Resource requirements for Aichi Target 13 – the "Genetic diversity" cluster

Progress report for high level panel meeting

27 July 2012

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Progress report for high level panel meeting

A report submitted by ICF GHK

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Contents

Introduction – 'genetic diversity' target cluster

This Target cluster relates to the conservation of genetic diversity. Target 13 is the only Target within the cluster.

Target 13 – Genetic Diversity

By 2020, the 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.

Target 13 falls under Aichi Biodiversity Targets Strategic Goal C: Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity. The Strategic Goal also includes:

- Target 11 on conserving and managing biodiversity and ecosystem services for terrestrial and inland waters; and
- Target 12 on preventing the extinction of threatened species and improving and maintaining their conservation status.

This paper addresses resource requirements for Target 13, considering potential overlaps with activities that may be required under other, related Aichi Targets.

Genetic diversity definition

IUCN defines genetic diversity under Target 13 as 'the genetic material contained in traditional varieties, modern cultivars and breeds grown and maintained by farmers and livestock keepers'. This includes wild relatives and 'other wild plant and animal species that can be used as food, and as feed for domestic animals, or as medicines, fibre, clothing, shelter, wood, timber and energy'.[1]

Interpretation

Genetic diversity is fundamental to global food security. The technical rationale for Target 13 under the CBD is that genetic diversity is in decline for three different categories of species:[2]

- ***Cultivated plants and farmed and domesticated animals -*** Species which have been selected or grown by humans for their produce and/or certain traits.
- ***Wild relatives*** - Species which are closely related to current breeds and varieties and that survive in the wild. They are potential sources of genetic material which could be used to develop new breeds or varieties.
- ***Other socio-economically as well as culturally valuable species*** - Species which are not necessarily important for agriculture but which are particularly important for socio-economic or cultural reasons and are therefore crucial to human wellbeing. They include species used in traditional medicines, non-timber forest products and local land races.

What genetic diversity remains should be maintained and efforts are required to minimise genetic erosion. *Ex-situ* collections are one opportunity to do so. These are already well-developed for many species and across many parts of the world for cultivated plants and farmed and domesticated animals. They may be enhanced through new accessions and focus on wild relatives and culturally valuable species.

[1] IUCN (2012) 'IUCN's brief on Rio+20 and the importance of achieving the Aichi Biodiversity Targets', IUCN Policy Brief, http://cmsdata.iucn.org/downloads/policy_brief_rio_20_and_the_aichi_targets_2.pdf, pp.9-10.

[2] CBD 'quick guide' to Target 13 (*draft*) (2012)

Progress is particularly required for *in-situ* conservation to enable on-going adaptation in the field. This can be facilitated both through on-farm cultivation and through conservation of wild relatives inside and outside protected areas.[3]

The Target sets broad, ambitious and imprecise objectives for conserving and maintaining this genetic diversity. A wide range of activities may be employed to help meet the Target and these will be required at multiple scales—including national, regional and global levels. This assessment starts by considering overlaps with other Targets and opportunities to specifically address resource requirements for activities that would not be covered by the other Targets.

Relationships with other Targets

Generally, where there are overlapping activities, resource needs are assumed to be assessed in relation to the Target to which the activity most directly refers. For example, awareness-raising activities are an important component of activities that will need to be undertaken to meet Target 13. But since awareness-raising resource needs as such are assessed under Target 1, they are not considered as separate activities under Target 13 (though they may constitute one component of a larger programme or project).

Target 13 focuses on genetic diversity for food and agriculture; activities addressing conservation of genetic diversity more generally are out of scope for this assessment and will be covered by resource needs assessments for other Targets, for example, Target 19 on improving the science base, knowledge and technologies related to biodiversity and Target 16 on access and benefit sharing for genetic resources under the Nagoya Protocol.

The GEF-6 assessment of Target 13 observes that there are also links between Target 13 and:

- Target 5 to reduce the loss of natural habitats;
- Target 6 to sustainably manage and harvest aquatic animals and plants;
- Target 7 to sustainably manage areas under agriculture, aquaculture and forestry;
- Target 11 to conserve and manage biodiversity and ecosystem services for terrestrial and inland waters; and
- Target 12 to prevent the extinction of threatened species and improve and maintain their conservation status.

