,958	9,743,365,434

The overall results from Method 1 indicate required investment needs of \$10,791 million, \$13,231 million and \$15,672 million US for the targets to reach 16%, 17% and 18% respectively during the GEF-6 period, 2014-2018. The results are summarized in **Table 11-4** together with the results from method 2 presented below.

Method 2 based on existing literature: Based on several previous studies on financial needs of terrestrial protected area systems in developing countries, analysis of management plans, information derived from questionnaire survey and multiple regression models of variation in annual protected area management cost, Bruner *et al* (2004)³⁴ presented terrestrial protected area management costs in developing countries. They reported that the total annual cost for effective management of the existing protected areas in developing countries ranges from \$ 1.1 billion US to \$2.5 billion US per year and the funding shortfall (total cost minus current funding) varies between \$1.0 and \$1.7 billion US per year. They concluded that as the lower estimate does not include system wide costs, the funding shortfall should be greater than \$1 billion US and the midpoint of \$1.3 billion US should be a best estimate.

This paper was published in 2004 and the funding short fall of \$1.3 billion US corresponded to the terrestrial protected areas in developing countries in 2005, which was 10 546 051.77 km² or 13% of the terrestrial surface of developing countries. In 2011, terrestrial protected areas cover 13.3% (10 738 311.7 km²) therefore the funding short fall for effective management is **\$1.33 billion US per year** by extrapolating the 1.3 billion short fall

³³ (1 073 831 173 ha x 17/13.3) - 1 073 831 173 = 298 734 988 hectares

³⁴ IBID

reported by Bruner *et al* (2004). Taking into account the cost of land acquisition, compensation payments, infrastructure and equipment among other, the study reported that the cost of expanding terrestrial protected areas to cover 30% of the terrestrial surface of developing countries could cost as much as \$9 billion US per year for one decade. Since target 11 stipulates 17% terrestrial surface as a global target, the cost of expanding terrestrial protected areas from the current 13.3% to 17% amounts to **\$1.92 billion US**.

Bruner *et al* (2004) also reported that the average per hectare management costs for new protected areas is likely to be greater than that for existing protected areas and the annual management costs for the expanded protected areas would be \$1.8 billion US per year for a 30 % terrestrial surface expansion. So the effective management of 3.7% expanded terrestrial protected areas in developing countries costs \$391 million per year or \$1,564 for four years (**Table 11-3**).

Thus the total requirement of funds for effective management of existing terrestrial protected areas, expanding them to cover 17% of the terrestrial surface and their effective management in developing countries, as per Bruner *et al* (2004) can be estimated:

- **Effective management of existing protected areas equals to \$1,330 million US \$ per year or \$5,320 million US for four years;**
- **Establishment costs of expansion to reach 16%, 17% and 18% global target are given in Table 11-2, and equal to \$5.6 billion US, \$7.7 billion US and \$9.7 billion US respectively using the information that it requires \$1.92 billion US to expand to 17%;**
- **Effective management of the expanded protected areas being \$391 million US per year (3.7% more to reach the 17%), the costs to reach 16% and 18% are presented in Table 11-3.**

Table 11-3: Effective management cost of expanded protected areas to reach 16%, 17% and 18% targets

To reach global targets	Expansion of PA by 2018		
	16%	17%	18%
Required increase from current (in %)	2.7	3.7	4.7
Cost of effective management of expanded area (in US \$/year)	285,324,324	391,000,000	496,675,676
Total cost of effective management of expanded area (in US \$)	1,141,297,297	1,564,000,000	1,986,702,703

Following method 2, the total investment requirements for the four years of the GEF-6 period become \$12,058 million, \$14,554 million and \$17,050 million US for the targets to reach 16%, 17% and 18% PAs respectively. These results are summarized and presented in **Table 11-4** together with the method 1 results.

The estimated investments need for the GEF-6 is discussed under the section 4.

Table 11-4: Estimated GEF-6 investments need for Target 11: Terrestrial PAs

Selected Activities For Target 11: Terrestrial PAs	Estimated Investment GEF-6 Period		Incremental Reasoning	Estimated GEF-6 Investments Need					
				Scenario 1		Scenario 2		Scenario 3	
	Method 1	Method 2		Method 1	Method 2	Method 1	Method 2	Method 1	Method 2
Scenario 1: Reaching 16% by 2018 (GEF-6)	(in Million US \$)			(in Million US\$)					
1) Effective management of existing PAs	4,202	5,320	50%	2,101	2,660				
2) Establishment cost of expanding to reach 16% PA	5,597	5,597	50%	2,799	2,799				
3) Effective management of the expanded area	992	1,141	50%	496	571				
Total	10,791	12,058		5,395	6,029				
Scenario 2: Reaching 17% by 2018 (GEF-6)						2,101	2,660		
1) Effective management of existing PAs	4,202	5,320	50%						
2) Establishment cost of expanding to reach 17% PA	7,670	7,670	50%						
3) Effective management of the expanded area	1,359	1,564	50%						
Total	13,231	14,554				6,616	7,277		
Scenario 3 : Reaching 18% by 2018 (GEF-6)								2,101	2,660
1) Effective management of existing PAs	4,202	5,320	50%						
2) Establishment cost of expanding to reach 18% PA	9,743	9,743	50%						
3) Effective management of the expanded area	1,727	1,987	50%						
Total	15,672	17,050						7,836	8,525
Total for Target 11: Terrestrial PAs	10,791 - 15,672	12,058 - 17,050		5,395	6,029	6,616	7,277	7,836	8,525

Source: Based on estimates by CBD Secretariat staff member.

3.2.2 Marine Protected Areas (MPAs)

General Information

Global marine PA stats in a nutshell using the same source as the MDG analysis below:

- **Percentage and area of MPAs under national jurisdiction (0-200 nautical miles) worldwide:** 4.0% or 5,687,034 km²
- **Percentage and area of MPAs under coastal waters (0-12 nautical miles) worldwide:**
; Currently 7.2% or 1 430 485 km² of coastal waters (0-12 nautical miles) are protected.
For 8% protection, 158 943 km² should be added
For 10% protection, 556 299 km² should be added
For 15% protection, 1 549 692 km² should be added
- **Percentage and area of MPAs under Exclusive Economic Zones (EEZ) (12-200 nautical miles) worldwide:**
Currently 3.5% or 4 256 549km² of EEZ (12-200 nautical miles) are protected
For 5% protection, 1 824 235 km² should be added
For 8% protection, 5 472 706 km² should be added
For 10% protection, 7 905 019 km² should be added
- **Percentage of the total ocean area (including Areas Beyond National Jurisdiction (ABNJ) and national jurisdiction) that is protected:** 1.6% or 5,700,000 km².

Using this real time data, requirements for reaching 8-15% protection of coastal waters and 5-10% of EEZ areas are calculated. For establishment costs, the median cost of \$2,315 US per km² and annual maintenance cost of \$1,253 US per km² are considered. Although this information is for the world, it provides reasonable approximations of investment requirements in GEF eligible developing countries.

Accurate information of the existing PAs in ABNJ is not available currently. Toropova et al (2010) published a clear account on global ocean protection. Based on this information and from the HSMPAs in the OSPAR framework, it is possible to reasonably estimate the size of an average MPA in ABNJ. For example the Pelagos Sanctuary of Italy, France and Monaco; the CCAMLR's South Orkneys MPA in southern oceans surrounding Antarctic and other MPAs declared by RFMOs ranged from 90,000 Km² to 125,000 Km². Considering the economies of scale, the larger the MPA the lesser the maintenance and establishment costs per unit area (i.e. per km²). For ABNJ, median cost for 50,000 km² MPA reported in the model of McCrea-Strub et al (2011) in marine policy is considered. This comes to \$254 US per km² establishment costs and \$33 US per km² for annual maintenance. Considering that 1.6% or 5 700 000 km² of oceans are under protection (although this is not very accurately provides the area under ABNJ) the corresponding estimates to arrive at 5%; 8% and 10% coverage of ABNJ are arrived at by extrapolation and establishment and maintenance costs estimated.

The Scenarios used and the results from Methods 1 and 2 used to generate the estimates are presented in Table 11-5.

Table 11-5: Estimated GEF-6 investments need of Target 11: Marine Protected Areas (MPAs)

Selected Activities For Target 11: MPAs	Estimated Investment		Incremental Reasoning	Estimated GEF-6 Investments Need					
	GEF-6 Period			Scenario 1		Scenario 2		Scenario 3	
	Method 1	Method 2		Method 1	Method 2	Method 1	Method 2	Method 1	Method 2
Scenario 1: To achieve	(in Million US \$)			(in Million US \$)					
A. 8% PAs in coastal waters (0-12 nautical miles)									
(i) effective management of existing PAs	651	7,170	50%	325	3,585				
(ii) establishment costs of expansion to 8% coastal waters	368	368	50%	184	184				
(iii) effective management of expanded PAs	72	797	50%	36	398				
B. 5% PAs in EEZ (12-200 nautical miles)									
(i) effective management of existing PAs	1,937	21,334	50%	968	10,667				
(ii) establishment costs of expansion to 5% coastal waters	4,223	4,223	50%	2,112	2,112				
(iii) effective management of expanded PAs	830	9,143	50%	415	4,572				
C. 5% PAs ABNJ									
(i) effective management of existing PAs		752	100%		752				
(ii) establishment costs of expansion to 5% coastal waters		4,524	100%		4,524				
(iii) effective management of expanded PAs		2,351	100%		2,351				
Total	8,081	50,661		4,041	29,144				
Scenario 2: To achieve									
A. 10% PAs in coastal waters (0-12 nautical miles)									
(i) effective management of existing PAs	651	7,170	50%			325	3,585		
(ii) establishment costs of expansion to 10 coastal waters	1,288	1,288	50%			644	644		
(iii) effective management of expanded PAs	253	2,788	50%			127	1,394		
B. 8% PAs in EEZ (12-200 nautical miles)									
(i) effective management of existing PAs	1,937	21,334	50%			968	10,667		
(ii) establishment costs of expansion to 8% coastal waters	12,669	12,669	50%			6,335	6,335		
(iii) effective management of expanded PAs	2,490	27,429	50%			1,245	13,715		
C. 8% PAs ABNJ									
(i) effective management of existing PAs		752	100%				752		
(ii) establishment costs of expansion to 8% coastal waters		5,791	100%				5,791		
(iii) effective management of expanded PAs		3,009	100%				3,009		
Total	19,288	82,230				9,644	45,891		
Scenario 3: To achieve									
A. 15% PAs in coastal waters (0-12 nautical miles)									
(i) effective management of existing PAs	651	7,170	50%					325	3,585
(ii) establishment costs of expansion to 15% coastal waters	3,588	3,588	50%					1,794	1,794
(iii) effective management of expanded PAs	705	7,767	50%					353	3,884
B. 10% PAs in EEZ (12-200 nautical miles)									
(i) effective management of existing PAs	1,937	21,334	50%					968	10,667
(ii) establishment costs of expansion to 10% coastal waters	18,300	18,300	50%					9,150	9,150
(iii) effective management of expanded PAs	3,597	39,620	50%					1,798	19,810
C. 10% PAs ABNJ									
(i) effective management of existing PAs		752	100%						752
(ii) establishment costs of expansion to 10% coastal waters		7,600	100%						7,600
(iii) effective management of expanded PAs		3,950	100%						3,950
Total	28,777	110,080						14,389	61,191
Total for Target 11: Marine PAs (MPAs)	8,081 - 28,777	50,661 - 110,080		4,041	29,144	9,644	45,891	14,389	61,191

Source: Based on estimates by CBD Secretariat staff member.

Method 1 based on GEF-4 and GEF-5 cost estimates:

1. **Effective management of existing MPAs:** According to the MDG 2011 report, 4% of the marine surface in developing countries, or 461 564 sq. km (46 156 400 ha) is currently protected. 77% or 35 540 428ha of this

area still needs investment for effective management³⁵. Cost estimate of **\$4.55 per ha or \$455 US per Km²** for four year is used.

2. **Effective management cost of the expanded area to reach the 10% global target:** Currently 4% (or 46 156 400 ha) of the terrestrial surface in developing countries is protected. To reach the global target of 10% marine protection this area needs to increase by 69 234 600 ha³⁶.
3. **Establishment cost of the expanded area to reach the 10% global target** (McCrea-Strub et al 2011) is \$1,602 million or 1.6 billion US\$ (one time cost) and therefore, **\$2,315 US/km²**.

Using these estimates and the general information provided as well as scenarios built based on different percentage increases the results from method 1 are presented in **Table 11-5** (above) under estimated investment - method 1. The results indicate that total estimated investment requirements for the GEF-6 period would range **from \$8.1 billion US to \$28.8 billion US depending on the scenario (excluding ABNJ)**.

Method 2 based on existing literature:

Balmford *et al* (2004) developed a model to predict total maintenance costs per unit area of marine protected areas based on a survey of 83 MPAs worldwide. Cullis-Suzuki and Pauly (2010) applying the model of Balmford *et al* (2004) estimated the annual maintenance cost of the current global network of MPAs. Annual running costs per unit area were higher in MPAs that were smaller and closer to coasts. Using the models extrapolating the data, this study suggested that a global MPA network conserving 20-30% of world's seas might cost \$5-\$10 billion US annually to maintain (**Annex Figure 2**)

McCrea-Strub *et al* (2011) studied 13 MPAs from Asia, Africa, Latin America and North America and described the various components and establishment costs of MPAs. The variation in MPA start-up costs was most significantly related to both MPA size and the duration of the establishment phase. While the total establishment cost is expected to be higher for larger MPAs, when considered per unit of area smaller MPAs may be more expensive to establish than large MPAs, reflecting economies of scale. The estimated total establishment cost (EC) and annual maintenance cost (MC) for MPAs of 50 km² and 1,000,000 km² size, varied from \$60 US per km² to 69,990 US\$ per km² (EC) and \$3 US per km² to \$7,723 US per km² per year (MC). EC and MC for 500 km² MPA are **\$2,315 US per km²** and **\$1,253 US per km² per year** respectively. These figures are taken as the basis to arrive at the cost estimates for MPAs for achieving target 11 (**Annex Table 5**).

Effective management of existing PAs: According to the MDG 2011 report, 4.0% of territorial waters or 461 564 km² is currently protected in developing countries. The cost is \$1,253 US per km² per year.

Establishment costs of expansion: For achieving target 11, the existing 4.0% has to be expanded to 10% of territorial waters i.e. 1,153,910 km² or addition of 692 346 km². The establishment cost for these additional 692 346 km² amounts to \$1,602 million or \$1.6 billion US or **\$2,315/km²**

Using these estimates and the general information provided as well as scenarios built based on different percentage increases the results from method 2 are presented in **Table 11-5** (above) under estimated investment - method 2. The results indicate that total estimated investment requirements for the GEF-6 period would range from **\$50.6 billion US to \$110.1 billion US depending on the scenario (including ABNJ)**.

3.3 Incremental reasoning

³⁵ This is assuming that \$700 million GEF allocation for effective management of PAs has already covered 23% of existing MPAs.

³⁶ (46 156 400 ha x 10%/4%)-46 156 400 = 69 234 600 ha

“GEF grant to co-financing ratios reflect the nature of each project, the global environmental benefits that are to be generated, the incremental costs to achieve the global environmental benefits, the nature of the baseline which the project complements, and the presence and contributions of other co-financiers. In practice, the GEF seeks to leverage the maximum amount possible and the ratio of GEF funds to co-financing has thus ranged from 1:2 to as high as 1:10 in the biodiversity focal area with an average amount of 1:4 currently. This ratio is driven primarily by the global benefits that will be generated and the incremental costs of generating said benefits, all other things being equal.”

PAs generate significant national and global benefits. Since, its establishment GEF has contributed a substantial amount of fund towards the establishment and effective management of myriads of PAs and MPAs. The crucial importance of protected areas is very well known.

Terrestrial PAs: as indicated in Table 11-4 for terrestrial PAs 50% GEF-6 funding rate is used in all of the scenarios. MPAs: as used in Table 11-5, for PAs in coastal water (0-12 nautical miles) and PAs in EEZ (12-200 nautical miles) GEF-6 investments are estimated at 50% rate. However, for ABNJ GEF could fund such projects fully (100%) since they relate to globally shared resources with mainly global benefits. Furthermore since these areas fall outside national jurisdiction, countries may not take them into consideration as part of their objectives.

4. Estimated Total Investment and GEF-6 Investments Need

The summary of the results for Terrestrial PAs in Table 11-4, indicate that the total investment requirement during the GEF-6 period would be between \$10.79 billion US and \$15.67 billion US and between \$12.06 billion US and \$17.05 billion US using Method 1 and Method 2 respectively and depending on Scenario. The corresponding needs from the GEF-6 investments range between \$5.40 billion US and \$7.84 billion US and \$6.03 billion US and \$8.53 billion US depending on Scenario for Method 1 and Method 2 respectively.

The summary of the results for MPAs in Table 11-5, for marine and coastal PAs show that the total investment requirement during the GEF-6 period would be between \$8.08 billion US and \$28.78 billion US using Method 1 and between \$50.66 billion US and \$110.08 billion US if Method 2 is adopted. The corresponding GEF-6 investments need range between \$4.04 billion US and \$14.39 billion US and \$29.14 billion US and \$61.19 billion US similarly. The wide gap between the results from Method 1 and Method 2 is partly due to the fact that Method 1 does not include estimates for ABNJ and partly due to the difference in cost estimates used in the two approaches.

The Expert Team members agreed to use the results from Method 1 for the present Assessment. Hence, the financial needs for the GEF-6 investments are as follows.

Financial Needs for the GEF-6 Investments:

Scenario 1: GEF-6 Investments: \$9.44 billion US (amounts for PAs + MPAs)

Scenario 2: GEF-6 Investments: \$16.26 billion US (amounts for PAs + MPAs) (recommended)

Scenario 3: GEF-6 Investments: \$22.23 billion US (amounts for PAs + MPAs)

They further recommended Scenario 2 with \$16.26 billion US for the GEF-6 investments. However, Scenario 3 would still be ideal to increase or speed up activities and allow a relatively larger area to protect.

5. Indicators and Baseline Information

Headline indicators: Relation to CBD decisions and SBSTTA 16 UNEP/CBD/COP/11/2 - ANNEX 1

- *Trends in coverage, condition, representativeness and effectiveness of protected areas and other area-based approaches:*
 - Trends in extent of marine protected areas, coverage of key biodiversity areas and management effectiveness (A)
 - Trends in protected area condition and/or management effectiveness including more equitable management (A) (Decision X/31)
 - Trend in representative coverage of protected areas and other area based approaches, including sites of particular importance for biodiversity, and of terrestrial, marine and inland water systems (A) (Decision VII/30 and VIII/15)
 - Trends in the connectivity of protected areas and other area based approaches integrated into landscapes and seascapes (B) (Decision VII/30 and VIII/15)
 - Trends in the delivery of ecosystem services and equitable benefits from protected areas (C)
- (A) for use at the global level, (B) possibly at the global level and (C) at national or other sub-global level.

Possible indicators and baseline information: Relevant indicators to measure progress towards this target are the coverage of sites of significance for biodiversity covered by protected areas and the connectivity/fragmentation of ecosystems. Other possible indicators include the trends in extent of selected biomes, ecosystems and habitats, the Marine Trophic Index, the overlay of protected areas with ecoregions, the governance and management effectiveness of protected areas, trends in the extent of selected biomes, ecosystems and habitats, and water quality in aquatic ecosystems. Strong baseline information, from sources such as the World Database of Protected Areas, Alliance for Zero Extinction, Integrated Biodiversity Assessment Tool, IUCN Red List of Threatened Species and the IUCN World Commission on Protected Areas, already exists for many of these indicators.

Outcomes and indicators suggested in the GEF council document GEF/C.37/3, in the summary of negotiations of the fifth replenishment of the GEF trust fund³⁷ dated May 17, 2010:

Outcome 1.1: Improved management effectiveness of existing and new protected areas.

Indicator 1.1: Protected area management effectiveness score as recorded by Management Effectiveness Tracking Tool.

Outcome 1.2: Increased revenue for protected area systems to meet total expenditures required for management.

Indicator 1.2: Funding gap for management of protected area systems as recorded by protected area financing scorecards

³⁷<http://www.thegef.org/gef/sites/thegef.org/files/documents/C.37.3%20Summary%20of%20Negotiations%20of%20the%20Fifth%20Replenishment%20of%20the%20GEF.pdf>

Target 12: By 2020, the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.

1. Technical Rationale

Though some extinction can occur naturally, as a result of human action current rates of extinction are some 100 to 1000 times the background extinction rate. While reducing the threat of human-induced extinction requires action to address the direct and indirect drivers of change, imminent extinctions of known threatened species (these are mostly vertebrates and higher plants) can in many cases be prevented by protecting the sites where such threatened species (identified in the IUCN Red List of Threatened Species) are located. As per the IUCN, the number of species that are in the critically threatened category are 3900, while those in the category of threatened / vulnerable are 15000. Currently many countries have adopted conservation plans for critically threatened and threatened and vulnerable species, though the action plan vary in terms of their technical effectiveness. A pre-requisite for this is to help countries formulate species specific conservation plans, which, while giving due regard to site specific conditions, provide international benchmarks and action plan acceptable frameworks for protecting the species across countries where they occur. Such species specific action plans lead to substantial augmentation of global environmental benefits than is the present situation. Indeed such benchmarked standards for species specific conservation action plans are of special relevance to critically threatened or threatened species that migrate or move across nation state borders. There would be additional biodiversity benefits from the protection of the habitats and other species contained therein. *Ex situ* measures could complement *in situ* protection. Progress towards this target would help to reach several of the other targets contained in the Strategic Plan, including Target 13.

2. Reference to Relevant COP Decisions and GEF Guidance

This target is related to relevant decisions on Global Strategy for Plant Conservation (Decision VI/9), Global Taxonomy Initiative (Decision VI/8), and the programme of work on protected areas (Decision VII/28 on protected areas (Articles 8(a) to (e)) and PoWPA). There are numerous decisions and articles related to these issues of Target 12.

COP 10: Decision X/24: Review of guidance to the financial mechanism

4.3 Global Taxonomy Initiative

- (a) National and regional taxonomic capacity-building activities for the Global Taxonomy Initiative;
- (b) Project components that address taxonomic needs in the achievement of the Convention's objectives.

4.4 Conservation and protected areas (Article 8(A)-(F))

- (a) Community-conserved areas;
- (b) National and regional systems of protected areas;
- (c) Country-driven early action activities of the programme of work on protected areas;
- (d) Addressing the long-term financial sustainability of protected areas, including through different mechanisms and instruments;
- (e) Further development of the portfolio on protected areas towards comprehensive, representative and effectively managed protected area systems addressing system wide needs;
- (f) Projects that demonstrate the role-protected areas play in addressing climate change;
- (g) Capacity-building activities for the implementation of the Global Strategy for Plant Conservation;
- (h) Projects that promote the conservation and/or sustainable use of endemic species.

COP 10: Decision X/25: Additional guidance to the financial mechanism

Global Taxonomy Initiative (GTI)

7. Further recognizing that taxonomic capacity is crucial for the implementation of all relevant articles and work programmes of the Convention and that the taxonomic capacity to inventory and monitor biodiversity, including the use of new technologies, such as DNA bar coding and other relevant information technology is not adequate in many parts of the world, requests the Global Environment Facility (GEF) and invites Parties,

other Governments, and other international and funding organizations to continue to provide funding for GTI proposals;

Protected areas

10. *Recalling* paragraph 1 of its decision IX/18 B, *further urges* Parties, in particular developed country Parties, and *invites* other Governments and international financial institutions including the Global Environment Facility, the regional development banks, and other multilateral financial institutions to provide the adequate, predictable and timely financial support, to eligible countries to enable the full implementation of the programme of work on protected areas;

11. *Urges* the Global Environment Facility and its Implementing Agencies to streamline their delivery for expeditious and proportionate disbursement and to align the projects to national action plans for the programme of work on protected areas for appropriate, focused, sufficient and harmonious interventions of projects.

The GEF has supported initiatives of conservation of threatened species as part of eco-development eco tourism projects in India, Kampuchea among other States. Project for regulating consumption of wildlife products have been proposed by Vietnam. Russia has prepared a project for GEF assistance seeking regulating destruction of Korean pine in tiger habitats. Apart from being listed as Target 12 of the Aichi Biodiversity Targets, Decisions V1/9 of CBD COP has also highlighted the importance of protecting threatened species.

Proposed Milestones

Possible milestones for this Target include:

- By 2012, information on the occurrence and distribution of globally threatened species and existing national level action plans for conservation of threatened species are reviewed and,
- By 2012, species specific action plans are drawn up
- By 2014, conservation measures undertaken to prevent imminent extinctions at the national level;
- By 2016, a strategy for the prevention of extinction of internationally threatened species is in place that provide for enhanced capabilities in management of inter-state migration of threatened species

3. Activities and Investment

Numerous types of actions can be taken to implement this target. Sites already identified through the Alliance for Zero Extinction could be protected. Additional actions which directly focus on species include the implementation of species recovery and conservation programmes, *ex situ* conservation measures as well as the re-introduction of species to habitats from which they have been extirpated. Actions taken under CITES to ensure that no species is threatened by international trade also contribute to the achievement of this target. This target is relevant to most of the Convention's programme of work on protected areas and is in line with the Global Strategy for Plant Conservation as well as with the Global Taxonomy Initiative as indicated above.

3.1 Activities

Examples of activities include: identification and protection of priority areas; implementation of species recovery and conservation programmes; *ex situ* conservation measures; re-introduction of species to habitats from which they have been extirpated; and identification and protection of areas important for at risk species.

The Target is mainly related to strategies to prevent the extinction of all nationally threatened species. The activities involved can be funded by the GEF and include also the revision of the NBSAPs for which funding assistance is already there. Since by 2014 the preliminary national Red List assessment should have been conducted, this is expected to have received attention in GEF-5. Where this is not the case, then GEF-6 will need to provide the funding to achieve it. By the middle of the GEF-6 period nations should complete putting in place a strategy of prevention of extinction.

Currently the baseline situation with regards to inter-State protection of threatened fauna is weak. GEF assistance can fund a series of projects involving more than one state and also involve international organizations like the Global Tiger Forum in its activities.

- Conduct assessments of causes of threat to endangered species
- Formulate action plans and strategies for preventing extinction of all critically threatened species
- Focus on formulating action plans for critically threatened fauna that migrate across national borders and are threatened by loss of forest cover and poaching incidents along border areas;
- Identification of extreme focus zones for the Tiger, the Lion and Rhino that have migratory routes across States;
- Work out strategies of communication and corridor protection through joint patrolling, prevention of forest fires on borders and feeling of forest cover by poachers;
- Explore manner in which local communities could act as protectors along borders;
- Protection of gene pool of threatened species(in-situ conservation);
- Completion of the Red List assessment by 2014.

3.2 Estimates of Investment

The target is important as it has positive impacts on targets 5 and 6, 9, 10 and 11 by providing sounder management practices, good practices for co-ordination, joint management systems. The cost estimates are presented in **Table 12**.

1. **Critically Endangered Species Conservation Action Plan for 1,950 critically endangered fauna at \$100,000 per fauna** would require investment of **\$195 million US** and doubling the number to **3,900 critically endangered fauna, \$390 million US**;
2. **Endangered, Vulnerable Species Conservation Action Plan for 15,000 species at \$50,000 per species** would require an investment of **\$750 million US**.

Table 12: Estimated GEF-6 investments need for Target 12

Selected Activities For Target 12	Estimated Investment	Incremental Reasoning	Estimated GEF-6 Investments Need	
	GEF-6 Period		GEF-6 Scenario 1	GEF-6 Scenario 2
Scenario 1:	(in Million US \$)		(in Million US \$)	
1) Critically Endangered Fauna Conservation Action Plan for 1950 critically endangered fauna at \$100,000 per fauna	195	80%	156	
2) Endangered, Vulnerable Species Conservation Action Plan for 15,000 species at \$50,000 per species	750	40%	300	
	945		456	
Scenario 2:				
1) Critically Endangered Fauna Conservation Action Plan for 3,900 critically endangered fauna at \$100,000 per fauna	390	80%		312
2) Endangered, Vulnerable Species Conservation Action Plan for 15,000 species at \$50,000 per species	750	40%		300
	1,140			612
Total for Target 12	945 - 1,140		456	612

Source: Based on estimates by the Experts at the Second Expert Meeting in Tokyo, Japan, 18-20 December 2011 and the Third Expert Meeting in Quito, Ecuador, 3-5 March 2012.

3.3 Incremental Reasoning

"GEF grant to co-financing ratios reflect the nature of each project, the global environmental benefits that are to be generated, the incremental costs to achieve the global environmental benefits, the nature of the baseline

which the project complements, and the presence and contributions of other co-financiers. In practice, the GEF seeks to leverage the maximum amount possible and the ratio of GEF funds to co-financing has thus ranged from 1:2 to as high as 1:10 in the biodiversity focal area with an average amount of 1:4 currently. This ratio is driven primarily by the global benefits that will be generated and the incremental costs of generating said benefits, all other things being equal.”

A twin scenario assessment is provided for here. Depending on the global benefits that the projects generate, and ongoing national and inter-state efforts to reverse extinction of critically threatened species GEF funding can range from 80% in cases of weak national and inter-state efforts to 40% in situations where existing national action plans or inter-state co-ordination and joint efforts are moderately good in terms of their technical design and efficiency.

For species that are threatened or vulnerable a single scenario is assumed whereby GEF assistance can be thought of at 40% for moderately good inter-state and national species conservation efforts.

4. Estimated Total Investment and GEF-6 Investments Need

This Target would require a total investment ranging between \$945 million US to \$1.14 billion US (Table 12). Critically threatened fauna would require GEF-6 investments between \$156 million and \$312 million US in Scenario 1 and Scenario 2 respectively. Threatened and vulnerable species would require \$300 million in GEF-6 investments. The total amount that would be required for GEF-6 investments would then be between \$456 million US, and \$612 million US (Table 12).

Financial Needs for the GEF-6 Investments:

Scenario 1: GEF-6 Investments: \$456 million US

Scenario 2: GEF-6 Investments: \$612 million US (recommended).

Scenario 2, with \$612 million US is recommended for the GEF-6 investments.

5. Indicators and Baseline information

Headline indicators: Relation to CBD decisions and SBSTTA 16 UNEP/CBD/COP/11/2 - ANNEX 1

- Trends in abundance, distribution and extinction risk of species:
 - Trends in abundance of selected species (A) (Decision VII/30 and VIII/15) (UNCCD indicator)
 - Trends in extinction risk of species (A) (Decision VII/30 and VIII/15) (MDG indicator 7.7) (Also used by CMS)
 - Trends in distribution of selected species (B) (Decision VII/30 and VIII/15 (also used by UNCCD)
 (A) for use at the global level, (B) possibly at the global level and (C) at national or other sub-global level.

Possible indicators and baseline information: One relevant indicator for this target is the change in status of threatened species. The IUCN Red List, which classifies species as being extinct (EX), Extinct in the wild (EW), Critically endangered (CR), Endangered (EN), Vulnerable (VU), Near threatened (NT), or Least Concern (LC), provides strong baseline information for this target.

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

1. Technical Rationale

The genetic diversity of cultivated plants and farmed or domesticated animals and of wild relatives is in decline as is the genetic diversity of other socio-economically and culturally valuable species. As such the genetic diversity which remains needs to be maintained and strategies need to be developed and implemented to minimize the current erosion of genetic diversity. While progress has been made in safeguarding many varieties and breeds through ex situ storage in genebanks, less progress has been made in situ. In situ conservation, including through continued cultivation on farms, allows for ongoing adaptation and adaptability to changing conditions (such as climate change) and agricultural practices. In addition, both in situ and ex situ conservation of wild relatives of crop plants and other socio economically valuable species, as well as selected wild species of plants and animals, should be improved inside and outside protected areas. More fundamentally there is need to develop complementarities and synergies between in-situ and ex-situ conservation practices for agro biodiversity (wild relatives of traditional plant and livestock/animal varieties) as well as for culturally valuable species.

The Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets laid down by the CBD at COP 10 in Nagoya underline the importance of conserving genetic diversity and landraces and wild relatives of cultivated plants. Target 13 of the Aichi Biodiversity Targets which outline conservation priorities are closely linked to Targets 9 and 11. Consequently action points required to address Target 13 should avoid overlaps with activities proposed under Targets 9 and 11.

Currently as part of national biodiversity legislations and plant variety protection legislations, efforts have been made in some countries to promote on farm and off farm conservation of landraces of traditional plant varieties and livestock varieties. However these practices for conserving germplasm are not systematized and synergized. Conservation breeding of critically endangered or threatened species in zoos has been constrained by less number of animals available in captivity.

Ex-situ conservation breeding of endangered species complements in situ efforts and involves joint efforts of in-situ and ex-situ wildlife managers. Currently there are no projects that look at interface management between the two streams of conservation for critically endangered species. Further Species conservation action plans for critically threatened and vulnerable species are sporadic and are weak on synergistic joint management of ex-situ and in-situ efforts for species concerned. This is a need based activity. It is important to analyze suitability of the wild habitat for the targeted species and where habitats are not amenable to change strengthen ex-situ conservation and captive breeding efforts.

The same also holds true of plant species, including wild relatives of landraces and domesticated animals that represent a gene pool of plants that have higher adaptability to climate stress. On farm conservation possibilities for these genetic resources need to be explored more intensively in GEF 6 through well targeted projects taken up.

The other priority is to look at plants and animals which are culturally valuable in terms of their significance to cultural ethos of different communities. A case in point is the black buck deer in North West India. The alarming decline of such species due to larger biotic pressures leads to their decimation, which is not merely a loss in terms of local community benefits but also in terms of global community benefits. Presently there are few domestic/national resources that go to address these priorities. GEF assistance by way of trigger funds for promoting species specific action plans can draw in national resources for these projects.

2. Reference to Relevant COP Decisions and GEF Guidance

This target is related to relevant decisions on agricultural biodiversity, Global Strategy for Plant Conservation, and the International Initiative on Food and Nutrition already presented under previous targets. Decisions on agricultural biodiversity include III/1 on conservation and sustainable use of agricultural biological diversity, IV/6 on agricultural biodiversity (also SBSTTA recommendation III/4); V/5 (review of phase I of the programme of work and adoption of a multi-year work programme); VI/5, VII/3, VIII/23, and X/34 all on agricultural biodiversity. Decision VI/9 extensively covers the targets of the Global Strategy for Plant Conservation.

The GEF has supported initiatives of conservation of genetic diversity of cultivated plants through high impact projects in countries like Lesotho. CBD/COP Decision VI/9 2003 has highlighted the potential and significance of conserving plant genetic resources. (<http://www.fao.org/biodiversity/assessments/en/>)

Proposed Milestones

Possible milestones for this Target include:

- By 2014, programmes for in situ conservation of crop and livestock genetic diversity and other socio-economically valuable species, as well as for selected wild species of plants and animals, are included in national biodiversity strategies and action plans.

Additionally,

- Carry out in situ, on farm conservation of crops / livestock seed banks
- Carry out ex situ conservation of endangered land races and wild relatives
- Promote institutional/community approaches to synergize in-situ and ex-situ conservation of critically threatened species
- Formulate material transfer agreements for conserved species

3. Activities and Investment

The programme of work on agricultural biodiversity as well as the FAO Global Plan of Action for the conservation and sustainable use of plant genetic resources for food and agriculture, the FAO Global Plan of Action for animal genetic resources and the International Initiative on Biodiversity for Food and Nutrition provide guidance on the types of actions which can be taken to reach this target. Indicators and baseline information: Indicators for this target are ex situ crop collections, and the genetic diversity of terrestrial domestic animals. Other indicators could include trends in the genetic diversity of cultivated plants, fish species of major socio-economic importance and the number of gene bank accessions. Assessments carried out by the Food and Agriculture Organization⁴⁸ could provide baselines for assessments towards this target.

3.1 Activities

Examples of activities are: to maintain crop and livestock varieties on farm; to establish protected areas for wild relatives; and to continue to establish and develop genebanks.

GEF assistance can fund a series of projects in areas hitherto uncovered. This includes:

- Identification of extreme focus zones for conservation
- Work out strategies of introducing institutional mechanisms;
- Work out draft materials transfer agreements and identify agents who can be involved in handling these agreements. This is to enable them to be trained in handling such agreements.

Two activities are identified:

1. Conservation of agro-biodiversity species including wild relatives of domesticated plants and livestock on farm;
2. Conservation of culturally valuable species.

Given that Target 13 is linked to Targets 5, 6, 7, 11 and 12, and that there is need to prevent overlaps, it is proposed that the focus of efforts may be made to ensure greater synergies between in situ and ex situ conservation efforts through a few model projects that aim to improve conservation possibilities for wild relatives of plants and domesticated animals and culturally significant species.

3. Estimates of Investment

Currently, GEF supported a series of country projects in Lesotho for setting up community herbal gardens and other ex-situ collection centers. This can be extended to 50 additionally identified local areas in Africa, Asia, Middle East and Central Asia. The choice of areas may follow the criteria of high diversity and rich gene pools such as Aleppo in Middle East.

Total Requirements of Funds: The total expenditure for carrying out conservation of agro-biodiversity and culturally valuable species based on synergistic management of ex-situ and in-situ streams of conservation are discussed in **Table 13**. The two activities would require investments of **\$30 million, \$60 million and \$90 million US at \$5 million per project**. The conservation of the culturally valuable species on the other hand

3.3 Incremental Reasoning

“GEF grant to co-financing ratios reflect the nature of each project, the global environmental benefits that are to be generated, the incremental costs to achieve the global environmental benefits, the nature of the baseline which the project complements, and the presence and contributions of other co-financiers. In practice, the GEF seeks to leverage the maximum amount possible and the ratio of GEF funds to co-financing has thus ranged from 1:2 to as high as 1:10 in the biodiversity focal area with an average amount of 1:4 currently. This ratio is driven primarily by the global benefits that will be generated and the incremental costs of generating said benefits, all other things being equal.”

GEF's Incremental reasoning describes the expected global environmental benefits to be contributed by the project and as reflected by appropriate impact indicators and targets in the Log Frame. In the present case the biodiversity erosion of gene pool, landraces and wild relatives of domesticated farmers has a global significance since they help the improvement of gene accessions in the CGIAR Depositary. In the instant case, it is seen that the need is to demonstrate integrated projects that synergistically combine ex-situ and in-situ conservation efforts to prevent the decline of critically important agro-biodiversity and culturally valuable species. A 60% funding rate is used for the first activity that is identified above and 80% for the second one.

4. Estimated Total Investment and GEF-6 Investments Need

A three-fold scenario is postulated for activity 1 connected to agro-biodiversity conservation based on the number of projects that can be taken up during GEF 6. Scenario 1 assumes 3 projects, while Scenario 2 assumes 6 and Scenario 3, 9 projects involving agro-biodiversity conservation. GEF share is postulated at 60% in all cases. As far as culturally valuable species is concerned a similar 3 fold scenario is assumed involving 3, 6 and 9 projects. However GEF's share is assumed to be slightly higher at 80% given the poor flow of national resources to this segment. A unit cost of \$5 million is assumed for both categories based on estimates available from similar projects executed in Africa and Asia. The results are found in **Table 13**.

Table 13: Estimated GEF-6 investments need for Target 13

Selected Activities For Target 13	Estimated Investment	Incremental Reasoning	Estimated GEF-6 Investments Need		
	GEF-6 Period		GEF-6 Scenario 1	GEF-6 Scenario 2	GEF-6 Scenario 3
Scenario 1: 3 projects of each activity	(in Million US \$)		(in Million US\$)		
1) Conservation of agrobiodiversity species including wild relatives of domesticated plants and livestock on farm	15	60%	9		
2) Conservation of culturally valuable species	15	80%	12		
Total	30		21		
Scenario 2: 6 projects of each activity					
1) Conservation of agrobiodiversity species including wild relatives of domesticated plants and livestock on farm	30	60%		18	
2) Conservation of culturally valuable species	30	80%		24	
Total	60			42	
Scenario 3: 9 projects of each activity					
1) Conservation of agrobiodiversity species including wild relatives of domesticated plants and livestock on farm	45	60%			27
2) Conservation of culturally valuable species	45	80%			36
Total	90				63
Total for Target 13	30 - 90		21	42	63

Source: Based on estimates by the Experts at the Second Expert Meeting in Tokyo, Japan, 18-20 December 2011 and Third Expert Meeting in Quito, Ecuador, 3-5 March 2012.

Financial Needs for the GEF-6 Investments:

Scenario 1: GEF-6 Investments: \$21 million US

Scenario 2: GEF-6 Investments: \$42 million US (recommended)

Scenario 3: GEF-6 Investments: \$63 million US

Scenario 2, with \$42 million US is recommended for the GEF-6 investment. However, Scenario 3 would still be ideal to since it involves relatively more projects to facilitate the achievement of the Target.

5. Indicators and Baseline information

Headline indicators: Relation to CBD decisions and SBSTTA 16 UNEP/CBD/COP/11/2 - ANNEX 1

- *Trends in genetic diversity of species:*
 - Trends in genetic diversity of cultivated plants, and farmed and domesticated animals and their wild relatives (B) (Decision VII/30 and VIII/15)
 - Trends in genetic diversity of selected species (C)
 - Trends in integration of biodiversity, ecosystem services and benefits sharing into planning, policy formulation and implementation and incentives
 - Trends in number of effective policy mechanisms implemented to reduce genetic erosion and safeguard genetic diversity related to plant and animal genetic resources (B)
- (A) for use at the global level, (B) possibly at the global level and (C) at national or other sub-global level.

Possible indicators and baseline information: The programme of work on agricultural biodiversity as well as the FAO Global Plan of Action for the conservation and sustainable use of plant genetic resources for food and agriculture, the FAO Global Plan of Action for animal genetic resources and the International Initiative on Biodiversity for Food and Nutrition provide guidance on the types of actions which can be taken to reach this target. Indicators and baseline information: Indicators for this target are ex situ crop collections, and the genetic diversity of terrestrial domestic animals. Other indicators could include trends in the genetic diversity of cultivated plants, fish species of major socio-economic importance and the number of genebank accessions. Assessments carried out by the Food and Agriculture Organization could provide baselines for assessments towards this target.