The GEF-6 assessment therefore proposes that efforts may be focused to ensure greater synergies between *in-situ* and *ex-situ* conservation efforts. This could include targeted conservation programmes in pilot locations that aim to improve conservation of wild relatives of plants and domesticated animals, and for culturally significant species. These could serve as models for larger scale national level *in-situ* and *ex-situ* projects and overcome inadequacies in current conservation practices for culturally valuable species.[4]

[3] http://www.cbd.int/sp/targets/rationale/target-13/

[4] GEF-6 Assessment of Target 13 (*draft*) (2012)

2 Actions

A select list of potential activities to meet Target 13 has been developed by drawing on:

- The GEF-6 needs assessment;
- CBD Programmes of Work, and
- CBD Decisions X/17 (Consolidated update of the Global Strategy for Plant Conservation 2011-2020) and X/34 on agricultural biodiversity.

The categories of potential activity based on this list and excluding those covered by other Targets include:

- Programme development / strategic planning;
- Economic development / creating incentives;
- Legal / regulatory initiatives; and
- Building and maintaining collections of plant and animal genetic materials, both *in-situ* and *ex-situ*.

The specific activities are set out in Table 2.1.

Table 2.1 Specific activities proposed to meet Aichi Target 13

Activity type	Activity description	Required activity level			Potential overlaps
		National	Regional	Global	
Programme development/ Strategic planning	Identify extreme focus zones for conservation and implement conservation programmes	✓	✓		5
	Promote on-going and planned activities for *in-situ* and *ex-situ* agricultural biodiversity conservation—particularly for the variability of genetic resources for food and agriculture, including wild relatives in the countries of origin	✓	✓	✓	5,7
	Assess and develop strategies aimed at minimizing threat of genetic erosion on domesticated biodiversity (crops, animal) and wild relatives, paying particular attention to the centres of origin of genetic resources	✓	✓	✓	7
Economic development/ incentives	Promote sustainable use of economically valuable wild plants and animals, as an income generating activity for local inhabitants	✓			6,7,16
	Establish incentives for marketing rare and threatened crops and animal products	✓			6,7,12
Legal/ regulatory	Strengthen biodiversity-friendly patent and seed laws and regulation	✓	✓	✓	19
	Work with agriculture industry on biodiversity-friendly regulations and guidelines	✓			19
	Strengthen farmers' rights in national, regional and global guidelines and regulations	✓	✓	✓	19
	Develop material transfer agreements for conserved species and capacity building/ training for those handling agreements	✓			12
Building/ maintaining collections	Explore and inventory national resources	✓			19
In-situ	*In-situ* conservation of agro-biodiversity species	✓	✓?		5,6,7

Activity type	Activity description	Required activity level			Potential overlaps
		National	Regional	Global	
	including wild relatives of domesticated plants and livestock on farm				
	Support farmers' *in-situ* conservation of traditional and local varieties, races and breeds, and efforts to conserve crop wild relatives	✓	✓?		5,6,7
Ex-situ	Establish and maintain collections (botanic gardens, arboretums, museums, etc.) *Ex-situ* conservation of endangered land races and wild relatives	✓	✓	✓	12
Interface	Conservation of culturally valuable species	✓			12
	Conservation of agro-biodiversity species including wild relatives of domesticated plants and livestock on farm	✓			6,7

Method of Assessment

Rather than attempt to provide a detailed global plan to meet the Target, the proposed approach seeks to:

- Consider a range of activities that may help meet the Target, beginning with the targeted approach considered under the GEF-6 needs assessment;
- Determine organisations that are already engaged in these activities and their related past and future programmes and projects, and
- Attempt to assess the resources required to meet Target 13 through consultation and review of funding and programme documents (e.g. needs assessments, annual reports, project reviews, funding projections).

A brief review of the benefits that may arise from meeting the Target will also be undertaken.

Specific steps include:

- Review of Target 13 – context, needs and expectations;
- Analysis of type and scale of actions required;
- Identify resource requirements (one-time and on-going) and data sources for each action;
- Define global programme of activity to meet the target;
- Specify appropriate factors and ratios for up-scaling resource requirements, including adjustment factors to reflect economic variations (e.g. to account for per capita GDP);
- Assess the costs of meeting the targets, specifying ranges where necessary, and assessing additional costs and cost savings as far as possible; and
- Describe the benefits that may arise from meeting the target.

A summary of progress against these programmed steps is provided in Table 3.1.