Target 14: By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities and the poor and vulnerable.

1. Technical Rationale

All terrestrial, freshwater and marine ecosystems provide multiple ecosystem services. However some ecosystems, such as those that provide ecosystem services related to the provision of water, are particularly important in that they provide services that are essential for human wellbeing and specifically for the lives and livelihoods of women, and indigenous and local communities, including the poor and vulnerable. Accordingly, priority should be given to safeguarding or restoring such ecosystems, and to ensuring that people, especially women, indigenous and local communities and the poor and vulnerable, have adequate and secure access to these services.

2. Reference to Relevant COP Decisions and GEF Guidance

This target is related to relevant decisions on biodiversity for development and poverty reduction.

Decision X/25

4.6 Traditional knowledge (Article 8(j) and related provisions)

- (a) Building the capacity of indigenous and local communities to develop strategies and systems for the protection of traditional knowledge;
- (c) Projects that strengthen the involvement of local and indigenous people in the conservation of biological diversity and sustainable use of its components.

4.7 Sustainable use (Article 10)

- (a) Implementation of the Addis Ababa Principles and Guidelines at the national level to ensure that the use of biological diversity is sustainable.

Decision X/24, Article 8(j) and related provisions

Invites the Global Environment Facility, international funding institutions and development agencies and relevant non-governmental organizations, where requested, and in accordance with their mandates and responsibilities, to consider providing assistance to indigenous and local communities, particularly women, to raise their awareness and to build capacity and understanding of the elements of the code of ethical conduct.

Proposed Milestones

Possible milestones for this Target include:

- By 2014, information on the services provided by ecosystems and the benefits received by local and indigenous communities is compiled and reviewed through respectful and participatory processes;
- By 2014, national strategies or policies for enhanced and equitable provision of and access to essential ecosystem services are developed as a contribution to poverty reduction and sustainable development strategies.

3. Activities and Investment

Ecosystems which provide essential services and that contribute to local livelihoods should be identified through participatory processes at local, national and global levels and in accordance with Article 10 of the Convention. Tools for mapping ecosystem services and for the valuation of ecosystem services are now available and/or are being tested. The resulting information should be integrated into development plans to ensure that these ecosystems receive the necessary protection and investments. Sound distribution and recognition of property

rights, including traditional and customary rights, can contribute to ensuring adequate and equitable access to ecosystem services.

This target is linked to e.g. Target 2 and many of the other targets as target 11, 19 and 20.

3.1 Activities

Examples of activities for GEF funding to meet Target 14 and the decisions:

1. **Sub Global Assessments³⁸ in collaboration with indigenous and local knowledge holders;** that take into account trends in proposed indicators for this target and Addis Ababa Principles and Guidelines and the under 8j developed elements of the code of ethical conduct, and other work related to article 10 and 8j as article 10c. It could also include information from many other activities as e.g. the Indigenous and Community Conserved Areas (ICCA) reviews. This contributes to reach milestone “By 2014, information on the services provided by ecosystems and the benefits received by local and indigenous communities is compiled and reviewed through respectful and participatory processes”.
2. **National strategies or policies and implementation of activities to restore and safeguard ecosystem services** for enhanced and equitable provision of and access to essential ecosystem services to be developed as a contribution to poverty reduction and sustainable development strategies, through participatory processes with indigenous and local communities, including enabling environment and contributions for implementation of activities and mechanisms identified to benefit local people. Contributes to reach milestone “By 2014, national strategies or policies for enhanced and equitable provision of and access to essential ecosystem services are developed as a contribution to poverty reduction and sustainable development strategies.”

These activities may be combined with Target 2 on national accounting (i.e. part of the \$200,000 to be allocated to Target 14);

3.2 Estimates of Investment

It is estimated that the Sub Global Assessments would cost about \$2 million US per country. This would require a total investment of \$100 million, \$150 million and \$200 million US in 50, 75 and 100 GEF eligible countries respectively (**Table 14**).

For national strategies or policies for enhanced and equitable provision of and access to essential ecosystem services including enabling environment that should be developed as a contribution to poverty reduction and sustainable development strategies and implementation of activities and mechanisms identified to benefit local people an estimate of \$5 million would be needed per country. Hence the total required investments would be \$250 million, \$375 million and \$500 million US for 50, 75 and 100 countries respectively.

Therefore these two major activities would require total investments of \$350 million, \$525 million and \$700 million US for 50, 75 and 100 GEF eligible countries.

3.3. Incremental Reasoning

³⁸ Sub-Global Assessments according to Millennium Ecosystem Assessment (MA): The MA was conducted as a “multiscale” assessment, consisting of interlinked assessments undertaken at local, watershed, national, regional and global scales. The MA sub-global assessments were conceived as integrated assessments to analyze the relationship between direct and indirect drivers of ecosystem change, their impact on ecosystem services, and the consequences for human well-being. They were also designed to compare different spatial scales, involve a diverse set of stakeholders, and use different knowledge systems as part of the assessment process. The MA sub-global assessments were designed to meet needs of decision-makers at the scale at which they are undertaken, strengthen the global findings with on-the-ground reality, and strengthen the local findings with global perspectives, data, and models. (The work with SGAs are carried forward with the help of The Sub-Global Assessment Network that seeks to create a common platform for practitioners, individuals and organizations, involved in ecosystem assessment at regional, sub-regional, national and sub-national levels.)

“GEF grant to co-financing ratios reflect the nature of each project, the global environmental benefits that are to be generated, the incremental costs to achieve the global environmental benefits, the nature of the baseline which the project complements, and the presence and contributions of other co-financiers. In practice, the GEF seeks to leverage the maximum amount possible and the ratio of GEF funds to co-financing has thus ranged from 1:2 to as high as 1:10 in the biodiversity focal area with an average amount of 1:4 currently. This ratio is driven primarily by the global benefits that will be generated and the incremental costs of generating said benefits, all other things being equal.”

Given the importance of the activities, 30% of the total cost is allowed in all three Scenarios. The details are presented in **Table 14**.

Table 14: Estimated GEF-6 investments need for Target 14

Selected Activities For Target 14	Estimated Investment	Incremental Reasoning	Estimated GEF-6 Investments Need		
	GEF-6 Period		GEF-6 Scenario 1	GEF-6 Scenario 2	GEF-6 Scenario 3
Scenario 1: In 50 countries	(in Million US \$)			(in Million US \$)	
1) Sub-global assessment in collaboration with indigenous and local knowledge holders	100.0	30%	30.0		
2) National strategies or policies and implementation of activities	250.0	30%	75.0		
Total	350		105.0		
Scenario 2: In 75 countries					
1) Sub-global assessment in collaboration with indigenous and local knowledge holders	150.0	30%		45.0	
2) National strategies or policies and implementation of activities to restore ecosystem services	375.0	30%		112.5	
Total	525			157.5	
Scenario 3: In 100 countries					
1) Sub-global assessment in collaboration with indigenous and local knowledge holders	200.0	30%			60.0
2) National strategies or policies and implementation of activities to restore ecosystem services	500.0	30%			150.0
Total	700				210.0
Total for Target 14	350-700		105.0	157.5	210.0

Source: Based on estimates by the Experts at the Second Expert Meeting in Tokyo, Japan, 18-20 December 2011 and the Third Expert Meeting in Quito, Ecuador, 3-5 March 2012.

4. Estimated Total Investment and GEF-6 Investments Need

The Target will require a total investment ranging between \$350 million and \$700 million US. Where the two activities are undertaken in 50 countries, the need for GEF-6 investments would be \$105 million US (Scenario 1). However, by increasing GEF-6 investment to \$157.5 million US, the projects could be introduced in 75 countries (Scenario 2) or to \$210 million US in 100 GEF eligible countries (Scenario 3). The results are presented in Table 14 and summarized below.

Financial Needs for the GEF-6 Investments:

Scenario 1: GEF-6 Investments: \$105 million US

Scenario 2: GEF-6 Investments: \$157.5 million US

Scenario 3: GEF-6 Investments: \$210 million US

Since Scenario 2 and 3 cover relatively more countries (75 and 100 countries respectively) compared to Scenario 1 (50 countries), they stand as better choices for the GEF-6 investments.

5. Indicators and baseline information

Headline indicators: Relation to CBD decisions and SBSTTA 16 UNEP/CBD/COP/11/2 - ANNEX 1

- Trends in distribution, condition and sustainability of ecosystem services for equitable human well-being
 - Trends in proportion of total freshwater resources used (A) (MDG indicator 7.5)
 - Trends in proportion of the population using improved water services (A) (MDG indicator 7.8 and 7.9)
 - Trends in benefits that humans derive from selected ecosystem services (A)
 - Population trends and extinction risk trends of species that provide ecosystem services (A)
 - Trends in delivery of multiple ecosystem services (B)
 - Trends in economic and non-economic values of selected ecosystem services (B)
 - Trends in health and wellbeing of communities who depend directly on local ecosystem goods and services (B) (decision VII/30 and VIII/15)
 - Trends in human and economic losses due to water or natural resource related disasters (B)
 - Trends in nutritional contribution of biodiversity: Food composition (B) (decision VII/30 and VIII/15)
 - Trends in incidence of emerging zoonotic diseases (C)
 - Trends in inclusive wealth (C)
 - Trends in nutritional contribution of biodiversity: Food consumption (C) (decision VII/30 and VIII/15)
 - Trends in prevalence of underweight children under-five years of age (C) (MDG indicator 1.8)
 - Trends in natural resource conflicts (C)
 - Trends in the condition of selected ecosystem services (C); Trends in bio-capacity (C)
 - Trends in coverage, condition, representativeness and effectiveness of protected areas and other area-based approaches;
 - Trends in area of degraded ecosystems restored or being restored (B)
- (a) for use at the global level, (B) possibly at the global level and (C) at national or other sub-global level.

Possible indicators and baseline information: the health and well-being of communities who depend directly on local ecosystem goods and services and biodiversity for food and medicine. Other possible indicators could include the status and trends of linguistic diversity, numbers of speakers of indigenous languages, and other indicators of the status of indigenous and traditional knowledge.

Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks have been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

1. Technical Rationale

The conservation, restoration and sustainable management of forests, soils (especially peatlands), freshwater and coastal wetlands and other ecosystems are proven, cost-effective, safe and immediately-available means to sequester carbon dioxide and prevent the loss of other greenhouse gases. Deforestation, wetland drainage and other habitat change lead to the emission of carbon dioxide, methane and other greenhouse gases. For example, the world loses approximately 13 million hectares of forests annually including 6 million hectares of primary forests and, in the process, biodiversity is reduced, greenhouse gases are released and the livelihoods of millions of people, including indigenous peoples and local communities, are threatened. However, in many countries, degraded landscapes represent immense opportunity for both biodiversity restoration and carbon sequestration. For example, the World Resources Institute (WRI) and IUCN recently estimated the global potential for forest landscape restoration to be at 1 billion hectares, or about 25 per cent of the current global forest area. Recent scientific analyses indicate that the biodiversity potential of restored secondary forest is substantial. Forest landscape restoration, including of carbon-rich tropical peatlands, would also have significant co-benefits for climate change mitigation and adaptation. Preliminary analysis indicates that, by 2030, the restoration of degraded forest lands will make the same (or perhaps as much as double) contribution to the reduction of greenhouse gases as that which could be expected from avoided deforestation (70 Gt of CO₂ emissions). Restored landscapes and seascapes can improve resilience including adaptive capacity of ecosystems and societies, and can contribute to climate change adaptation and generate additional benefits for people, in particular indigenous and local communities and the rural poor.

2. Reference to Relevant COP Decisions and GEF Guidance

This target is related to relevant decisions on climate change and biodiversity, forest biodiversity, and inland waters biodiversity. There are numerous decisions related to these topics. The relevant guidance to the financial mechanism of COP 10 is presented here.

COP 10: Decision X/24: Review of guidance to the financial mechanism

4.23 Climate change and biodiversity

- (a) Capacity-building with the aim of increasing the effectiveness in addressing environmental issues through their commitments under the Convention on Biological Diversity, the United Nations Framework Convention on Climate Change, and the United Nations Convention to Combat Desertification, inter alia, by applying the ecosystem approach;
- (b) Developing synergy-oriented programmes to conserve and sustainably manage all ecosystems, such as forests, wetlands and marine environments that also contribute to poverty eradication;
- (c) Country-driven activities, including pilot projects, aimed at projects related to ecosystem conservation, restoration of degraded lands and marine environments and overall ecosystem integrity that take into account impacts of climate change.

4.16 Forest biological diversity

- (a) Projects and capacity-building activities for implementing the programme of work of forest biological diversity at the national, regional and subregional levels and the use of the clearing-house mechanism to include activities that contribute to halting and addressing deforestation, basic assessments and monitoring of forest biological diversity, including taxonomic studies and inventories, focusing on forest species, other important components of forest biological diversity and ecosystems under threat;

(b) Projects focusing on the identified national priorities, as well as regional and international actions that assist the implementation of the expanded work programme considering conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits from genetic resources in a balanced way, underscoring the importance of ensuring long-term conservation, sustainable use, and benefit-sharing of native forests.

4.18 Inland water biological diversity

(a) Projects which help Parties to develop and implement national, sectoral and cross-sectoral plans for the conservation and sustainable use of biological diversity of inland water ecosystems, including comprehensive assessments of the biological diversity of inland waters, and capacity-building programmes for monitoring the implementation of the programme of work and the trends in inland water biological diversity and for information gathering and dissemination among riparian communities;

(b) Projects that assist with the implementation of the programme of work on biological diversity of inland water ecosystems.

Proposed Milestones

Possible milestones for this Target include:

- By 2012, indicators on degradation and restoration have been developed and agreed;
- By 2014, information on the potential contribution of all ecosystems to carbon storage and sequestration is compiled and reviewed, and a national strategy for the enhancement of the contribution of biodiversity (including habitat, population, species and genetic diversity) to ecosystem resilience and carbon storage has been prepared and adopted, taking into account provisions under the United Nations Framework Convention on Climate Change and its Kyoto Protocol, as well as the United Nations Convention to Combat Desertification and its 10-year strategic plan and framework to enhance the implementation of the Convention (2008–2018);
- By 2014, a national plan for ecosystem restoration is in place and being implemented;
- By 2014, information on the potential contribution of biodiversity and the maintenance of ecosystem services to resilience and adaptive capacity in the face of impacts from climate change, is generated, compiled and reviewed; improved tools and methods for supporting ecosystem based adaptation have been developed and disseminated; and countries have begun integrating ecosystem restoration into national adaptation strategies and other relevant instruments;
- By 2014, national plans for ecosystem restoration are integrated into national biodiversity action plans and other national strategies (including REDD-plus) and are being implemented;
- By 2014, tools and methods for supporting ecosystem-based adaptation have been developed and disseminated; and countries have begun integrating ecosystem restoration into national adaptation strategies and other relevant instruments.

3. Activities and Investment

Restoration activities, such as forest, peatland, and wetland landscape restoration, are already underway in many parts of the world which contribute to ecosystem resilience and carbon stock enhancement. The wider application of these efforts will add up significantly to the achievement of the objectives of the Convention and Target 15, and generate synergies with the UNFCCC, the UNCCD and the UNFF.

Restoring **biodiversity rich forest ecosystems** might generate the most significant impact to enhance carbon stocks and at least to compensate partly the ongoing deforestation and carbon storage loss. Regarding the scale of forest restoration a specific commitment was launched by the “Bonn Challenge” Conference in September 2011 to restore 150 million hectares through afforestation and forest landscape restoration (FLR) up to 2020 which will in the long run contribute significantly to enhance carbon stocks and forest ecosystem resilience, and to reverse desertification.

“The recent best estimates, resulting from new and more accurate analysis indicate that more than 2 billion hectares of the world’s deforested and degraded lands offer opportunities for restoration. This is almost double the previous estimate of over 1 billion hectares that was prepared for the high level roundtable in London in 2009 because more precise mapping of where forests can grow is now possible. Participants noted that the global assessment needs to be refined at the national and local levels to specify with more precision exactly where and how many hectares could be restored and through what strategies. Recognizing that national circumstances and conditions in the landscape vary, the Bonn event launched a target to restore 150 million hectares by 2020 as a robust and achievable response”³⁹. Many countries and regions will need public funding to restore degraded forest ecosystems (e.g. Mali, Uganda, India, Latin America countries).

Peatland ecosystem restoration is also of crucial importance to enhance carbon stocks, but additional investigation on the amount of degraded peatland area need to be undertaken in order to calculate necessary global activities. It is suggested that peatland restoration should be covered by Target 15 as well.

Wetland restoration is of critical importance, but different aspects should mainly be achieved with activities under target 8 regarding nutrients, under target 11 regarding protected areas, and target 14 regarding ecosystem services others than carbon. However, wetlands like mangroves or sea grass ecosystems will also be relevant to enhance carbon stocks and need to be considered for activities under Target 15.

Restoration of coral reefs will be covered by Target 10.

3.1 Activities

Activities to achieve this target focus on a **global programme of forest and peatland ecosystem restoration** that contributes best to ecosystem resilience, climate change mitigation and adaptation, and combating desertification.

Forest restoration activities should be based on the Forest Landscape Restoration approach (FLR) that was developed by the Global Partnership on Forest Landscape Restoration (GPFLR)⁴⁰ to guide restoration activities in the field, taking into account site specific conditions.

The forest and peatland restoration programme should be strongly linked to national REDD+ programmes and REDD+ projects to also achieve the UNFCCC REDD+ goal to slow, halt and reverse forest cover and carbon loss. In that regard biodiversity safeguards needs to be addressed and recognized to secure win-win results for climate change and biodiversity.

3.2 Estimates of Investment

As stated at the Bonn Challenge Conference 2011 an enormous amount of restoration activity is already taking place at the grassroots level, much of it with no or minimal investment of external financial resources. On the other hand experiences in various regions show that investments range from a few hundred USD up to several thousand USD per ha.

However, taking into account the enormous effort that are needed for forest and peatland restoration within the next 6 year timeframe, a strong push to stimulate investment for restoration in different regions and countries is adequate.

Preliminary estimates of average investment needs globally per ha will come up to the following figures:

<i>Low restoration investment:</i>	<i>100 \$ US/ha x 150 million ha = 15 billion \$ US</i>
<i>Medium restoration investment:</i>	<i>300 \$ US/ha x 150 million ha = 45 billion \$ US</i>
<i>High restoration investment:</i>	<i>500 \$ US/ha x 150 million ha = 75 billion \$ US</i>

³⁹ http://www.bmu.de/files/pdfs/allgemein/application/pdf/bonn_challenge_summary.pdf

⁴⁰ <http://www.ideastransformlandscapes.org/>

At medium restoration investment, investment amount during the GEF-6 period will be \$30 billion US for 100 million ha, \$36 billion US for 120 million ha and \$46 billion US for 150 million ha (**Table 15**).

Remark: To verify the potential investment per hectare in different regions additional research is currently undertaken by IUCN; based on the map of World Resources Institute (WRI <http://www.wri.org/map/global-map-forest-landscape-restoration-opportunities>; International Union of Forest Research Organizations (IUFRO – www.iufro.org); Global Partnership on Landscape Restoration (<http://ideastransformlandscapes.org/>; Results of that exercise is expected by autumn 2012 and will be included in this report).

The REDD+ incentive scheme under discussion in the context of the climate change negotiations can be used to co-financing restoration activities when operational to enhance carbon stock by contributing to restore degraded forest ecosystems.

Table 15: Estimated GEF-6 investments need for Target 15

Selected Activities For Target 15	Estimated Investment	Incremental Reasoning	Estimated GEF-6 Investments Need		
	GEF-6		GEF-6 Scenario 1	GEF-6 Scenario 2	GEF-6 Scenario 3
Scenario 1: Global programme of forest and peatland restoration (100 million ha) (at medium average amount \$300 US/ha)	(in Million US \$) 30,000	10%	(in Million US \$)		
Scenario 2: Global programme of forest and peatland restoration (120 million ha) (at medium average amount \$300 US/ha)	36,000	10%	3,000	3,600	
Scenario 3: Global programme of forest and peatland restoration (150 million ha) (at medium average amount \$300 US/ha)	45,000	10%			4,500
Total for Target 15	30,000 - 45,000		3,000	3,600	4,500

Source: Based on estimates by the Experts at the Second Expert Meeting in Tokyo, Japan, 18-20 December 2011 and the Third Expert Meeting in Quito, Ecuador, 3-5 March 2012.

3.3. Incremental Reasoning

“GEF grant to co-financing ratios reflect the nature of each project, the global environmental benefits that are to be generated, the incremental costs to achieve the global environmental benefits, the nature of the baseline which the project complements, and the presence and contributions of other co-financiers. In practice, the GEF seeks to leverage the maximum amount possible and the ratio of GEF funds to co-financing has thus ranged from 1:2 to as high as 1:10 in the biodiversity focal area with an average amount of 1:4 currently. This ratio is driven primarily by the global benefits that will be generated and the incremental costs of generating said benefits, all other things being equal.”

Forest and peatland restoration activities will generate substantial global and national benefits. For the biodiversity part, the GEF should play the role of a catalyst for leveraging funds from other sources, by contributing at least 10% of the total investment that would be required for global biodiversity and climate benefits.

4. Estimated Total Investment and GEF-6 Investments Need

This Target will require total investments ranging between \$30 billion to \$45 billion US. Three scenarios are suggested taking into consideration. At 10% GEF funding rate and medium average amount of investment per hectare, the restoration of forest landscape would require GEF-6 investments of \$3 billion for 100 million ha, \$3.6 billion for 120 million ha and \$4.5 billion US for the entire programme of 150 million ha (**Table 15**). It is obvious that due to many obstacles in planning and implementing restoration programmes in eligible countries only a part of the programme will be do-able. However, it is necessary that the biggest share of investment need to be stimulated in GEF-6.

To achieve the total forest and peatland restoration target of 150 million ha, another portion of at least \$900 million should be allocated in GEF-7.

Financial Needs for the GEF-6 Investments:

Scenario 1: GEF-6 Investments: \$3.0 billion US

Scenario 2: GEF-6 Investments: \$3.6 billion US (recommended)

Scenario 3: GEF-6 Investments: \$4.5 billion US

Hence, the proposed investment would be for 120 hectares at \$3.6 billion US to start in GEF-6 (Scenario 2). However, since it allows the restoration of 30 million more hectares of forest and peatland than Scenario 2, Scenario 3 would be ideal at \$4.5 billion US.

5. Indicators and baseline information

Headline indicators: Relation to CBD decisions and SBSTTA 16 UNEP/CBD/COP/11/2 - ANNEX 1

- Trends in distribution, condition and sustainability of ecosystem services for equitable human well-being
 - Status and trends in extent and condition of habitats that provide carbon storage (A)
- Trends in coverage, condition, representativeness and effectiveness of protected area and other area-based approaches
 - Population trends of forest-dependant species in forest under restoration (C)
 - (A) for use at the global level and (C) at national or other sub-global level

Possible indicators and baseline information: Relevant indicators include the extent of native habitat types, the Ecological Footprint and related concepts as well as trophic integrity of all relevant ecosystems. Other possible indicators could include the storage of carbon and other GHG (using UNFCCC inventories supplemented by scientific assessments) and assessments of vulnerability and adaptive capacity. In addition to biomass indicators, it is important to consider degradation and restoration metrics.

Target 16: By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.

1. Technical rationale

The third objective of the Convention provides for “the fair and equitable sharing of the benefits arising out of the utilization of genetic resources...”. Genetic resources, whether from plant, animal or micro-organisms, are used for a variety of purposes ranging from basic research to the development of products. Users of genetic resources may include research institutes, universities and private companies operating in various sectors such as pharmaceuticals, agriculture, horticulture, cosmetics and biotechnology. The Convention, in its Article 15, sets out principles and obligations of Parties related to access to genetic resources and the fair and equitable sharing of benefits arising out of the utilization of genetic resources, on the basis of prior informed consent and mutually-agreed terms.

2. Reference to Relevant COP Decisions and GEF Guidance

This target is related to Article 15 of the Convention and relevant decisions on access to genetic resources and benefit-sharing, and the Nagoya Protocol. Decision X/1 in particular is on access to genetic resources and the fair and equitable sharing of benefits arising from their utilization (<http://www.cbd.int/decision/cop/?id=12267>).

Article 15. Access to Genetic Resources

1. Recognizing the sovereign rights of States over their natural resources, the authority to determine access to genetic resources rests with the national governments and is subject to national legislation.
2. Each Contracting Party shall endeavour to create conditions to facilitate access to genetic resources for environmentally sound uses by other Contracting Parties and not to impose restrictions that run counter to the objectives of this Convention.
3. For the purpose of this Convention, the genetic resources being provided by a Contracting Party, as referred to in this Article and Articles 16 and 19, are only those that are provided by Contracting Parties that are countries of origin of such resources or by the Parties that have acquired the genetic resources in accordance with this Convention.
4. Access, where granted, shall be on mutually agreed terms and subject to the provisions of this Article.
5. Access to genetic resources shall be subject to prior informed consent of the Contracting Party providing such resources, unless otherwise determined by that Party.
6. Each Contracting Party shall endeavour to develop and carry out scientific research based on genetic resources provided by other Contracting Parties with the full participation of, and where possible in, such Contracting Parties.
7. Each Contracting Party shall take legislative, administrative or policy measures, as appropriate, and in accordance with Articles 16 and 19 and, where necessary, through the financial mechanism established by Articles 20 and 21 with the aim of sharing in a fair and equitable way the results of research and development and the benefits arising from the commercial and other utilization of genetic resources with the Contracting Party providing such resources. Such sharing shall be upon mutually agreed terms.

COP 10 - Decision X/24: Review of Guidance to the Financial Mechanism:

4.11: Access to genetic resources (Article 15)

- (a) Stock-taking activities, such as, for example, assessments of current legislative, administrative and policy measures on access to genetic resources and benefit-sharing, evaluation of the strengths and weaknesses of a country's institutional and human capacity, and promotion of consensus-building among the different stakeholders;
- (b) Capacity-building:

- i. To promote the successful development and implementation of legislative, administrative and policy measures and guidance on access to genetic resources, including scientific, technical, business, legal and management skills and capacities;
- ii. On measures on access to genetic resources and sharing of benefits, including capacity-building on economic valuation of genetic resources;
- iii. Regarding the transfer of technologies which enables providers to fully appreciate and actively participate in benefit-sharing arrangements at the stage of granting access permits;
- (c) Projects that assist with the implementation of the Action Plan on Capacity-building for Access and Benefit-sharing in support of the implementation of the Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefit Arising out of their Utilization;
- (d) Formulation of access and benefit-sharing mechanisms at the national, subregional and regional levels, including monitoring, assessment, and incentive measures;
- (e) Within biodiversity projects, other specific benefit-sharing initiatives such as support for entrepreneurial developments by local and indigenous communities, facilitation of financial sustainability of projects promoting the sustainable use of genetic resources and appropriate targeted research components.

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Access and benefit-sharing

13. Invites the Global Environment Facility to provide financial support to Parties to assist with the early ratification of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity and its implementation;

Proposed Milestones

Possible milestones for this Target include:

- By 2012, the international regime on access and benefit sharing enters into force;
- By 2014, all countries have developed the domestic policies and initiated relevant measures in line with the Convention, and the international regime on access and benefit sharing, as appropriate.

3. Activities and Investment

The Bonn Guidelines on access to genetic resources and the fair and equitable sharing of the benefits arising from their utilization, adopted in 2002, guide both the providers and users of genetic resources in the application of the access and benefit-sharing provisions of the Convention. They were adopted to assist Parties when establishing administrative, legislative or policy measures on access and benefit-sharing and/or when negotiating contractual arrangements for access to genetic resources and benefit-sharing. At its tenth meeting, the Conference of the Parties to the Convention on Biological Diversity adopted the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization. Given that this protocol is an international regime the initial target is for its ratification and entry into force by 2015.

3.1 Activities

Examples of activities are: to provide technical assistance to develop national ABS frameworks and legislation and implement the Nagoya Protocol; to implement awareness-raising activities among users and providers of genetic resources; and to provide technical assistance to support research and utilization of genetic resources to generate value.

There is already an allocation of \$40 million US for this Target under GEF-5.

- By 2014, all Parties have domestic policies in place – GEF has put some fund for this. The ratification is done.
- Implementation in the form of capacity building, compliance mechanisms, clearing house mechanism...

3.2 Estimates of Investment

An equivalent amount than that allocated in GEF-5 is proposed to be allocated in GEF-6, as much is still needed in ABS capacity building. This would mean a renewal of a funding window of 450 000 US\$ per country over GEF 6. Levels of ambition on this target can vary on the level of financial support provided per country rather than on the number of countries covered, as uneven entitlement to support for implementing the Nagoya Protocol among GEF recipient countries would be difficult to defend. Option 2 hereunder (equivalent amounts than GEF 5) is the favoured option. Co-financing and business engagement is also part of the objectives of the Nagoya-Japan Fund and should be actively sought (Table 16).

Option 1: \$300 000 US per country for further ABS capacity building

Option 2: \$450 000 US per country for further ABS capacity building

Option 3: \$600 000 US per country for further ABS capacity building

Table 16 shows that the 1st option would require a total investment of \$46.5 million US, Option 2, \$69.8 million US and Option 3, \$93 million US for 155 GEF eligible countries.

Table 16: Estimated GEF-6 investments need for Target 16

Selected Activities For Target 16	Estimated Investment	Incremental Reasoning	Estimated GEF-6 Investments Need		
	GEF-6 Period		GEF-6 Scenario 1	GEF-6 Scenario 2	GEF-6 Scenario 3
Option 1:	(in Million US \$)		(in Million US \$)		
Capacity Building in ABS at \$0.3 million US/country	46.5	60%	27.9		
Option 2:					
Capacity Building in ABS at \$0.45 million US/country	69.8	60%		41.9	
Option 3:					
Capacity Building in ABS at \$0.6 million US/country	93.0	60%			55.8
Total for Target 16	46.5 - 93		27.9	41.9	55.8

Source: Based on estimates by the Experts at the Second Expert Meeting in Tokyo, Japan, 18-20 December 2011 and the Third Expert Meeting in Quito, Ecuador, 3-5 March 2012.

3.3 Incremental Reasoning

“GEF grant to co-financing ratios reflect the nature of each project, the global environmental benefits that are to be generated, the incremental costs to achieve the global environmental benefits, the nature of the baseline which the project complements, and the presence and contributions of other co-financiers. In practice, the GEF seeks to leverage the maximum amount possible and the ratio of GEF funds to co-financing has thus ranged from 1:2 to as high as 1:10 in the biodiversity focal area with an average amount of 1:4 currently. This ratio is driven primarily by the global benefits that will be generated and the incremental costs of generating said benefits, all other things being equal.”

The reasoning on ABS is equivalent to that used for GEF-5. The need of capacity building in ABS, a sector where an important proportion of GEF recipient countries have limited practical experience, remains strong after GEF 5. GEF funding rate of 60% is justifiable in this case given the importance of ABS and its substantial potential contributions to global benefits.

4. Estimated Total Investment and GEF-6 Investments Need

This Target will require total investments ranging between \$46.5 million and \$93 million US depending on Scenario. Assuming the GEF incremental reasoning to be at 60% on ABS capacity building support, estimated GEF-6 investments need would be \$27.9 million US, \$41.8 million US and \$55.8 million under options 1 to 3 respectively (Table 16). At least \$42 million US will be needed for the GEF-6 investments (Scenario 2). However,

funds could also be slightly increased to strengthen activities and speed up the process of ABS (Scenario 3). Scenario 1 is to be considered as a minimum, retreating option in case of severe overall budget constraints.

Financial Needs for the GEF-6 Investments:

Scenario 1: GEF-6 Investments: \$27.9 million US

Scenario 2: GEF-6 Investments: \$41.8 million US

Scenario 3: GEF-6 Investments: \$55.8 million US

Hence, the proposed amount is at least \$42 million US for the GEF-6 investments (Scenario 2) or ideally \$56 million US (Scenario 3) in order to speed up activities and achieve the target on time.

5. Indicators and Baseline Information

Headline indicators: Relation to CBD decisions and SBSTTA 16 UNEP/CBD/COP/11/2 - ANNEX 1

- Trends in access and equity of benefit-sharing of genetic resources
 - ABS indicator to be specified through the ABS process (indicator be used possibly at global level)

Possible indicators and baseline information: An indicator of access and benefit sharing (ABS) is under development. Possible measures could include the number of countries Party to the international regime, the number of countries with national ABS frameworks/legislation; the number of ABS agreements; the number of technical assistance programmes available for strengthening national ABS programmes; and, potentially, the value of benefits shared. Other possible indicators include the number of competent national authorities established to address issues related to access and benefit sharing as well as the number of academic collaboration projects on ABS.

Target 17: By 2015, each Party has developed, adopted as a policy instrument, and has commenced implementing, an effective, participatory and updated national biodiversity strategy and action plan.

1. Technical Rationale

National biodiversity strategies and action plans (NBSAPs) are the key instrument for translating the Convention and decisions of the Conference of the Parties into national action. For this reason it will be essential that Parties have developed, adopted and commenced implementing as a policy instrument an updated NBSAP which is in line with the goals and targets set out in this Strategic Plan by 2015. To date, 171 Parties have prepared national biodiversity strategies. COP has adopted consolidated guidance for the development, updating and revision of NBSAPs (Decision IX/8). In line with this decision, NBSAPs should catalyze a number of strategic actions in countries including: Integration of biodiversity in broader national strategies (see target 2); CEPA; ensuring availability of information and knowledge for action, including through national CHM nodes; ensuring availability of appropriate tools for implementation; providing capacity building and facilitating access to financial resources; and ensuring monitoring, reporting and review, including identification and use of indicators as appropriate.

2. Reference to Relevant COP Decisions and GEF Guidance

This target is related to Article 6 of the Convention and relevant decisions on national biodiversity strategies and action plans.

Article 6. General Measures for Conservation and Sustainable Use: Each Contracting Party shall, in accordance with its particular conditions and capabilities:

- (a) Develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes which shall reflect, inter alia, the measures set out in this Convention relevant to the Contracting Party concerned; and
- (b) Integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies.

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4.1 Biodiversity planning

- 5.2.1 Capacity-building, including human resources development and institutional development and/or strengthening, to facilitate the preparation and/or implementation of national biodiversity strategies and action plans;
- 5.2.2 Elaboration, development, review, revision and updating of national biodiversity strategies and action plans;
- 5.2.3 Priority actions identified in the national plans and strategies of developing countries and countries with economies in transition;
- 5.2.4 Projects aimed at the conservation of biological diversity and sustainable use of its components that integrate social dimensions, including those related to poverty;
- 5.2.5 Capacity-building to implement development activities in ways that are consistent with, and do not compromise, the achievement of the objectives of the Convention on Biological Diversity, including by improving environmental policies in relevant development agencies and sectors such as through integrating concerns relating to biodiversity and the Millennium Development Goals more directly into environmental impact assessments, strategic environmental assessments and other such tools, including at the national level through the national strategies for sustainable development and poverty reduction strategies and programmes.

4.2 Identification and monitoring (Article 7)

- (a) Identification and monitoring of wild and domesticated biodiversity components, in particular those under threat, and implementation of measures for their conservation and sustainable use;
- (b) Capacity-building for developing monitoring programmes and suitable indicators for biological diversity;
- (c) Development and implementation of effective biodiversity indicators;

- (d) Conducting national and other sub-global assessments making use of the conceptual framework and methodologies of the Millennium Ecosystem Assessment.

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National biodiversity strategies and action plans

2. *Requests* the Global Environment Facility to provide adequate and timely financial support for the updating of national biodiversity strategies and action plans and related enabling activities, and *requests* the Global Environment Facility and its implementing agencies to ensure that procedures are in place to ensure an expeditious disbursement of funds;
3. *Recalling* its "Four-year framework of programme priorities related to utilization of GEF resources for biodiversity for the period from 2010 to 2014" proposed in [decision IX/31](#) and *noting* that objective 5 of the GEF-5 Biodiversity Focal Area Strategy is to "Integrate CBD obligations into national planning processes through enabling activities", *requests* the Global Environment Facility to provide support to eligible Parties in a expeditious manner, for revising their national biodiversity strategies and action plans in line with the Strategic Plan for Biodiversity 2011-2020;
4. *Urges* Parties, in particular developed country Parties, and invites other Governments and international financial institutions, the Global Environment Facility, regional development banks, and other multilateral financial institutions to provide adequate, predictable and timely financial support to eligible country Parties to enable the full implementation of the Strategic Plan for Biodiversity 2011-2020, and reiterate that the extent to which developing country Parties will effectively implement their commitments under this Convention will depend on the effective implementation by developed country Parties of their commitments under this Convention related to financial resources and transfer of technology;

Biodiversity integration

In accordance with Article 20 of the Convention, *invites* developed country Parties, other Governments and donors, and the financial mechanism to provide financial and technical support to eligible countries to further develop approaches on the integration of biodiversity into poverty eradication and development processes;

Country-specific resource mobilization strategies

Requests the Global Environment Facility to provide timely and adequate financial support to updating national biodiversity strategies and action plans, which may include the development of country-specific resource mobilization strategies;

Proposed Milestones

Consistent with the proposed multi-year programme of action, possible milestones for this target include:

- By 2012, each Party has adopted a set of national targets to contribute to the global targets of this Strategic Plan and has begun to incorporate these into its national biodiversity strategy;
- By 2014, each Party has adopted an up-to-date, effective, participatory, and operational national biodiversity strategy which contributes to the Strategic Plan with responsibilities allocated among sectors, levels of government, and other stakeholders, and has coordination mechanisms in place to ensure implementation of the actions needed.

3. Activities and Investment

The planning process would of necessity involve dialogue with, and full and effective participation of, all sectors of society, including indigenous and local communities, and at all levels of government. Participatory stakeholder involvement throughout the design, planning and implementation of an NBSAP is essential to ensure that the plans will be effective. A revised NBSAP should not be a static planning document but a dynamic process that allows individual Parties to identify their needs, priorities and opportunities for biodiversity in light of their broader national goals. Regional and sub-national strategies need to also be developed where appropriate. The target for 2015 implies that, not only are NBSAPs developed through a participatory approach, but that they are used as effective tools for mainstreaming biodiversity across government and society. As all programmes of work, cross-cutting issues and initiatives developed under the Convention provide guidance on how the three objectives of the Convention can be implemented, they are all relevant to this target.

3.1 Activities

Examples of activities include: further development of national planning processes, and national clearing-house mechanisms; development of, where appropriate, regional and sub-national strategies; effective use of NBSAPs as tools for mainstreaming biodiversity across government and society.

The following activities were identified:

- NBSAP funding being provided by the GEF-5 (maximum \$500,000 per country)
- About 100 countries already in the process – Maybe 25-55 countries remaining

3.2 Estimates of Investment

Cost estimates of Target 17 for GEF 6 are based on the following assumptions and figures drawn from national experiences⁴¹ :

1. **Setting up and functioning of NBSAP national coordination and monitoring committees** is estimated at **\$25 000 US per year per country**, i.e. \$100 000 US per country for GEF-6 period;
2. **Sub-national implementation of NBSAP** is considered as a one off investment in local activity planning at **\$50 000 US per country**;
3. **Sectoral action plans development** is considered as a one off investment of **\$50 000 US per country**.

Different levels of ambition for this target are:

- Option 1: a) implemented in 50 countries; b) and c) implemented in 25 countries;
- Option 2: a) implemented in 100 countries; b) and c) implemented in 50 countries;
- Option 3: a) implemented in 155 countries; b) and c) implemented in 50 countries.

Table 17 shows the results. Option 1 would require a total investment of \$7.5 million US, Option 2, \$15 million US and Option 3, \$20.5 million US during the GEF-6 period.

3.3 Incremental reasoning

“GEF grant to co-financing ratios reflect the nature of each project, the global environmental benefits that are to be generated, the incremental costs to achieve the global environmental benefits, the nature of the baseline which the project complements, and the presence and contributions of other co-financiers. In practice, the GEF seeks to leverage the maximum amount possible and the ratio of GEF funds to co-financing has thus ranged from 1:2 to as high as 1:10 in the biodiversity focal area with an average amount of 1:4 currently. This ratio is driven primarily by the global benefits that will be generated and the incremental costs of generating said benefits, all other things being equal.”

The substantial importance of the activities related to NBSAPs is already known. All of the three proposed activities are recommended for 100% funding.

Table 17: Estimated GEF-6 investments need for Target 17

⁴¹ Costing of NBSAP animation and monitoring ref. (FR, RSA, Kenya...)

Selected Activities For Target 17	Estimated Investment	Incremental Reasoning	Estimated GEF-6 Investments Need		
	GEF-6 Period		GEF-6 Scenario 1	GEF-6 Scenario 2	GEF-6 Scenario 3
Option 1:	(in Million US\$)			(in Million US\$)	
1. Coordination and monitoring (in 50 countries)	5	100%	5		
2. Sub-national implementation (in 25 countries)	1.25	100%	1.25		
3. Sectorial planning and advocacy (in 25 countries)	1.25	100%	1.25		
Total	7.5		7.5		
Option 2:					
1. Coordination and monitoring (in 100 countries)	10	100%		10.0	
2. Sub-national implementation (in 50 countries)	2.5	100%		2.5	
3. Sectorial planning and advocacy (in 50 countries)	2.5	100%		2.5	
Total	15			15.0	
Option 3:					
1. Coordination and monitoring (in 155 countries)	15.5	100%			15.5
2. Sub-national implementation (in 50 countries)	2.5	100%			2.5
3. Sectorial planning and advocacy (in 50 countries)	2.5	100%			2.5
Total	20.5				20.5
Total for Target 17	7.5 - 20.5		7.5	15.0	20.5

Source: Based on estimates by the Experts at the Second Expert Meeting in Tokyo, Japan, 18-20 December 2011 and the Third Expert Meeting in Quito, Ecuador, 3-5 March 2012.