Table 3.1 Progress against programme

Activity	Progress	Estimated % completion
Review – context, needs, expectations	Review completed	100%
Analysis of type and scale of required action	Type and scale of action assessed –to be verified through consultation with experts	95%
Identify data sources	Data sources identified – additional sources may be identified through further desk research and consultation	90%
Identify resource requirements	Resource requirements identified – additional programme and project information required and resource breakdowns by one-time and recurrent expenditures	80%
Define global programme of activity	Programme of activity outlined; to be confirmed through expert consultation	70%
Specify factors and ratios for up-scaling resource requirements	Factors for upscaling resource requirements have been identified; ratios to be determined	50%
Assess costs to meet the targets	Costs identified through previous similar activities; translation to resources required to meet the Target to be considered	50%
Describe benefits	Preliminary information on benefits collected; description and examples to be developed	20%

4 Assessment of Resource Needs

Resource needs under GEF6

GEF-6 biodiversity resource requirements (2011) for Target 13 are based on two types of activity:

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

The GEF-6 resource assessment assumes a 'reasonably strong national baseline / commitment towards regular conservation operations'. Pilot activities are proposed in protected areas that are already well-managed and which have not already benefited from the two types of incremental activity proposed.

GEF-6 estimates are based on conservative, habitat-based unit costs totalling US$5 million for each activity type. The model project landscape size is estimated at 3000 sq km or a US$1,666/sq km investment per activity.

The activity estimate of US$5 million per project over the GEF-6 funding period 2014-2018 implies US$1 million per project per year.

Over the period 2013-2020 (8 years), the average total for each activity would be US$8 million per country, assuming one project of either type per country.

Funding estimates are based on three different ambition levels (scenarios) for each activity: 3 projects, 6 projects, or 9 projects. Adopting these three ambition levels helps provide upper and lower bounds on the resources required for these activities.

National activities evaluated at three ambition levels:

- Implementing 3 projects of each type would require US$48 million;
- Implementing 6 projects of each type would require US$96 million;
- Implementing 9 projects of each type would require US$144 million.

These resource requirements cover investments over the project period including one-time and recurring investments; they do not include any up-scaling or on-going investments associated with the continuation of activities after the project period ends. These issues are taken into consideration in section 4.2.3.

Additional activities will be required to extend these projects and to do additional work in other areas and at regional and global levels. Additional resource needs and up-scaling considerations are covered in section 4.2.

Analysis of additional resource needs and upscaling resource requirements

This section assesses the available evidence on resource needs and unit costs to meet Target 13, drawing on available information from similar projects undertaken in the past or currently on-going.

Table 4.1 builds on the list of proposed activities set out in section 2 to include the budget totals for similar projects undertaken, including the objectives and results of each project, where available, and an indication of sources to consult further on the applicability of similar project costs for future similar activities.

In some cases, relevant examples have not yet been identified; these are highlighted in the table indicating that similar activities have yet to be determined (TBD).

Total investment needs at national level

Total investment needs based on the project budgets assessed in Table 4.1 range from approximately US$300,000 per year to undertake work in a country with the agriculture

industry on biodiversity-friendly regulations and guidelines and US$4.6 million per year to identify extreme focus zones for conservation and implement conservation programmes in these areas at national level. Other activities at national level are likely to fall within this range based on the project costs assessed to date.

Following the GEF-6 model for ambition levels related to each activity, resource requirement estimates are based on three different ambition levels (scenarios) for each activity: 3 projects, 6 projects, or 9 projects. Adopting these three ambition levels helps provide upper and lower bounds on the resources required for these activities.

Over the period 2013-2020 (8 years), the average total for each activity at the lower bound of yearly estimated costs (US$300,000) would be US$2.4 million per country, assuming one project of this type per country.

National activities evaluated at three ambition levels for projects:

- Implementing 3 projects of each type would require US$7.2 million;
- Implementing 6 projects of each type would require US$14.4 million; and
- Implementing 9 projects of each type would require US$21.6 million.

Over the period 2013-2020 (8 years), the average total for each activity at the upper bound of yearly estimated costs (US$4.6 million) would be US$36.8 million per country, assuming one project of this type per country.

National activities evaluated at three ambition levels for projects:

- Implementing 3 projects of each type would require US$110.4 million;
- Implementing 6 projects of each type would require US$220.8 million; and
- Implementing 9 projects of each type would require US$331.2 million.