4. Estimated Total Investment and GEF-6 Investments Need

The preferred option is option 2; i.e. to implement the first activity in two third of all GEF eligible countries (i.e. 100), as coordination, implementing and monitoring has been diagnosed as a widespread weakness of NBSAPs (Sharma, 2009)⁴² and the driving cause of low impact. This activity would require a GEF-6 investment of \$10 million US under this Option 2. As, activities 2 and 3 depend upon national governance and economic contexts, it can be safely estimated that their actual relevance and feasibility during GEF-6 could concern no more than a third of eligible countries (50). These two activities would require investments \$2.5 million US each under Option 2. The details of estimated GEF-6 investments are found in **Table 17** above. While total investment requirement of the Target will range between \$7.5 and \$20.5 million US, the total amounts that would be needed for the GEF-6 investments will be between \$7.5 million and \$20.5 million US.

Financial Needs for the GEF-6 Investments:

Scenario 1: GEF-6 Investments: \$7.5 million US

Scenario 2: GEF-6 Investments: \$15 million US (recommended)

Scenario 3: GEF-6 Investments: \$20.5 million US

Hence, the proposed amount is \$15 million US for the GEF-6 investment (Scenario 2) or ideally \$20.5 million US (Scenario 3) in order to expand the activities in more countries and help achieve the Target on time.

5. Indicators and Baseline Information

Headline indicators: Relation to CBD decisions and SBSTTA 16 UNEP/CBD/COP/11/2 - ANNEX 1

- Trends in integration of biodiversity, ecosystem services and benefit-sharing into planning, policy formulation and implementation and incentives
 - Trends in implementation of national biodiversity strategies and action plans, including development, comprehensiveness, adoption and implementation (possibly at global level)

Possible indicators and baseline information: Indicators to measure progress towards this goal could include: the number of countries with revised NBSAPs; the number of stakeholders who participate in the revision and

⁴² See NBSAPs evaluation reports by Sharma, 2009. - A report by GTZ.

updating process of NBSAPs; national assessments of NBSAP implementation; the number of countries with national CHM websites; the number of visitors per year to national CHM websites; and the quality of content and on-line services national CHM websites offer, as well as web user feedback. Most of this information can be easily gathered through the existing national reporting process.

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.

1. Technical rationale

In line with Article 8(j) of the Convention, traditional knowledge, innovations and practices should be respected, protected, maintained and promoted, and used in local ecosystem management, drawing upon experiences of customary use, with the approval of relevant communities. Likewise, in line with Article 10(c), customary use of biological resources that is compatible with conservation and sustainable use, should be protected and encouraged. The rights of indigenous and local communities over their traditional knowledge, innovations, practices and related biological resources, along with their rights to practice and pass on traditional knowledge, innovations and practices should be respected.

2. Reference to Relevant COP Decisions and GEF Guidance

This target is related to Article 8(j) and related provisions of the Convention as well as relevant decisions on Traditional knowledge, innovations and practices⁴³.

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 4.6 Traditional knowledge (Article 8(j) and related provisions)

- (a) Building the capacity of indigenous and local communities to develop strategies and systems for the protection of traditional knowledge;
- (b) Enhancement of national capacities for the establishment and maintenance of mechanisms to protect traditional knowledge at national and sub-national levels;
- (c) Development of national action plans for the retention of traditional knowledge relevant to conservation and sustainable use of biological diversity;
- (d) Implementation of the priority activities identified in the programme of work on Article 8(j) and related provisions;
- (e) Projects that strengthen the involvement of local and indigenous people in the conservation of biological diversity and sustainable use of its components.

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 Article 8(j) and related provisions

12. Invites the Global Environment Facility, international funding institutions and development agencies and relevant non-governmental organizations, where requested, and in accordance with their mandates and responsibilities, to consider providing assistance to indigenous and local communities, particularly women, to raise their awareness and to build capacity and understanding of the elements of the code of ethical conduct.

⁴³ There are numerous decisions related to Article 8(j): X/40 on Mechanisms to promote the effective participation of indigenous and local communities in the work of the Convention; X41 related to the elements of sui generis systems for the protection of traditional knowledge; X/42 The Tkarihwaïé:ri Code of Ethical Conduct to ensure respect for the cultural and intellectual heritage of indigenous and local communities; X/43, Multi-year programme of work on the implementation of Article 8(j) and related provisions of the Convention on Biological Diversity; IX/13, VIII/5, VII/16, VI/10, V/16 all on Article 8(j), IV/9 on the Implementation of Article 8(j) and related provisions and Decision III/14 also on implementation of Article 8(j) (<http://www.cbd.int/traditional/decisions.shtml>).

Proposed Milestones

Possible milestones for this Target include:

- By 2012, a gender-sensitive review of the use of traditional knowledge, innovations and practices, and of the status and trends of customary use of biological resources, as they relate to the conservation and sustainable management of biodiversity, has been carried out in collaboration with indigenous and local communities;
- By 2014, adequate measures to respect and protect traditional knowledge and customary sustainable use and the rights of indigenous and local communities over their traditional knowledge, innovations and practices, have been put in place;
- By 2016, a strategy to promote traditional knowledge, innovations and practices, with the approval of the knowledge holders, and in line with their rights, as it relates to the conservation and sustainable management of biodiversity, has been developed and put in place.

3. Activities and Investment

The guidance developed as part of the Convention's cross-cutting issue on traditional knowledge, innovations and practices (Articles 8(j) and 10(c) and related provisions) provides advice on how this target can be implemented. Capacity building and programmes for the recognition and mainstreaming of Articles 8(j) and 10(c) and related provisions should be strengthened and implemented.

3.1 Activities

Examples of activities are: to implement Article 8(j); and to implement and support the Satoyama and similar initiatives.

1. **National level strategies/sui generis, for promoting/protecting traditional knowledge**, including review of legal framework and practices.
2. **Capacity building PA management projects**: initiatives at national level for promoting/protecting traditional knowledge in the context of conservation and sustainable use of biodiversity initiatives, such as participating in management of protected areas, caring for endangered species, etc. with emphasis in generation of income and sustainability to indigenous and local communities.
3. **Capacity building initiatives to foster governance and political representation**: of indigenous and local communities in practices of institutional collective governance in the defense of their rights, knowledge and habits and habitats, such as, indigenous schools, territorial governance fora, leadership encounters etc.

3.2 Estimates of Investment

The following estimates were generated for the activities that are identified above:

- For national level strategies: \$ 250,000 US per project (and one project per country);
- Capacity building projects to participate in PA Management: \$500,000 US per country;
- Capacity building initiatives to foster governance and political representation: \$300,000 US per country.

These activities are proposed to be introduced in 25 countries (Scenario 1); 50 countries (Scenario 2) or 75 countries (Scenario 3).

Depending on the Scenario, this Target would require from a total investment of \$26.3 million US (Scenario 1) to \$78.8 million US (Scenario 3). These results are presented in **Table 18**. National level strategies would require between \$6.2 million and 18.8 million US, Capacity building PA management projects between \$12.5 million and

\$37.5 million US, and capacity building to foster governance and political representation between \$7.5 million and 22.5 million US depending on Scenario.

Table 18: Estimated GEF-6 investments need for Target 18

Selected Activities For Target 18	Estimated Investment GEF-6 Period	Incremental Reasoning	Estimated GEF-6 Investments Need		
			GEF-6 Scenario 1	GEF-6 Scenario 2	GEF-6 Scenario 3
Scenario 1: (in 25 countries)	(in Million US \$)		(in Million US \$)		
1) National level strategies/sui generis for promoting and protecting traditional knowledge	6.25	85%	5.3		
2) Capacity building PA management projects	12.50	60%	7.5		
3) Capacity building to foster governance and political representation	7.50	40%	3.0		
Total	26.25		15.8		
Scenario 2: (in 50 countries)					
1) National level strategies/sui generis for promoting and protecting traditional knowledge	12.50	85%		10.6	
2) Capacity building PA management projects	25.00	60%		15.0	
3) Capacity building to foster governance and political representation	15.00	40%		6.0	
Total	52.50			31.6	
Scenario 3: (in 75 countries)					
1) National level strategies/sui generis for promoting and protecting traditional knowledge	18.75	85%			15.9
2) Capacity building PA management projects	37.50	60%			22.5
3) Capacity building to foster governance and political representation	22.50	40%			9.0
Total	78.75				47.4
Total for Target 18	26.2 -78.8		15.8	31.6	47.4

Source: Based on estimates by the Experts at the Second Expert Meeting in Tokyo, Japan, 18-20 December 2011 and the Third Expert Meeting in Quito, Ecuador, 3-5 March 2012.

3.3 Incremental Reasoning

“GEF grant to co-financing ratios reflect the nature of each project, the global environmental benefits that are to be generated, the incremental costs to achieve the global environmental benefits, the nature of the baseline which the project complements, and the presence and contributions of other co-financiers. In practice, the GEF seeks to leverage the maximum amount possible and the ratio of GEF funds to co-financing has thus ranged from 1:2 to as high as 1:10 in the biodiversity focal area with an average amount of 1:4 currently. This ratio is driven primarily by the global benefits that will be generated and the incremental costs of generating said benefits, all other things being equal.”

Indigenous communities are guardians of traditional knowledge. There is a need for legislative protection framework and systematization of indigenous, traditional knowledge. 85% funding is recommended for the national level strategies, 60% for capacity building projects, and 40% for institutional building/governance initiatives (Table 18).

4. Estimated Total Investment and GEF-6 Investments Need

The Target would require between \$26.2 million and \$78.8 million US in total investments. Using the information above the estimated GEF-6 investments need becomes \$15.8 million US for the three activities under Scenario 1, \$31.6 million US under Scenario 2 and \$47.4 million US under Scenario 3. The details are found in Table 18 and summarized below.

Financial Needs for the GEF-6 Investments:**Scenario 1: GEF-6 Investments: \$15.8 million US****Scenario 2: GEF-6 Investments: \$31.6 million US****Scenario 3: GEF-6 Investments: \$47.4 million US**

The ideal scenarios are once again Scenario 2 and 3 for the GEF-6 investments since they allow relatively more projects, twice or three times as many as in Scenario 1.

5. Indicators and Baseline Information

Headline indicators (UNEP/CBD/COP/11/2 - ANNEX 1):

- Trends in integration of biodiversity, ecosystem services and benefit-sharing into planning, policy formulation and implementation and incentives:
 - Trends in land-use change and land tenure in the traditional territories of indigenous and local communities (B) (Decision X/43)
 - Trends in the practice of traditional occupations (B) (Decision X/43)
- Trend in accessibility of scientific/technical/traditional knowledge and its application
 - Trends in which traditional knowledge and practices are respected through their full integration, safeguards and the full and effective participation of indigenous and local communities in the national implementation of the Strategic Plan (B)
 - Trends of linguistic diversity and numbers of speakers of indigenous language (B) (Decision VII/30 and VIII/15)

Possible indicators and baseline information: Indicators include the status and trends of linguistic diversity and numbers of speakers of indigenous languages. Other indicators for the status of indigenous and traditional knowledge are under development. While information on indigenous languages is limited, some national information is available and the work being conducted by UNESCO on endangered languages could serve as a starting point in developing an information baseline. The open-ended Working Group on Article 8(j) and Related Provisions is also investigating two additional indicators, one on the status and trends in land use change in the traditional territories of indigenous and local communities, and the other on the status and trends of the practice of traditional occupations. Once developed, these indicators could also help to monitor progress towards this goal.

Target 19: By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.

1. Technical Rationale

Each country needs access to information to identify threats to biodiversity and determine priorities for conservation and sustainable use. While nearly all Parties report that they are taking actions related to monitoring and research, most also indicate that the absence or difficulty in accessing scientific information is an obstacle to the implementation of the goals of the Convention. Action taken to reach this target will also benefit the other targets of the Strategic Plan by encouraging new research, the development of new technologies and improved monitoring. Such actions will strengthen the policy-science interface and will contribute to the fulfilment of the other elements of the Strategic Plan.

2. Reference to Relevant COP Decisions and GEF Guidance

This target is related to relevant decisions on identification, monitoring, indicators and assessments, technology transfer and cooperation⁴⁴, and the Global Taxonomy Initiative.

Capacity Development

“To help developing countries meet the requirements of the international conventions for which the GEF serves as a financial mechanism, the GEF has funded several Capacity Development activities. These are designed to generate competence in and improve the effectiveness of the institutions that work with the conventions and implement GEF projects, as well as to promote in their countries a better-functioning political, economic, and social system (enabling environment).

As indicated in the country reports to conventions, there is limited capacity in the countries to implement the conventions and to benefit from participating in them. Recognizing this limitation, in 1999 the GEF Council approved (GEF/C.13/9) the Capacity Development Initiative (CDI), which made a broad assessment of capacity needs (particularly in the areas of biodiversity, climate change, land degradation, and cross-cutting issues), the extent and nature of bilateral and multilateral efforts to assist in meeting those needs, and a specific Action Plan for enhancing those efforts.

As a first step in implementing the CDI recommendations, the GEF Council in 2001 approved (GEF/C.17/6) funding initiatives in countries wishing to undertake a National Self-Assessment of Capacity-Building Needs (NCSA). The purpose was to support a country-driven consultative process of analysis and planning that will determine national priorities and needs for capacity development to protect the global environment and implement the CBD, UNCCD, and UNFCCC Conventions.

Evaluation reports of capacity development suggest the importance of integrating capacity development with specific areas of activities along with increasing the scale of support for sound economic development and environmental sustainability. Thus, a central part of GEF’s approach to capacity development is to develop capacity through regular Focal Area projects and programs.

Following a successful, fully country-driven NCSA process, in 2003 the Council a new decision on devised the *Strategic Approach to Enhance Capacity Building* (GEF/C.22/8), which focused on addressing the needs for capacity development identified in country reports. It also reflected guidance from the conventions to the GEF to provide support for country-driven capacity development activities, particularly for Least Developed Countries (LDCs) and Small Island Developing States (SIDS). The strategic approach defined four pathways for capacity development:

- Self-assessment of capacity needs (NCSA)
- Targeted capacity building within a Focal Area
- Targeted capacity building across Focal Areas (cross-cutting)

⁴⁴ There are numerous decisions related to the transfer and development of technology: ex. II/4 on ways and means to promote and facilitate access to, and transfer and development of technology; III/16 on ways to promote and facilitate access to and transfer and development of technology, as envisaged in Articles 16 and 8 of the Convention; VII/29 on transfer of technology and technology cooperation (Articles 16 to 19); VIII/12, IX/14, X/16 also all on technology transfer and cooperation among other information.

- Country-specific programs for addressing critical capacity needs in LDC and SIDS.”
http://www.thegef.org/gef/capacity_development

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4.12 Access to and transfer of technology (Article 16)

- (a) Implementation of the programme of work on technology transfer and technological and scientific cooperation, consistent with Articles 16 to 20 of the Convention and based on needs and priorities identified by developing country Parties and Parties with economies in transition, in particular:
 - i. Building policy, legal, judicial and administrative capacity;
 - ii. Facilitating access to relevant proprietary technologies;
 - iii. Providing other financial and non-financial incentives for the diffusion of relevant technologies;
 - iv. Building capacities of, and empowering, indigenous and local communities and all relevant stakeholders with respect to access to and use of relevant technologies;
 - v. Improving the capacity of national research institutions for the development of technologies, as well as for adaptation, diffusion and the further development of imported technologies consistent with their transfer agreement and international law including through fellowships and international exchange programmes;
 - vi. Supporting the development and operation of regional or international initiatives to assist technology transfer and cooperation as well as scientific and technical cooperation, including those initiatives designed to facilitate South-South cooperation and South-South joint development of new technologies and also such cooperation among countries with economies in transition;
- (b) Preparation of national assessments of technology needs for implementation of the Convention;
- (c) Ongoing national programmes for conservation and sustainable use of biodiversity through improved access to and transfer of technology and innovation;
- (d) Provision of capacity building, where needed, on, inter alia: (i) technologies for conservation and sustainable use; (ii) governance and regulatory frameworks associated with access and transfer of technology and innovation;
- (e) Projects that promote access to, transfer of and cooperation for joint development of technology.

4.13 Technical and scientific cooperation and Clearing-House Mechanism (Article 18)

- 5.2.6 Capacity building for the clearing-house mechanism, such as training in information and communication technologies and web content management that enable developing countries and countries with economies in transition to fully benefit from modern communication, including the Internet;
- 5.2.7 Establishing and strengthening biodiversity information systems such as, inter alia, training, technology and processes related to the collection, organization, maintenance and updating of data and information;
- 5.2.8 Establishment and updating of national clearing-house mechanisms and participation in the clearing-house mechanism of the Convention;
- 5.2.9 Activities that provide access to scientific and technical cooperation.

COP 10 – Decision X/25: Additional guidance to the financial mechanism

Technology transfer and cooperation

14. *Recalling* the importance, as underlined in the preamble to decision VIII/12, of developing specific approaches to technology transfer and technological and scientific cooperation to address the prioritized needs of countries based on the priorities in national biodiversity strategies and action plans and to link technology needs assessments to those priorities, while avoiding non-specific, global approaches to this issue, *invites* funding institutions, including the Global Environment Facility, to provide financial support to the preparation of such technology needs assessments;

Clearing-house mechanism

15. *Requests* that the Executive Secretary and the Global Environment Facility cooperate to facilitate access to funding for the clearing-house mechanism as a key component to support the implementation of the Strategic Plan for Biodiversity 2011-2020, as well as the implementation of national biodiversity strategies and action plans;

Proposed Milestones

Possible milestones for this Target include:

- By 2012, a review of the relevant knowledge and technologies available in-country and of the gaps in knowledge and technologies necessary to implement the Convention has been carried out;
- By 2014, a national clearing-house mechanism is established, together with a strategy to improve access to knowledge and technologies.

3. Activities and Investment

For knowledge that is already available, access could be improved through the further development of the clearing-house mechanism at national and global levels and through a functional CHM supporting implementation. Relevant information includes biodiversity-related data as well as tools and methodologies for biodiversity conservation, sustainable use and benefit sharing, and case-studies of their use. Further efforts are also needed, at multiple scales, to improve biodiversity-related knowledge⁴⁵ and reduce uncertainties around the relationship between biodiversity change, ecosystem services and impacts on human well-being. This requires substantial investment in global and national biodiversity observation networks, implementation of the Global Taxonomy Initiative, and further investment in research, including modeling and participatory research. Improvements are also needed in the science-policy interface. It is important to seek synergy with existing processes, as the evolving intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) including potential work to catalyse and identify building needs.

UNEP's Bali Strategic Plan for Technology Support and Capacity-building also includes in its strategic plan: a) to develop national research, monitoring and assessment capacity; b) to support national institutions in data collection, analysis and monitoring of environmental trends and in establishing infrastructure for scientific development and environmental management, in order to ensure sustainability of capacity-building efforts; and c) Development of national research, monitoring and assessment capacity, including training in assessment and early warning among other (UNEP, 2004).

3.1 Activities

Examples of activities are: to further develop the clearing-house mechanism at national and global levels; to improve understanding of biodiversity, relationship with ecosystem services and human well-being and consequences of loss; to reduce uncertainties concerning the causes and consequences of biodiversity loss in future scenarios; to improve global monitoring and capacity to use indicators; and to improve the science-policy interface. The following activities were selected:

1. **Capacity building activities** at high education institutions on topics associated to public policy analysis and design, and to management of biodiversity conservation and sustainable use oriented to the development of specialized professionals, capable to conceive and execute biodiversity conservation and sustainable development initiatives both in public and private sectors. Capacity to be offered in the context of structured disciplines associated to the topics, such as, economics, public and private administration, social studies, political sciences, information sciences and management, ecology, conservation biology, environment engineering, among others.
2. **Institutional building and strengthening initiatives:** Strengthen institutions and establishing infrastructure for scientific development and environmental management as long as this involves incremental costs, new chairs, teacher visiting programs, student exchange programs, national and international scholarships, research grants, among others. Initiatives should be aimed at fostering national capacity on knowledge management concepts and tools and oriented to the development of clearing house mechanisms (file retrieval, analysis, processing and dissemination of information and knowledge) on biodiversity conservation and sustainable development concepts, practices, institutional and financial instruments, and public policies.
3. **Project development of national clearing house mechanisms** on biodiversity conservation and sustainable use, associated to strategy to improve general and specialized access to the knowledge,

⁴⁵ This is consistent with what is mentioned in COP decision X/7 and X/15 on identifying and addressing barriers to data access and promoting free and open access.

information, statistics and technologies available to support public policy analysis and design⁴⁶, as well as public and private initiatives on biodiversity conservation and sustainable use management. The national CHMs and associated strategies would closely relate to data, information and knowledge generated as part of efforts to achieve other targets, and would evolve to better support planning and assessment processes, including NBSAPs (see narrative on target 1), Sub-Global Assessment processes (SGAs) (see narrative on Target 14) and the evolving Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem (IPBES).

The following activities were considered in the three funding scenarios built for the Target

National Level:

- 1) Capacity and institutional building and strengthening
- 2) Observation⁴⁷

Sub-Regional Level:

Cooperative programs

Global Level:

- 1) Capacity and institutional building
- 2) Observation

3.2 Estimates of Investment

The details of the total financial needs of Target 19 and the amount of fund that would be required from the GEF-6 investments are presented in **Table 19**. In Scenario 1 with less number of countries the total investment required would be \$140 million US. Scenario 2 and 3 are built by gradually increasing the number of countries or expanding the size or number of projects. The amounts that would be required are \$275 million US and \$400 US for the last two scenarios respectively.

3.3 Incremental Reasoning

“GEF grant to co-financing ratios reflect the nature of each project, the global environmental benefits that are to be generated, the incremental costs to achieve the global environmental benefits, the nature of the baseline which the project complements, and the presence and contributions of other co-financiers. In practice, the GEF seeks to leverage the maximum amount possible and the ratio of GEF funds to co-financing has thus ranged from 1:2 to as high as 1:10 in the biodiversity focal area with an average amount of 1:4 currently. This ratio is driven primarily by the global benefits that will be generated and the incremental costs of generating said benefits, all other things being equal.”

The importance of the activities identified for funding is well known and described in the previous section. Accordingly, it is recommended that GEF-funding be at 100% for all of the activities identified at national, sub-regional and global levels.

Table 19: Estimated GEF-6 investments need for Target 19

⁴⁶ MEA implementation (and reporting) at the national level requires a coherent approach to information management at the national level across all relevant MEAs, rather than a MEA by MEA approach. (Sharma, 2009. - A report by the GTZ).

⁴⁷ It is critical to understand the importance of biodiversity observations at all levels (local, national, global...) and covering all aspects of biodiversity and ecosystems services and how the observations support assessments which, in turn, underlie policy and thus the Convention on Biological Diversity (WMO/IOC/UNEP/ICSU, 2010)
http://www.wmo.int/pages/prog/gcos/SCXVIII/16.1_Biodiversity_Reed.pdf

Selected Activities For Target 19	Estimated Investment	Incremental Reasoning	Estimated GEF-6 Investments Need		
	GEF-6 Period		GEF-6 Scenario 1	GEF-6 Scenario 2	GEF-6 Scenario 3
Scenario 1:	(in Million US \$)		(in Million US \$)		
National Level: 50 countries, \$1 million US/country					
1) Capacity and Institutional Building	50	100%	50		
2) Observation	50	100%	50		
Sub-Regional Level: 5 countries, \$3 million US/country					
Cooperative programs	15	100%	15		
Global Level:					
1) Capacity and Institutional Building (1 global)	5	100%	5		
2) Observation (1 global)	20	100%	20		
Total	140		140		
Scenario 2:					
National Level: 100 countries, \$1 million US/country					
1) Capacity and Institutional Building	100	100%		100	
2) Observation	100	100%		100	
Sub-Regional Level: 7 countries, \$5 million/country					
Cooperative programs	35	100%		35	
Global Level:					
1) Capacity and Institutional Building (1 global)	10	100%		10	
2) Observation (1 global)	30	100%		30	
Total	275			275	
Scenario 3:					
National Level: 155 countries, \$1 million US/country					
1) Capacity and Institutional Building	155	100%			155
2) Observation	155	100%			155
Sub-Regional Level: 10 countries, \$5 million/country					
Cooperative programs	50	100%			50
Global Level:					
1) Capacity and Institutional Building (1 global)	10	100%			10
2) Observation (1 global)	40	100%			40
Total	410				410
Total for Target 19	140 - 410		140	275	410

Source: Based on estimates by the Experts at the Second Expert Meeting in Tokyo, Japan, 18-20 December 2011 and the Third Expert Meeting in Quito, Ecuador, 3-5 March 2012.

4. Estimated Total Investment and GEF-6 Investments Need

This Target would require total investments ranging between \$140 million and \$410 million US. The amount of funds that would be needed for GEF-6 investments would be \$140 million US (Scenario 1), \$275 million US (Scenario 2) and \$400 million US (Scenario 3). The details are presented in **Table 19**. The gradual increase of number of countries and number or size of projects or activities facilitates the achievement of the Target.

Financial Needs for the GEF-6 Investments:

Scenario 1: GEF-6 Investments: \$140 million US

Scenario 2: GEF-6 Investments: \$275 million US (recommended)

Scenario 3: GEF-6 Investments: \$400 million US

Scenario 2 with \$275 million US is recommended for the GEF-6 investments since it covers about 2/3rd of GEF eligible countries. However, because it allows the involvement of more countries and/or larger global and sub-regional projects, Scenario 3 with \$400 million US for the GEF-6 investments is considered to be ideal.

5. Indicators and Baseline Information

Headline indicators: Relation to CBD decisions and SBSTTA 16 UNEP/CBD/COP/11/2 - ANNEX 1

- Trend in accessibility of scientific/technical/traditional knowledge and its application
 - Trends in coverage of comprehensive policy-relevant sub-global assessments including related capacity-building and knowledge transfer, plus trends in uptake into policy (B)

- Number of maintained species inventories being used to implement the Convention (C).

Possible indicators and baseline information: An indicator for technology transfer is under development. Possible process indicators include: the number of countries with national clearing-house mechanisms; visitors/per year at each national CHM website; a globally agreed set of status and trends metrics; extent of data coverage for global biodiversity indicators and measures; and the use of biodiversity-related information in the fifth and sixth national reports.

Target 20: By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization should increase substantially from the current levels. This target will be subject to changes contingent to resources needs assessments to be developed and reported by Parties.

1. Technical Rationale

Most countries indicate in their fourth national reports that limited capacity, both financial and human, is a major obstacle to the implementation of one or more of the three goals of the Convention. National investment to strengthen capacity is poorly documented globally. However, in at least some biodiversity-rich countries, such as Mexico, that are documented, investment is increasing, and diversifying. Estimates for total current financing of biodiversity is of the order of \$36-38 billion US annually with around \$20-22 billion US being spend in developed countries and around \$15-16 billion US being spend in developing countries. Of this, some \$24 billion US is from domestic government spending (around \$16 billion US in developed countries and around \$8 billion US in developing countries). Market-based spending on biodiversity is currently rather limited. International financing for biodiversity conservation has been increasing and has been estimated to have grown by approximately 38 per cent in real terms since 1992. Despite this increase, the capacity for implementing the Convention, in terms of trained staff and financial resources, is limited in most countries, especially in developing countries, and in particular the least developed countries and small island developing states. Currently, it is estimated that international financing for biodiversity, as reported to the OECD, is approximately \$3.1 billion US per year.

A number of studies have attempted to estimate the funding needs for biodiversity. Some of the most well documented estimates have focused on the costs associated with protected area networks both at a regional and global scale. Estimates focussing on protected areas generally fall in the range of \$20 billion to \$50 billion US a year. It is estimated that spending on tropical terrestrial protected areas needs to increase from about \$1 billion per year to about \$13 billion US per year, while an additional \$6-20 billion US a year is needed for marine protected areas. Estimates that also include maintenance of biodiversity outside protected areas or for total ecosystem protection in the context of climate change mostly fall in the range of \$300–400 billion US per year.

The capacity which currently exists in countries needs to be safeguarded and increased from current levels, in line with the process laid out in the Strategy for Resource Mobilization, in order to enable countries to meet the challenges of implementing the Convention's revised Strategic Plan. The fulfilment of this target will also have implications on the feasibility of achieving the other 19 targets contained in the revised Strategic Plan. While a full and precise costing of the actions needed to implement the revised Strategic Plan is not available, a rough comparison of estimates of current financing with the estimates on financing needs provided above reveals that, while existing financing is in the order of a tens of billions of dollars a year (including international aid flows in the order of a few billion dollars a year), total needs are of the order of a few hundreds of billions of dollars a year (including a tens of billions for protected areas a year). A recent review concludes "Scaling up successful approaches requires much greater investment in biodiversity conservation, by at least an order of magnitude". A proportionately greater increase is required in developing countries as compared to developed countries. This might be achieved through a combination of aid flows, domestic spending, and market mechanisms. Meeting the MDG-related commitment for aid flows to reach 0.7 per cent GNI implies a doubling of aid and would also imply a doubling (or greater) of biodiversity-related aid, if the current percentage of aid that is biodiversity-related remains constant. Substantial increases in market-related mechanisms may be realized given the additional resources which are expected to become available through mechanisms such as "REDD-plus", and schemes related to ecosystem-based adaptation to climate change, and payment for ecosystem services.

2. Reference to Relevant COP Decisions and GEF Guidance

This target is related to Articles 20 and 21 of the Convention and relevant decisions on the strategy for resource mobilization.

CBD decisions that give background to costs are:

X/3.Strategy for resource mobilization in support of the achievement of the Convention's three objectives

- A. *Concrete activities and initiatives including measurable targets and/or indicators to achieve the strategic goals contained in the strategy for resource mobilization and on indicators to monitor the implementation of the Strategy*

Decision X/3 para 7 (2):

- (a) Assessed values of biodiversity, in accordance with the Convention; this is taken care of by Target 2
- (b) Identified and reported funding needs, gaps and priorities; Target 17
- (c) Developed national financial plans for biodiversity;
- (d) Been provided with the necessary funding and capacity building to undertake the above activities;

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Funding needs relates to e.g.:

Goal 1: Improve information base on funding needs, gaps and priorities, will be taken care of in NBSAPS.

Goal 2: Strengthen national capacity for resource utilization and mobilize domestic financial resources for the Convention's three objectives

- 2.1 To strengthen institutional capacities for effective resource mobilization and utilization, including strengthening capacities of relevant ministries and agencies to make the case for including biodiversity and its associated ecosystem services in discussions with donors and relevant financial institutions.
- 2.2. To prepare national financial plans in the context of national biodiversity strategies and action plans that can be implemented by local, national, regional and international stakeholders.
- 2.3 To strengthen capacity for integration of biodiversity issues and its associated ecosystem services into national and sectoral planning, and promote budgetary allocations for biological diversity and its associated ecosystem services in national and relevant sectoral budgets.
- 2.4. To develop and implement economic incentives that are supportive of the Convention's three objectives at local and national levels, consistent and in harmony with the other relevant international obligations.
- 2.5 To consider the enhancement of existing, or the establishment of new, domestic funds and funding programmes through voluntary contributions, including for official development assistance, where biodiversity is identified as a priority by developing country Parties in poverty reduction strategies, national development strategies, United Nations development assistance frameworks and other development assistance strategies, that include innovative financing instruments to achieve the Convention's three objectives.
- 2.6. To establish enabling conditions for private sector involvement in supporting the Convention's three objectives, including the financial sector.

Goal 3: Strengthen existing financial institutions and, promote replication and scaling-up of successful financial mechanisms and instruments

- 3.1. To enhance efforts in mobilizing co-financing and other modes of project financing for biological diversity.
- 3.3. To mobilize public sector investments in biological diversity and its associated ecosystem services.
- 3.6. To continue to support, as appropriate, domestic environmental funds as essential complements to the national biodiversity resource base.
- 3.7. To promote biological diversity in debt relief and conversion initiatives, including debt for-nature swaps.

Goal 4: Explore new and innovative financial mechanisms at all levels with a view to increasing funding to support the three objectives of the Convention

- 4.1. To promote, where applicable, schemes for payment for ecosystem services, consistent and in harmony with the Convention and other relevant international obligations.
- 4.2. To consider biodiversity offset mechanisms where relevant and appropriate while ensuring that they are not used to undermine unique components of biodiversity.
- 4.3. To explore opportunities presented by environmental fiscal reforms including innovative taxation models and fiscal incentives for achieving the three objectives of the Convention.
- 4.4 To explore opportunities presented by promising innovative financial mechanisms such as markets for green products, business-biodiversity partnerships and new forms of charity.

4.5. To integrate biological diversity and its associated ecosystem services in the development of new and innovative sources of international development finance, taking into account conservation costs.

4.6 To encourage the Parties to United Nations Framework Convention on Climate Change and its Kyoto Protocol to take into account biodiversity when developing any funding mechanisms for climate change.

Goal 5: Mainstream biological diversity and its associated ecosystem services in development cooperation plans and priorities including the linkage between Convention's work programmes and Millennium

Development Goals

5.2 To integrate considerations on biological diversity and its associated ecosystem services in economic and development plans, strategies and budgets of developing country Parties.

5.4. To strengthen cooperation and coordination among funding partners at the regional and sub regional levels, taking into account the Paris Declaration on Aid Effectiveness.

5.5. To enhance financial, scientific, technical and technological cooperation with international organizations, non-governmental organizations, indigenous peoples' organizations and public institutions for biological diversity and its associated ecosystem services.

Goal 6: Build capacity for resource mobilization and utilization and promote South-South cooperation as a complement to necessary North-South cooperation

6.1. To build local, national and regional capacities on resource mobilization skills, financial planning and effective resource utilization and management, and support awareness raising activities.

6.2. To identify, engage and increase South-South cooperation as complement to North South cooperation to enhance technical, technological, scientific and financial cooperation.

6.3 To promote exchange of experience and good practice in financing for biological diversity.

Goal 7 Enhancing implementation of access and benefit-sharing initiatives and mechanisms in support of resource mobilization

7.1 To raise awareness and build the capacity of different stakeholders to implement access and benefit-sharing initiatives and mechanisms.

7.2 To promote exchange of experiences and good practices in access and benefit sharing.

Proposed Milestones

Possible milestones for this Target include:

- By 2014, all countries have developed country-specific strategies for resource mobilization as part of the process of updating their national biodiversity strategies and action plans.

This activity is part of Targets 2 and 17 on NBSAPs and therefore needs of funds for it are also partly already covered elsewhere.

3. Activities and Investment

This target should be seen as a common commitment by donors and recipient countries to take action, as appropriate, to both increase development cooperation funds available for biodiversity relevant activities, consistent with the Paris Declaration, and also to give appropriate priority in the use of those funds. It does not necessarily require the earmarking of funds by those donors which provide budget-wide support to developing countries. It assumes that developed countries will comply with their commitments under the Monterey Consensus. In accordance with the Convention, financing will be from both domestic and international sources, including innovative financing mechanisms, in line with the Convention's Strategy for Resource Mobilization adopted at the ninth meeting of the Conference of the Parties to the Convention on Biological Diversity. Financing that is envisaged to become available for reducing emissions from deforestation and forest degradation is expected to provide substantial biodiversity co-benefits. Financing envisaged for adaptation also has a potential to become available for biodiversity-friendly ecosystem-based adaptation. Funds already committed for these purposes, as part of the Copenhagen Accord, are at least an order of magnitude higher than funds currently committed for biodiversity.⁶⁹ The increase in capacity included as part of this target should be conducted bearing in mind the provisions of Article 20 of the Convention and on the resources needs

assessment to be conducted and reported on by Parties during the eleventh meeting of the conference of the Parties in 2012.

3.1 Activities

Examples of activities are: to increase Official Development Assistance; reinforce domestic capacity; implement innovative financing mechanisms; apply appropriate allocation of resources; improve dialogue and coordination among donors and recipients of bilateral and multilateral aid; undertake training and capacity-building; and promote professional networks and exchange of expertise. The following activities were selected:

1. **Develop country specific resource mobilization strategies** and financial plans for biodiversity. This is not envisioned to be covered appropriately under NBSAPs (that is mainly done before 2014);
2. **Capacity building and implementation of country specific resource mobilization strategies**; e.g. to include biodiversity and ecosystems services in budgets including sectors, to create of enabling environment and institutional capacity building as regulation and governance of funds and mechanisms that are created, compliance measures; participatory approaches of governance of funds, to develop indicators to follow up on the country specific resource mobilizations strategies etc.

Hence, an activity covering the development of strategies, capacity building and implementation is proposed at **\$150,000 per country**. Three scenarios were built for 1) 50 countries, 2) 100 countries and 3) 155 countries.

3.2 Estimates of Investment

Overall the strategies for resource mobilization are not expected to be expensive, but implementation will be. Hence about \$150,000 (for staff costs, workshops, material) per country could be envisioned as indicated above. Taking 50 countries in consideration, the total investment that would be required would then become \$ 7.5 million US (**Table 20**). Where 100 countries and 155 countries are considered, the required amounts increase to \$15 million US and \$23.3 million US respectively.

3.3 Incremental Reasoning

“GEF grant to co-financing ratios reflect the nature of each project, the global environmental benefits that are to be generated, the incremental costs to achieve the global environmental benefits, the nature of the baseline which the project complements, and the presence and contributions of other co-financiers. In practice, the GEF seeks to leverage the maximum amount possible and the ratio of GEF funds to co-financing has thus ranged from 1:2 to as high as 1:10 in the biodiversity focal area with an average amount of 1:4 currently. This ratio is driven primarily by the global benefits that will be generated and the incremental costs of generating said benefits, all other things being equal.”

Given the importance of development strategies, capacity building and implementation it is recommended to finance this activity at 80% of the total required investment during the GEF-6 period (**Table 20**).

Table 20: Estimated GEF-6 investments need for Target 20

Selected Activities For Target 20	Estimated Investment	Incremental Reasoning	Estimated GEF-6 Investments Need		
	GEF-6 Period		GEF-6 Scenario 1	GEF-6 Scenario 2	GEF-6 Scenario 3
Scenario 1: 50 countries 1) Develop country specific resource mobilization (SRM) strategies, and 2) Capacity building and implementation of the SRM \$150,000 US per countries for the two activities	(in Million US \$) 7.5	 80%	 6.0	(in Million US \$) 12.0	 18.6
Scenario 2: 100 countries 1) Develop country specific resource mobilization (SRM) strategies, and 2) Capacity building and implementation of the SRM \$150,000 US per countries for the two activities	 15.0	 80%	 		
Scenario 3: 155 countries 1) Develop country specific resource mobilization (SRM) strategies, and 2) Capacity building and implementation of the SRM \$150,000 US per countries for the two activities	 23.3	 80%	 		
Total for Target 20	7.5 - 23.3		6.0	12.0	18.6

Source: Based on estimates by the Experts at the Second Expert Meeting in Tokyo, Japan, 18-20 December 2011 and the Third Expert Meeting in Quito, Ecuador, 3-5 March 2012.

4. Estimated Total Investment and GEF-6 Investments Need

This Target would require total investments ranging between \$7.5 million and \$23.3 million US. At 80% financing, there will be a need for \$6 million US to \$18.6 million US for GEF-6 investments depending on whether 50 countries (Scenario 1) or all the 155 GEF eligible countries (Scenario 3) are considered (**Table 20**). Since the more the countries covered the better the chance for the achievement of the Target, Scenario 2 and 3 are built by increasing the number of countries receiving funding.

Financial Needs for the GEF-6 Investments:

Scenario 1: GEF-6 Investments: \$6 million US

Scenario 2: GEF-6 Investments: \$12 million US (recommended)

Scenario 3: GEF-6 Investments: \$23.3 million US

At least Scenario 2 with \$12 million US or ideally Scenario 3 with \$23.3million US is recommended for the GEF-6 investments. While Scenario 2 covers 2/3 of the GEF eligible countries, Scenario 3 includes all the 155 countries.

5. Indicators and Baseline Information

Headline indicators: Relation to CBD decisions and SBSTTA 16 UNEP/CBD/COP/11/2 - ANNEX 1

- Trend in mobilisation of financial resources
 - Indicators agreed in decision X/3 (B: at possibly global level)

Possible indicators and baseline information: Official development assistance (ODA) provided in support of the Convention is one indicator for this target. Additional indicators could include the resources provided to developing countries which are dispersed through mechanisms other than official development assistance. Another possible indicator includes the number of officials and experts qualified on biodiversity-related matters. Data related to official development assistance are already available and could serve as a baseline for gauging progress towards this goal.

Cartagena Protocol: Biosafety

1. Technical Rationale

The *Cartagena Protocol on Biosafety to the Convention on Biological Diversity* is an international treaty governing the movements of living modified organisms (LMOs) resulting from modern biotechnology from one country to another. On 29 January 2000, the Conference of the Parties to the Convention on Biological Diversity adopted a supplementary agreement to the Convention known as the *Cartagena Protocol on Biosafety* that entered into force on 11 September 2003. The Protocol seeks to protect biological diversity from the potential risks posed by living modified organisms resulting from modern biotechnology. It establishes an *advance informed agreement (AIA)* procedure for ensuring that countries are provided with the information necessary to make informed decisions before agreeing to the import of such organisms into their territory. The Protocol contains reference to a *precautionary approach* and reaffirms the precaution language in Principle 15 of the Rio Declaration on Environment and Development. The Protocol also establishes a *Biosafety Clearing-House* to facilitate the exchange of information on living modified organisms and to assist countries in the implementation of the Protocol.

Overall Objective: To build the capacity of Parties to implement the Cartagena Protocol on Biosafety with a view to ensuring an adequate level of protection in the field of the safe transfer, handling and use of living modified organisms that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health and specifically focusing on transboundary movements.