If a selection of activities is chosen across the activity types proposed, then we might expect that:

- Three projects from each category of activity might be undertaken at a minimum level of ambition (3 at minimum investment of US$300,000 per year, 3 at moderate investment of US$1 million per year; and 3 at maximum investment of US$4.6 million per year);
- Six of each category of activity might be undertaken at a moderate level of ambition; and
- Nine of each category of activity might be undertaken at a high level of ambition.

Total national funding evaluated at each ambition level:

- Implementing 9 projects (3 of each type) would require US$165.6 million over the funding period;
- Implementing 18 projects (6 of each type) would require US$331.2 million over the funding period; and
- Implementing 27 projects (9 of each type) would require US$496.8 million over the funding period.

One-time and recurrent investment needs

The estimates above do not provide a break-down between one-time investments and on-going (yearly) expenditures. For example, one-time investments may include:

- Project and programme building activities (e.g. workshops),
- Training,
- Expert (one-off) inputs, and
- Equipment.

Recurrent investments occurring yearly over the project period will include:

- Personnel,
- Meetings, and
- Reporting.

Some of the projects analysed in Table 4.1 have budgetary information available that can provide guidance on the likely split between one-time and recurrent investments. Examples are provided in Annex 2. This will be assessed in the next stage of the project.

Investments beyond the project period

These resource requirements cover investments over the project period including one-time and recurring resource needs; they do not include any resources associated with the continuation of activities after the project period ends. These issues will be taken into consideration here as the investment requirements are further developed.

Initial research suggests that these types of investments are likely to include:

- *Ex-situ* accession maintenance: estimates range between US$13 –141 to conserve an existing accession in perpetuity, which varies by species and genebank fixed and variable factors (management, physical plant, labour costs) (see Table 4.1, *ex-situ* conservation estimates).
- Farmer incentives to continue to participate in conservation programmes (see Table 4.1, *in-situ* conservation estimates), for example:
  - Participation of ≥20 farmers per landrace = US$460-920. Involving ≥5 Community-Based Orgs per landrace = US$200-500 in Bolivia, and US$800-1,500 in Peru.
  - Farmer participation programme incentives required (excluding management/ admin costs) = 880/acre or 4,400 for 5 acres.
- Additional costs will be required for occasional programme review and any updates as well as regulatory review and any updates. These costs are yet to be deteremined.

Data gaps and shortcomings

Data gaps and shortcomings will be assessed in the final report.

Table 4.1 Proposed activities, example projects and their resource requirements

Activity type	Activity description	Activity level	Example – project or programme title	Project / programme description	Project period	Resource requirements (USD)	Yearly estimated cost (USD)	Data source(s)
Programme development/ Strategic planning	Identify extreme focus zones for conservation and implement conservation programmes	National	Biodiversity Conservation in the Productive Landscape of the Venezuelan Andes	Conserve the mountain and forest biodiversity and related ecological services of the Venezuelan Tropical Andes. Forming part of the North Andean Bioregion, this area has globally significant biodiversity and is at the highest priority level for conservation. Venezuela is proposing a long-term, three-part programme to secure this conservation.	2006-2013	37,244,461	4,655,557	GEF - Venezuela[5]
	Promote ongoing and planned activities for *in-situ* and *ex-situ* agricultural biodiversity conservation—particularly for the variability of genetic resources for food and agriculture, including wild relatives in the countries of origin	National	Forgotten crop varieties and landraces make a comeback in Georgia	Promotes re-introduction and sustainable use of country's agro-biodiversity by improving access to seed stock and planting material, providing extension services to farmers, and facilitating experience-sharing among farmers, research stations and other stakeholders.	2004-2010	2,700,000 GEF grant 980,000 Co-financing 1,720,000	38,571	GEF - Georgia[6] Expert consultation TBD: CBD, FAO, CGIAR
	Assess and develop strategies aimed at minimizing threat of genetic erosion on domesticated biodiversity (crops, animal) and wild	National/ regional	Development and Application of Decision-support Tools to Conserve and Sustainably use Genetic Diversity in Indigenous Livestock and Wild	Develop and test tools which can be used in decision-making to support the conservation of indigenous farm animal genetic diversity in developing countries.	6 years	6,213,770	1,035,628	GEF – Bangladesh, Pakistan, Sri Lanka[7] Expert consultation TBD: CBD, FAO, ILRI