2. Reference to Relevant COP Decisions and GEF Guidance

COP 10 Decision X/24: Review of Guidance to the financial mechanism: 4.14 Biosafety, within its mandate

- (a) In-country, regional and subregional stock-taking studies to enable:
 - i. the better planning and customizing of future assistance to the respective needs of eligible countries, given the fact that a "one-size-fits-all" approach to biosafety has been demonstrated to be inappropriate;
 - ii. the identification of clear and realistic targets;
 - iii. the identification and provision of technical and adequately experienced expertise for the implementation of national biosafety frameworks;
 - iv. the development of effective coordination which facilitates the support, ownership and involvement of all relevant national ministries and authorities, to ensure synergy and continuity;
- (b) Development and implementation of capacity-building activities, including organization of national, regional and inter-regional capacity-building workshops and preparatory meetings. Development of technical, financial, and human capacity including postgraduate education, biosafety-related laboratories and relevant equipment. Implementation of the revised Action Plan for Building Capacities for the Effective Implementation of the Cartagena Protocol on Biosafety;
- (c) Development and implementation of national biosafety frameworks. Coordination and harmonization of national Biosafety frameworks at regional and subregional levels;
- (d) Awareness-raising, public participation and information sharing, including through the Biosafety Clearing-House;
- (e) Sustainable national participation in the Biosafety Clearing-house, including capacity-building, to take into account the need for Parties to be able to provide summary information in the common formats for reporting information (particularly keywords for categorizing records) in an official language of the United Nations to enable registration of such information with the Central Portal;
- (f) Building, consolidating and enhancing sustainable human resource capacity in risk assessment and risk management, and in developing detection techniques for identifying living modified organisms, including the setting up of laboratory facilities and training of local regulatory and scientific personnel. Transfer and joint development of technology in risk assessment, risk management, monitoring and detection of living modified organisms;
- (g) Facilitation of the consultative information-gathering process leading to the preparation of national reports under the Protocol.

COP 10 Decision X/25: Additional guidance to the financial mechanism: Cartagena Protocol on Biosafety

20. Urges the Global Environment Facility to:

- (a) Continue to implement all previous guidance to the financial mechanism with respect to biosafety;
- (b) Consider, in the context of the replenishment process for GEF-6, supporting the implementation of the Protocol within the System for Transparent Allocation of Resources (STAR) by defining specific quotas for biosafety for each country, on the basis of the second national reports on the implementation of the Protocol;
- (c) Make available, in a timely manner, financial resources to eligible Parties to facilitate the preparation of their second national reports under the Cartagena Protocol on Biosafety;
- (d) Expand its support for capacity-building for effective participation in the Biosafety Clearing-House to all eligible Parties to the Protocol and to submit a report for consideration of the sixth meeting of the Parties to the Protocol;
- (e) Ensure the inclusion of biosafety-related elements in the terms of reference for national capacity self-assessments (NCSAs) and other capacity assessment initiatives carried out with GEF funding;
- (f) Ensure that identification requirements of paragraph 2 (a) of Article 18 and related decisions are taken into account in activities carried out with GEF funding;
- (g) Ensure that the programme of work on public awareness, education and participation concerning the safe transfer, handling and use of living modified organisms is taken into account in activities carried out with GEF funding;
- (h) Make funds available to eligible Parties in a facilitated manner and to monitor, as appropriate, the expeditious accessibility to those funds;

Milestones - Measures of Success - 2010

- At least 10 countries report high-impact results on their island conservation commitments, which are publicized/shared widely.
- Sustainable funding targets met by at least two initiatives, with significant GLISPA assistance.
- Efficient mechanisms, in place to help islands rapidly share solutions, technology, capacity and practices to address invasive species and sea level rise (e.g. exchanges, networks, database, etc).
- More than 50% of active GLISPA partners report significant benefits from participating in the Partnership.
- At least 20 major media hits on island issues/leaders and measurable change in perception of island ecosystem challenges and progress/achievements.
- At least one partnership with the private sector announced to address a major island challenge, such as sustainable tourism, fisheries, forestry, agriculture, waste management, coastal development, invasive species management, and protected areas.

However, very slow progress has been observed in most regions in terms of implementation of the Protocol due to various reasons depending on the region⁴⁸.

3. Activities and Investment

A draft Strategic Plan, together with a new programme of work, were considered and adopted by the COP-MOP at its fifth meeting in Nagoya, Japan in October 2010. The Strategic Plan consists of a vision, a mission statement and five strategic objectives. For each strategic objective there are a number of operational objectives, expected outcomes and indicators to be used to measure progress.

The five strategic objectives are:

⁴⁸ <http://www.cbd.int/doc/newsletters/bpn/bpn-08.pdf>

- 1) Facilitating the establishment and further development of effective biosafety systems for the implementation of the Protocol;
- 2) Further developing and strengthening the capacity of Parties to implement the Protocol;
- 3) Promoting compliance with and effectiveness of the Protocol;
- 4) Enhancing the availability and exchange of relevant information and;
- 5) Expanding the reach of the Protocol and promoting cooperation.

These broad and relatively long-term objectives were selected because of their high importance in furthering the implementation of the Protocol.

3.1 Activities and Issues Relevant to Biosafety

Main Focal Areas of Biosafety:

- Focal area 1: Facilitating the establishment and further development of effective biosafety systems for the implementation of the Protocol - To put in place further tools and guidance necessary to make the Protocol fully operational
- Focal area 2: Capacity building - To further develop and strengthen the capacity of Parties to implement the Protocol
- Focal area 3: Compliance and review - To achieve compliance with and effectiveness of the Protocol
- Focal area 4: Information sharing - To enhance the availability and exchange of relevant information
- Focal area 5: Outreach and cooperation - To expand the reach of the Protocol and promote cooperation

Among the many important activities that require funding are found the following:

- Biosafety Clearing House (BCH)
- Compliance Committee
- Risk Assessment and Risk Management
- Liability and Redress
- Public Awareness, Education and Participation
- Capacity-Building
- Handling, Transport, Packaging and Identification

3.2 Estimates of Investment

The cost estimates are summarised in **Table 21**. Capacity building that includes numerous activities is estimated to require \$158.2 million US in total investment during the GEF-6 period, compliance and review \$5.8 million US and facilitating the establishment and further development of effective biosafety systems for the implementation of the Protocol, \$8 million US. Overall total investment required for biosafety is expected to be \$170 million US (**Table 21**). **Annex Table 6** gives the details of the estimation of the amount of investments (\$85 million US) expected from the GEF-6 for a scenario of 50% financing.

3.3 Incremental Reasoning

“GEF grant to co-financing ratios reflect the nature of each project, the global environmental benefits that are to be generated, the incremental costs to achieve the global environmental benefits, the nature of the baseline which the project complements, and the presence and contributions of other co-financiers. In practice, the GEF seeks to leverage the maximum amount possible and the ratio of GEF funds to co-financing has thus ranged from 1:2 to as high as 1:10 in the biodiversity focal area with an average amount of 1:4 currently. This ratio is

driven primarily by the global benefits that will be generated and the incremental costs of generating said benefits, all other things being equal.”

First, 50% GEF-6 funding share in total cost is used in Scenario 1. This assumes that an equal amount could be leveraged from other sources of funding. However, given the substantial importance of biosafety issues and the global benefits of ensuring biosafety worldwide, Scenario 2 and 3 are built by increasing GEF's funding share to 60% and 80% respectively to enable increase in activities and speed up the process of ensuring the achievement of the target by appropriately putting in place all the necessary measures, training, capacity building, ensuring compliance and improving the biosafety clearing house mechanism.

Table 21: Estimated GEF-6 investments need for Biosafety

Selected Activities For Biosafety	Estimated Investment	Incremental Reasoning	Estimated GEF-6 Investments Need		
	GEF-6 Period		GEF-6 Scenario 1	GEF-6 Scenario 2	GEF-6 Scenario 3
Scenario 1:	(in Million US \$)		(in Million US \$)		
1) Focal area 2: Capacity building	156.2	50%	78.1		
2) Focal area 3: Compliance and review	5.8	50%	2.9		
3) Focal area 1: Facilitating the establishment and further development of effective biosafety systems for the implementation of the Protocol	8.0	50%	4.0		
Total	170.0		85.0		
Scenario 2:					
1) Focal area 2: Capacity building	156.2	60%		93.7	
2) Focal area 3: Compliance and review	5.8	60%		3.5	
3) Focal area 1: Facilitating the establishment and further development of effective biosafety systems for the implementation of the Protocol	8.0	60%		4.8	
Total	170.0			102.0	
Scenario 3:					
1) Focal area 2: Capacity building	156.2	80%			125.0
2) Focal area 3: Compliance and review	5.8	80%			4.6
3) Focal area 1: Facilitating the establishment and further development of effective biosafety systems for the implementation of the Protocol	8.0	80%			6.4
Total	170.0				136.0
Total for Biosafety	170.0		85.0	102.0	136.0

Note: Total cost is estimated on the basis of GEF-6 funding share of 50%.

Source: Based on cost estimates by CBD Secretariat staff member

4. Estimated Total Investment and GEF-6 Investments Need

The Target would require a total investment of about \$170 million US. Assuming that an equal amount could be leveraged from other sources of funding, the amount that would be required for the GEF-6 investment would be \$85 million US to meet the Target (Scenario 1). The amount for the GEF-6 investment is increased to \$102 million US and \$136 million US in Scenario 2 and 3 respectively (**Table 21**). Most of the biosafety expenses relate to capacity building that would require \$78.1 million to \$125 million US (i.e. 92%) in GEF-6 investment depending on Scenario.

Financial Needs for the GEF-6 Investments:

Scenario 1: GEF-6 Investments: \$85 million US

Scenario 2: GEF-6 Investments: \$102 million US (recommended)

Scenario 3: GEF-6 Investments: \$136 million US

While the amount in Scenario 2, \$102 million US was recommended, it would still be ideal if GEF-6 investments would be \$136 million US to speed up activities and attain the objectives of Biosafety faster.

5. Indicators and Baseline Information

Biosafety has the largest number of indicators per Focal Areas. The following are indicators for just one of the five focal areas listed in section 4:

Focal area 1: Facilitating the establishment and further development of effective biosafety systems for the implementation of the Protocol.

National Biosafety frameworks:

- Number of Parties, in particular centers of origin, that have in place national biosafety legislation and implementing guidelines not more than 6 years after accession to/ratification of the Protocol
- Percentage of the Parties that have in place administrative rules and procedures for handling notifications and requests for approval of imports of LMOs intended for direct use as food or feed, or for processing; contained use and for introduction into the environment
- Percentage of Parties that have designated national focal points and competent national authorities
- Percentage of Parties that have received notifications in accordance with Article 8 of the Protocol or appropriate domestic legislation.
- Percentage of Parties that have taken import decisions in accordance with Article 10 of the Protocol or appropriate domestic legislation.

Coordination and Support

- Number of Parties that have assessed their capacity-building needs, including training and institutional needs, and submitted the information to the BCH not more than 3 years after accession to/ratification of the Protocol
- Percentage of the Parties that have developed national biosafety capacity-building action plans for implementing the Protocol
- Percentage of the Parties that have in place training programmes for personnel dealing with biosafety issues and for long-term training of biosafety professionals
- Percentage of Parties that have in place national coordination mechanisms for biosafety capacity-building initiatives
- Amount of new and additional financial resources mobilized for the implementation of the Protocol
- Number of Parties that have predictable and reliable funding for strengthening their capacity in implementing the Protocol
- Number of Parties reporting that their capacity-building needs have been met
- Number of cooperative arrangements reported involving LMO exporting and importing Parties

Risk Assessment and Risk Management

- Percentage of Parties adopting and using guidance documents on risk assessment and risk management for the purpose of:
 - Performing their own risk assessment and risk management;
 - Evaluating risk assessment reports submitted by notifiers.
- Percentage of Parties adopting common approaches to risk assessment and risk management
- Percentage of Parties that undertake actual risk assessment pursuant to the Protocol.

LMOs on traits that may have adverse effects

- Guidance on living modified organisms or specific traits that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health, developed by Parties and available
- Number of Parties that have the capacity to identify, assess and monitor living modified organisms or specific traits that may have adverse effects on the conservation and sustainable use of biological diversity, taking into account risks to human health.

Liability and redress

- Entry into force of the Nagoya – Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety prior to the seventh meeting of the Conference of the Parties serving as the meeting of the Parties to the Protocol
- Percentage of Parties to the Nagoya – Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety having in place national administrative and legal frameworks incorporating rules and procedures on liability and redress for damage caused by living modified organisms

Handling transport, packaging and identification

- Percentage of Parties that put in place documentation requirements for living modified organisms intended for direct use as food or feed, or for processing
- Percentage of Parties that put in place documentation requirements for living modified organisms for contained use and for intentional introduction into the environment
- Number of Parties with access to tools that are capable of detecting unauthorized LMOs.
- Number of Parties using guidance developed for the handling, transport and packaging of LMOs

Socio-economic considerations

- Number of peer reviewed research papers published, made available and used by Parties in considering socio-economic impacts of LMOs
- Number of Parties reporting on their approaches to taking socioeconomic considerations into account
- Number of Parties reporting on their experiences in taking socio-economic considerations into account in reaching decisions on import of living modified organisms
- Number of Parties using guidelines on socio-economic considerations

Transit contained use, unintentional transboundary movements and emergency measures

- Percentage of Parties having in place measures to manage LMOs in transit
- Percentage of Parties having in place measures for contained use
- Percentage of Parties using the guidance to detect occurrence of unintentional releases of living modified organisms and being able to take appropriate response measures

The rest of the indicators and details are found at: http://bch.cbd.int/protocol/issues/cpb_stplan_txt.shtml

SUMMARY OF RESULTS AND CONCLUSIONS

The summary of the results of estimated total investment requirements of Target 1 to Target 20 as well as Biosafety during the GEF-6 period is presented in **Table 22**. The table also summarizes the total estimated GEF-6 investments for each of the scenarios presented for the Targets. Since Target 11 – Protected Areas (PAs and MPAs) is estimated using two different methods with substantial difference especially for MPAs, the totals are presented separately.

However, as indicated in the section on Target 11, it was the results from Method 1 (using GEF costing approach) that were selected by the experts. Hence, the total amount that is recommended for the GEF-6 investments is also based on Method 1 for Target 11 (**Total 1 in Table 22**).

Table 22: Total Cost of Achieving Target 1 to Target 20 and Biosafety and Estimated GEF-6 Investments Need under three Scenarios

TARGETS	Estimated Investment			Total Estimated GEF-6 Investments Need			Incremental Reasoning (%)
	GEF-6 Period						
	Scenario 1	Scenario 2	Scenario 3	Scenario 1	Scenario 2	Scenario 3	
	(in Million US \$)			(in Million US \$)			
Target - 1	127.50	127.50	127.50	26.70	71.50	127.50	10%-100%
Target - 2	4.50	13.50	22.50	2.25	6.75	11.25	50%
Target - 3	35.80	65.00	100.80	3.58	6.50	10.08	10%
Target - 4	51.00	71.50	92.00	26.40	34.60	42.80	40%-100%
Target - 5	2,000.00	3,000.00	5,000.00	1,000.00	1,500.00	2,500.00	50%
Target - 6	325.00	480.00	740.00	37.50	54.00	82.00	10%-30%
Target - 7	2,500.00	3,125.00	3,750.00	350.00	437.50	525.00	10%-30%
Target - 8	250.00	400.00	600.00	62.50	100.00	150.00	25%
Target - 9	67.50	81.50	103.20	21.93	26.12	32.63	30%-100%
Target - 10	18,090.00	18,150.00	18,240.00	1,845.00	4,575.00	9,120.00	10%-50%
Element 1	90.00	150.00	240.00	45.00	75.00	120.00	50%
Element 2	18,000.00	18,000.00	18,000.00	1,800.00	4,500.00	9,000.00	10%-50%
Target - 11 - Method 1	18,872.00	32,519.00	44,449.00	9,435.90	16,259.54	22,224.32	50%
Terrestrial PAs (PAs)	10,791.00	13,231.00	15,672.00	5,395.40	6,615.57	7,835.75	50%
Marine PA (MPAs)	8,081.00	19,288.00	28,777.00	4,040.50	9,643.97	14,388.57	50%
Target - 11 - Method 2	62,719.00	96,784.00	127,130.00	35,172.99	53,167.97	69,716.04	50%-100%
Terrestrial PAs (PAs)	12,058.00	14,554.00	17,050.00	6,029.00	7,277.00	8,525.00	50%
Marine PA (MPAs)	50,661.00	82,230.00	110,080.00	29,143.99	45,890.97	61,191.04	50%-100%
Target - 12	945.00	1,140.00	1,140.00	456.00	612.00	612.00	40%-80%
Target - 13	30.00	60.00	90.00	21.00	42.00	63.00	60%-80%
Target - 14	350.00	525.00	700.00	105.00	157.50	210.00	30%
Target - 15	30,000.00	36,000.00	45,000.00	3,000.00	3,600.00	4,500.00	10%
Target - 16	46.50	69.80	93.00	27.90	41.80	55.80	60%
Target - 17	7.50	15.00	20.50	7.50	15.00	20.50	100%
Target - 18	26.20	52.50	78.80	15.77	31.63	47.48	40%-85%
Target - 19	140.00	275.00	400.00	140.00	275.00	400.00	100%
Target - 20	7.50	15.00	23.30	6.00	12.00	18.60	80%
BIOSAFETY	170.00	170.00	170.00	85.00	102.00	136.00	50%-80%
Total (1)	74,046	96,355	120,941	16,676	27,960	40,889	
Total (2)	117,893	160,620	203,622	42,413	64,869	88,381	

Note: 1) The figures in small characters are details; 2) Total 1 is estimated using Method 1 results for Protected Areas, Total 2 is based on Method 2 estimates for Protected Areas. The lower costs in Method 1 results are partly due to the fact that it excludes ABNJ protection costs.

Source: Based on the Target by Target Assessment by the Expert Team.

Total investments need for the GEF-6 period (2014-2018):

- **Total Investment Requirement during the GEF-6 Period: \$74.05 billion US - \$120.94 billion US**
- **Estimated Financial Needs for the GEF-6 Investments:**

Scenario 1: GEF-6 Investments: \$16.68 billion US

Scenario 2: GEF-6 Investments: \$27.96 billion US (mostly recommended)⁴⁹

Scenario 3: GEF-6 Investments: \$40.89 billion US

Scenario 1 implies \$16.68 billion US; Scenario 2, \$27.96 billion US, and Scenario 3, \$40.89 billion US for the GEF-6 investments during the period 2014-2018. The amount that was recommended is **\$27.96 billion US**. However, since it allows more countries, number or size of projects, or regional or global coverage, **\$40.89 billion US** would be the ideal amount for the GEF-6 investments (Scenario 3).

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⁴⁹ Scenario 2 is mostly recommended in the target by target costing.