[5] http://www.thegef.org/gef/project_detail?projID=2120

[6] http://www.thegef.org/gef/node/2339

[7] http://www.thegef.org/gef/project_detail?projID=1902

Activity type	Activity description	Activity level	Example – project or programme title	Project / programme description	Project period	Resource requirements (USD)	Yearly estimated cost (USD)	Data source(s)
	relatives, paying particular attention to the centres of origin of genetic resources		Relatives (Bangladesh, Pakistan, Sri Lanka).					
Economic development/ incentives	Promote sustainable use of economically valuable wild plants and animals, as an income generating activity for local inhabitants	National	Regulating uncontrolled coffee harvesting, confining it to buffer zones and ensuring that all activities reflect best practices for sustainable management of tropical humid forest ecosystems. Create incentives for all parties to adhere to control of location, timing, technique qnd volume of extraction of coffee planting and harvesting	Design of the Wild Coffee Project; establishment of an Internal Control System for the wild certification; the establishment of the Monitoring System; The establishment of the Kibale Forest Foundation; Negotiating Community Management Agreements; Development of the Wild Coffee Project website; Development of the Wild Coffee project brand and Generating publicity and awareness of the brand.	1999-2002	4,150,000	1,037,500	GEF[8] - Uganda CBD, FAO, ILRI
	Establish incentives for marketing rare and threatened crops and animal products	National / regional	Ensure sustainable populations of targeted endemic ruminant livestock breeds in four West African countries, in order to improve rural economies and to ensure the conservation of these breeds and their globally unique genetic traits.	a) Establishment of effective models for community based management of endemic ruminant livestock and their habitat at project pilot sites; b) Enhanced productivity of purebred species through selective breeding and production improvements; c) Implement incentive schemes to foster optimal valorization of endemic livestock, improved marketing and distribution channels for dairy products and	2005-2015	30,088,000	2,735,272	GEF – West Africa[9]

[8] http://www.thegef.org/gef/project_detail?projID=490

[9] http://www.thegef.org/gef/project_detail?projID=1053

Activity type	Activity description	Activity level	Example – project or programme title	Project / programme description	Project period	Resource requirements (USD)	Yearly estimated cost (USD)	Data source(s)
				crafts, and increased off take and exports of endemic purebreds to neighbouring countries; d) Harmonized sub-regional policies for livestock management, including transhumance (herd movements); e) A system of regional information sharing, cooperation and exchanges relevant to endemic ruminant livestock.				
Legal/ regulatory	Strengthen biodiversity-friendly patent and seed laws and regulation	All	TBD	TBD	TBD	TBD		Expert consultation – e.g. Bioversity & FAO Current programme expenditures: ■ Bioversity ■ WIPO technical assistance programmes
	Work with agriculture industry on biodiversity-friendly regulations and guidelines	National	Conservation and Sustainable Use of Traditional Medicinal Plants in Zimbabwe	Promote conservation, sustainable use and cultivation of endangered medicinal plants in Zimbabwe, by demonstrating effective models at the local level, and developing a legal framework for the conservation, sustainable use, and equitable sharing of benefits from medicinal plants at the national level	2003-2007	1,631,900	326,380	UNDP/GEF[10] Biodiversity banking – DECC New Zealand, BBOP

10 http://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CFAQFjAA&url=http%3A%2F%2Ferc.undp.org%2Fevaluationadmin%2Fdownloaddocument.html%3Fdocid%3D2801&ei=_3cGUO-RL9G4hAfEyYnEBw&usg=AFQjCNGpyPvqUrJSWnj56NWhhFv8KNs4QQ&sig2=iyChm09a15S9Sr4j0ZGJ6g