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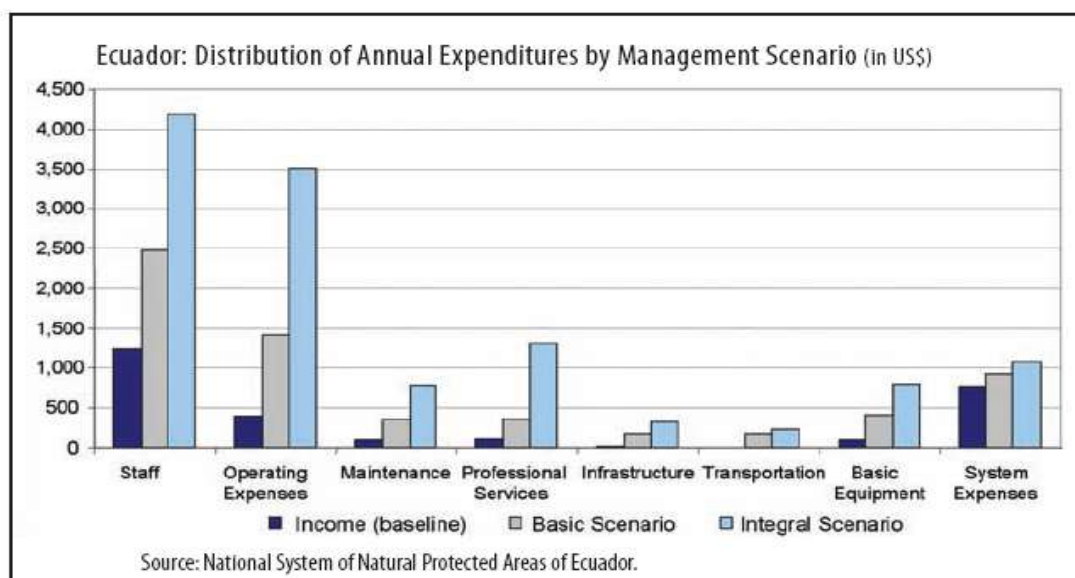
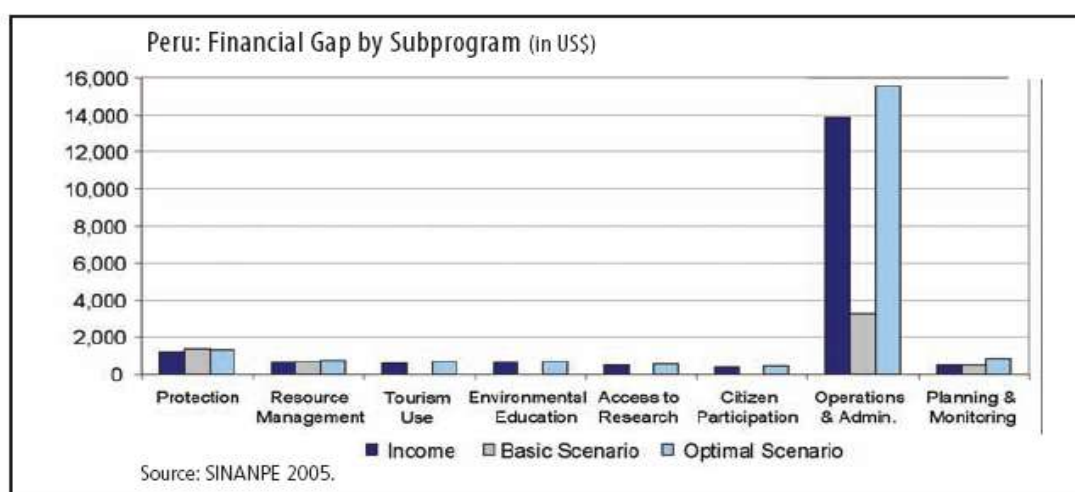
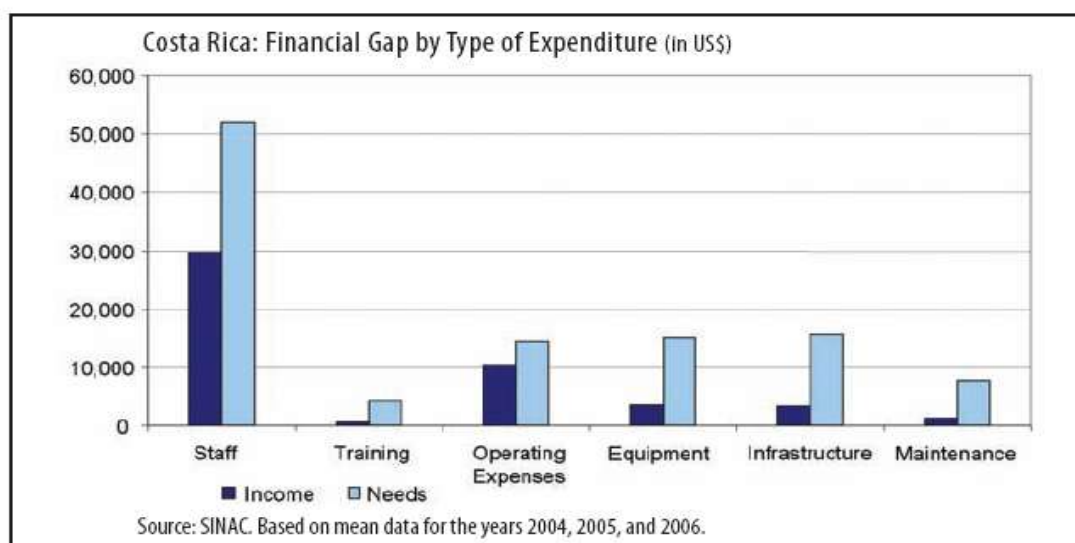
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Annex Figure 1. Categories of Costs of Protected Areas in Costa Rica, Peru, and Ecuador

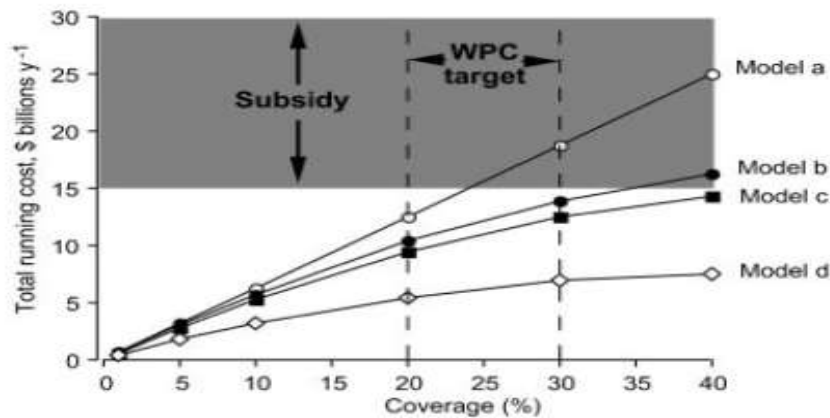
Annex Figure 2: Total estimated running costs of MPA systems covering 1-40% of the world's seas.

Fig. 3. Total estimated running costs of MPA systems covering 1–40% of the world's seas, according to four different models of system expansion. The shaded area denotes recent estimates of global subsidies to industrial fisheries (see text), whereas the vertical dashed lines show the MPA coverage recently recommended by the World Parks Congress. Model a, new MPAs randomly located, with no coalescence allowed; model b, new MPAs randomly located, but with all neighboring MPAs allowed to coalesce; model c, currently unprotected cells adjacent to already protected cells being 10% more likely than others to be picked for reservation, and with coalescence allowed; model d, as for model c, but with 50% greater likelihood of adjacent cells being picked.

Source: Adapted from McCrea-Strub, et al. 2011.

Annex Table 1: Overview of financial needs estimates, available financial resources and funding gaps for implementing the programme of work on protected areas (in million US\$) in selected countries

Country	Financial Needs Estimates	Available Financial Resources	Funding Gaps
Least Developed Countries			
Liberia ⁵⁰	7.00	NA	NA
Small Island Developing States			
Bahamas ⁵¹	30.20	2.11	28.09
Cuba ⁵²	32.00	3.00	29.00
Palau	2.50	NA	NA
Trinidad & Tobago	42.32	4.21	39.26
Other developing countries			
Brazil ⁵³	700 for structural investments & 450 per year for running costs. Additional investment of 500 for expansion of PAs (30% of Amazon and 10% each of other biomes, plus 150 annual running costs of expanded PAs)	NA	NA
China ⁵⁴	60.00	NA	NA
India ⁵⁵	840.00	NA	NA
Indonesia	40.50	5.50	35.00

Panama	36.00	NA	NA
Philippines	110.40	24.90	85.50
Countries with economies in transition			
Belarus	4.42	1.14	3.28
Russian Federation ⁵⁶	95.00	62.00	33.00

Source: Based on information from various sources.

⁵⁰ UNEP/CBD/COP/8/INF/26, per year

⁵¹ UNEP/CBD/COP/8/INF/6

⁵² UNEP/CBD/COP/8/INF/26, per year.

⁵³ Implementation of CBD in Brazil: Issues on the agenda of COP 9, Ministry of Environment, Government of Brazil 2008.

⁵⁴ Submission to the Secretariat on the review of implementation of the programme of work in 2007, per year up to 2010.

⁵⁵ Submission to the Secretariat on the review of implementation of the programme of work in 2007, per year up to 2012.

⁵⁶ UNEP/CBD/COP/8/INF/26, per year at federation level only.

Annex Table 2. Financial gaps under basic and optimal management scenarios for 18 LAC countries (in US\$)

COUNTRY	BAU (Current)	Financial Needs (Costs)		Financial Gaps	
		Basic Scenario	Optimal	Basic Scenario	Optimal
Argentina	31,309,584	39,512,820	60,366,666	8,203,236	29,057,082
Bolivia	5,102,653	5,374,940	9,000,000	272,287	3,897,347
Brazil	133,415,026	302,573,314	471,731,602	169,158,288	338,316,576
Chile	9,194,339	17,974,193	26,754,046	8,779,854	17,559,707
Colombia	18,026,595	25,150,153	42,755,260	7,123,558	24,728,665
Costa Rica	29,645,948	31,934,374	44,000,000	2,288,426	14,354,052
Cuba	14,587,030	21,639,821	36,787,695	7,052,791	22,200,665
Dominican Republic	10,380,071	22,574,294	27,974,294	12,194,223	17,594,223
Ecuador	3,977,600	6,730,054	14,040,147	2,752,454	10,062,547
El Salvador	3,803,223	4,445,738	7,557,755	642,515	3,754,532
Guatemala	8,339,504	16,118,443	27,401,353	7,778,939	19,061,849
Honduras	4,122,552	6,618,629	11,251,670	2,496,077	7,129,118
Mexico	80,214,239	120,321,358	160,428,478	40,107,119	80,214,239
Nicaragua	5,314,245	19,546,456	43,321,382	14,232,211	38,007,137
Panama	9,506,948	19,880,360	33,796,612	10,373,412	24,289,664
Paraguay	1,240,665	9,700,000	19,500,000	8,459,335	18,259,335
Peru	13,067,100	25,172,664	41,842,414	12,105,564	28,775,314
Uruguay	816,000	3,409,002	4,355,947	2,593,002	3,539,947
TOTAL	382,063,322	698,676,613	1,082,865,321	316,613,291	700,801,999

Note: Federal level PAs only

Source: UNDP, 2010 as cited by M. Flores. Chapter 10 Protected Areas

[http://web.undp.org/latinamerica/biodiversity-superpower/Report/Protected_Areas_\(chapter_10\)_ENG.pdf](http://web.undp.org/latinamerica/biodiversity-superpower/Report/Protected_Areas_(chapter_10)_ENG.pdf)

Annex Table 3. Estimation of the financing gap for the protected area system in Namibia under two expenditure scenarios (N\$ millions, 2008 values).

(Constant 2008 prices, N\$ millions)	Minimum expenditure scenario to maintain the status quo			Optimal expenditure scenario to achieve the Vision		
	2008- 2012	2013- 2017	2017- 2022	2008- 2012	2013- 2017	2017- 2022
(i) Estimated financing needs for management costs and investments to be covered	766.5	766.5	766.5	1331	929.5	929.5
(ii) Projected revenues (over 5 year period)						
Entrance fees (current estimate + 5% growth rate)	287	366	468	287	366	468
Concessions	10	10	10	99	214	296
Live sales & other	12	12	12	12	12	12
Total projected revenues	309	388	490	398	592	776
(iii) Amount of PA generated revenues retained in the PA system for re-investment	83.75	103.5	129	83.75	103.5	129
(iv) Total government budget (incl donor funds)	638.8	638.8	638.8	683.5	683.5	683.5
(v) Financing gap for 5-year period	44	24	-1	564	143	117
(vi) Estimated average annual financing gap (financial needs – available finances)	8.8	4.9	-0.2	113	29	23

Source: Ministry of Environment and Tourism, 2010 – pp 31.

Annex Table 4. Projected total public sector costs attributable parks system (excluding NWR) with implementation of the Parks vision in Namibia (N\$ millions, 2008 constant values).

Measure of costs	Year 1 2007/8	Year 2	Year 3	Year 4	Year 5	Year 6-20*
Current costs						
Capital costs	6.2	6.2	6.2	6.2	6.2	6.2
Recurrent costs	84.4	84.4	84.4	84.4	84.4	84.4
Total	90.6	90.6	90.6	90.6	90.6	90.6
Additional costs to implement the vision						
Capital costs	72.7	99.9	173.9	119.6	43.9	20.8
Recurrent costs	73.0	73.2	73.6	73.9	74.2	74.4
Total	145.7	173.1	247.5	193.6	118.1	95.3
Total costs of implementing the parks vision						
Capital costs	78.9	106.1	180.1	125.9	50.1	27.1
Recurrent costs	157.4	157.6	158.0	158.3	158.6	158.8
Total	236.3	263.7	338.1	284.2	208.7	185.9
* Year 6 includes replacement capital costs prorated, in constant prices, to year 20						

Source: Ministry of Environment and Tourism, 2010. pp 30.

Annex table 5. Estimated total establishment cost (EC) and annual maintenance cost (MC) for MPAs of increasing size.

MPA size (Km ²)	Total EC _a		MC _b	
	2005 USD	2005 USD per Km ²	2005 USD per year	2005 USD per Km ² and per year
0.5	31,876	63,752	146,819	293,639
5	105,551	21,110	238,113	47,623
50	349,514	6,990	386,175	7,723
500	1,157,349	2,315	626,302	1,253
5,000	3,832,343	766	1,015,743	203
50,000	12,690,081	254	1,647,342	33
500,000	42,020,808	84	2,671,675	5
1,000,000	60,255,959	60	3,090,295	3

Note: EC_a refers to establishment cost estimated according to Eq. (2) or (4); b, maintenance cost estimated according to Eq. (1) or (3).

Source: Adapted from McCrea-Strub et al, 2011

Annex Table 6: GEF-6 investments estimation for supporting the implementation of the Cartagena Protocol on Biosafety (Based on elements of the Strategic Plan for the Protocol, 2011-2020)

Strategic Objective	Operational Objectives	Outcomes	Targets/Indicators (by 2020)	Estimated Funding Needs under GEF- 6 (in US\$)
Focal area 2: Capacity building 2. To further develop and strengthen the capacity of Parties to implement the Protocol	2.1 National Biosafety Frameworks To further support the development and implementation of national regulatory and administrative systems for the implementation of the Protocol	<ul style="list-style-type: none"> National Biosafety Frameworks (NBFs) developed and implemented Decisions regarding the safety of a LMO are based on established regulatory and administrative rules consistent with the Protocol Biosafety issues and the implementation of the Biosafety Protocol are integrated into the relevant sectors 	<ul style="list-style-type: none"> At least 70 remaining Parties provided with funding to implement their NBFs Number of Parties that have in place approved national biosafety laws and implementing guidelines Number of the Parties that have in place functional administrative arrangements for handling notifications for imports or release of LMOs in accordance with Advance Informed Agreement procedure Number of Parties that have taken import decisions in accordance with Article 10 of the Protocol or domestic legislation Number of Parties that have in place a monitoring and enforcement system 	42,000,000 <i>(70 MSPs for NBF Implementation, each estimated at \$0.6M)</i>
	2.2 Risk assessment and risk management To enable Parties to evaluate, apply, share and carry out risk assessments and establish local science-based capacities to regulate, manage, monitor and control	<ul style="list-style-type: none"> Resources, including human resources required to assess risks of LMOs are available and administrative mechanisms are in place Training materials and technical guidance on risk assessment and risk management developed and used by Parties Infrastructure and 	<ul style="list-style-type: none"> Number of people trained in risk assessment and in monitoring, management and control of LMOs Number of Parties with infrastructure, including laboratories for LMO monitoring, management and control Number of training materials and guidance documents developed and the number of Parties using them Number of Parties performing their own risk assessment and risk management pursuant 	14,000,000 <i>(4 Full-size regional projects)</i>

Strategic Objective	Operational Objectives	Outcomes	Targets/Indicators (by 2020)	Estimated Funding Needs under GEF- 6 (in US\$)
	risks of LMOs	administrative mechanisms established for the management of risks of LMOs at national, subregional or regional level	to the Protocol <ul style="list-style-type: none"> • Number of Parties evaluating risk assessment reports submitted by notifiers • Number of risk assessment summary reports submitted to the BCH that are in compliance with the Protocol 	
	2.3 Handling, transport, packaging and identification To develop capacity for handling, transport, packaging and identification of LMOs	<ul style="list-style-type: none"> • All shipments of LMOs are identified through accompanying documentation in accordance with the Protocol requirements and COP-MOP decisions • Reliable easy to use tools for the detection of unauthorized LMOs are made available • Customs/border officials trained and are able to enforce the Protocol's requirements related to handling, transport, packaging and identification of LMOs • Personnel are trained and equipped for sampling, detection and identification of LMOs 	<ul style="list-style-type: none"> • Number of Parties that have in place documentation requirements for LMOs • Number of Parties with access to certified laboratories for detecting and identifying LMOs. • Number of Parties using guidance developed for the handling, transport and packaging of LMOs • Number of customs officers and laboratory personnel trained • Percentage of Parties that have established or have reliable access to detection laboratories • National and regional laboratories certified with the capacity to detect LMOs • Number of certified laboratories in operation 	12,000,000 (4 Full-sized regional projects)
	2.4 Liability and Redress To assist Parties to the Protocol in their efforts	<ul style="list-style-type: none"> • An institutional mechanism or process identified or established to facilitate the implementation of the Nagoya 	<ul style="list-style-type: none"> • Number of Parties to the Nagoya – Kuala Lumpur Supplementary Protocol on Liability and Redress prior to MOP-7 • Number of Parties to the Nagoya – Kuala 	

Strategic Objective	Operational Objectives	Outcomes	Targets/Indicators (by 2020)	Estimated Funding Needs under GEF- 6 (in US\$)
	to establish and apply the rules and procedures on liability and redress for damage resulting from the transboundary movements of LMOs	<ul style="list-style-type: none"> – Kuala Lumpur Supplementary Protocol on Liability and Redress at the national level • Each Party takes administrative and legal measures necessary to implement the Nagoya – Kuala Lumpur Supplementary Protocol on Liability and Redress at the domestic level 	<p>Lumpur Supplementary Protocol that have in place national administrative and legal frameworks incorporating rules and procedures on liability and redress for damage caused by LMOs</p> <ul style="list-style-type: none"> • Number of eligible Parties that received capacity building support in the area of liability and redress involving LMOs • Number of domestic administrative or legal instruments identified, amended or newly enacted that fulfill the objective of the international rules and procedures in the field of liability and redress 	<p>4,000,000</p> <p><i>(4 medium-sized regional projects)</i></p>
	<p>2.5 Public awareness, education and participation</p> <p>To enhance capacity at the national, regional and international levels that would facilitate efforts to raise public awareness, and promote education and participation concerning the safe transfer, handling and use of LMOs</p>	<ul style="list-style-type: none"> • Parties have access to guidance and training materials on public awareness, education and participation concerning the safe transfer, handling and use of LMOs • Parties are enabled to promote and facilitate public awareness, education and participation in biosafety • All Parties have designed and implemented awareness and education programmes • Increased understanding of the relationship between the Protocol and the CBD and other biosafety-related 	<ul style="list-style-type: none"> • Number of Parties that have in place mechanisms for ensuring public participation in decision-making concerning LMOs • Number of Parties that have in place national websites and searchable archives, national resource centres or sections in existing national libraries dedicated to biosafety educational materials • Number of national awareness and outreach programmes on biosafety implemented • Number of Parties that have in place national biosafety communication strategies • Number of Parties with awareness and educational materials on biosafety and the Protocol available and accessible to the public, including the diversity of these materials 	<p>4,000,000</p> <p><i>(4 MSP regional projects to support implementation of the programme of work on public awareness, education and participation concerning the safe transfer, handling and use of LMOs)</i></p>

Strategic Objective	Operational Objectives	Outcomes	Targets/Indicators (by 2020)	Estimated Funding Needs under GEF- 6 (in US\$)
		agreements		
	2.6 Information sharing To ensure that the BCH is easily accessed by all established stakeholders, in particular in developing countries and countries with economies in transition	<ul style="list-style-type: none"> Increased access to information in the BCH and sharing of information through the BCH Tools to facilitate implementation of the Protocol easily accessible through the BCH Information on the BCH is easily accessible to stakeholders including the general public Information submitted to the BCH is accurate, complete and timely A larger number of countries submit and retrieve information Countries are better equipped to use tools made available through the BCH 	<ul style="list-style-type: none"> Number of submissions to the BCH from developing countries and countries with economies in transition Number of national users from developing countries and countries with economies in transition using the BCH Number of Parties that have made available all mandatory information through the BCH Ratio of risk assessment summary reports as against number of decisions on LMOs reported through BCH Number of national users from Parties accessing the BCH Number of countries/regions having published biosafety laws and or regulations on the BCH Number of AIA/domestic decisions available through BCH 	2,100,000 <i>(1 Global full-sized project to further help strengthen the capacity of Parties to effectively use the BCH)</i>
Focal area: Compliance and review To achieve compliance with and effectiveness of the Protocol	3.1 Compliance with the Protocol To strengthen the mechanisms for achieving compliance	<ul style="list-style-type: none"> Improved and complete reporting by all Parties to the Protocol All Parties able to submit their third national reports in a timely manner 	<ul style="list-style-type: none"> Number of third national reports on the implementation of the Protocol received on time 	2,900,000 <i>(3 MSP projects to support preparation of the third national reports)</i>

Strategic Objective	Operational Objectives	Outcomes	Targets/Indicators (by 2020)	Estimated Funding Needs under GEF- 6 (in US\$)
Focal area: Facilitating the establishment and further development of effective biosafety systems for the implementation of the Protocol To put in place further tools and guidance necessary to make the Protocol fully operational	1.7 Socio-economic considerations To, on the basis of research and information exchange, provide relevant guidance on socio-economic considerations that may be taken into account in reaching decisions on the import of LMOs	<ul style="list-style-type: none"> • Peer reviewed research relevant to socio-economic considerations, taking into account the modality of peer review as specified in section E, Annex III of decision VIII/10 • Guidelines regarding socio-economic considerations of LMOs developed and used, as appropriate, by Parties • Socio-economic considerations applied, where appropriate, by Parties 	<ul style="list-style-type: none"> • Number of peer reviewed research papers published, made available and used by Parties in considering socio-economic impacts of LMOs • Number of Parties reporting on their approaches to taking socioeconomic considerations into account • Number of Parties reporting on their experiences in taking socio-economic considerations into account in reaching decisions on import of LMOs • Number of Parties using guidelines on socio-economic considerations 	4,000,000 <i>(4 Medium-sized regional projects)</i>
TOTAL ESTIMATED COST				85,000,000

Note: These estimates are generated assuming GEF-6 investments at 50% of total required investment.

Source: Compiled by a CBD Secretariat Staff member.