Activity type	Activity description	Activity level	Example – project or programme title	Project / programme description	Project period	Resource requirements (USD)	Yearly estimated cost (USD)	Data source(s)
	Strengthen farmers' rights in national, regional and global guidelines and regulations	All	TBD	TBD	TBD	TBD		Expert consultation – e.g. FAO, IIED Farmers' Rights Project
	Develop material transfer agreements for conserved species and capacity building/ training for those handling agreements	All	TBD	TBD	TBD	TBD		Expert consultation – Kew, CGIAR
Building/ maintaining collections	Explore and inventory national resources	National	TBD	TBD	TBD	TBD		Svalbard crop wild relative inventories FAO AnGR – first global assessment
In-situ	*In-situ* conservation of agro-biodiversity species including wild relatives of domesticated plants and livestock on farm		In Situ/On Farm Conservation and Use of Agricultural Biodiversity (Horticultural Crops and Wild Fruit Species) in Central Asia (at a regional scale).	Provide farmers, institutes and local communities with knowledge, methodology and policies to conserve globally significant in situ/on-farm horticultural crops and wild fruit species. Particular focus on traditional local varieties of fruit crops maintained by farmers and their wild relatives growing in forests, and on the enhancement of farmers' and community capacities to conserve in situ horticulture diversity.	2005-2010	12,238,665	2,039,777	GEF – Central Asia[11] *Other projects:* FAO Benefit-sharing fund small scale projects (50,000 USD per project) *Expert review:* Svalbard crop wild relative inventories, ILRI, FAO AnGR – first global assessment

[11] http://www.thegef.org/gef/project_detail?projID=1025

Activity type	Activity description	Activity level	Example – project or programme title	Project / programme description	Project period	Resource requirements (USD)	Yearly estimated cost (USD)	Data source(s)
	Support farmers' *in-situ* conservation of traditional and local varieties, races and breeds, and efforts to conserve crop wild relatives	National	Stated preference / contingent valuation to participate in conservation programme	Survey to determine farmer willingness to accept compensation to participate in a conservation programme for specific minor species/varieties	N/A	Programme incentives required (excl management/ admin costs) = 880/acre or 4,400 for 5 acres		Bioversity International[12] FAO Benefit-sharing fund small scale projects (50,000 USD per project)
		National	Designing agrobiodiversity conservation programmes to minimise costs and maximise social equity, in Peru and Bolivia	Competitive conservation tender schemes using auction-based mechanisms allow total conservation costs to be minimised and hence more to be conserved		Participation of ≥20 farmers per landrace = 460-920. Involving ≥5 Community-Based Orgs per Landrace = US200-500 in Bolivia, and 800-1,500 in Peru.	N/A	Bioversity International[13]
Ex-situ	Establish and maintain collections (botanic gardens, arboretums, museums, etc.) *Ex-situ* conservation of endangered land races and wild relatives	All	Assess the state of the literature concerning the costs and benefits of germplasm collections, conservation, characterisation and evaluation	Koo, Pardey and Wright (2004) show that the present value of conserving and distributing an accession into perpetuity varied significantly by crop reproduction and genebank fixed and variable factors (management, physical plant, labour costs)	N/A	Range between 13 –141 to conserve an existing accession; varies by species	N/A	CGIAR[14] **--also includes estimated benefits** FAO Benefit-sharing fund small scale projects (50,000 USD per project) CG centre programme funding

12 http://www.bioversityinternational.org/fileadmin/bioversity/publications/pdfs/1450_Assessing%20farmer%20willingness%20to%20participate%20in%20minor%20millet%20conservation%20programmes%20and%20estimating%20conservation%20costs.pdf?cache=1313284509

13 http://www.bioversityinternational.org/fileadmin/bioversity/publications/pdfs/1447_Competitive%20tenders%20designing%20agrobiodiversity%20conservation%20programmes%20so%20as%20to%20minimise%20costs%20while%20maximising%20social%20equity.pdf?cache=1314422295

14 http://impact.cgiar.org/sites/default/files/images/SmaleHansen2011.pdf

Activity type	Activity description	Activity level	Example – project or programme title	Project / programme description	Project period	Resource requirements (USD)	Yearly estimated cost (USD)	Data source(s)
								Expert consultation – e.g. Kew, UK NHM, Smithsonian
Interface	Conservation of culturally valuable species	National / regional	GEF-6 needs assessment		2014-2018	5,000,000	1,000,000	GEF-6 assessment of investment needs
	Conservation of agro-biodiversity species including wild relatives of domesticated plants and livestock on farm	National / regional	GEF-6 needs assessment		2014-2018	5,000,000	1,000,000	GEF-6 assessment of investment needs

5 Results

This section will be developed for the final report. It will include:

- Estimates of overall resources required to meet the target, broken down by:
  - Investment needs, and
  - Recurrent expenditures.
- Comparison with current levels of investment and expenditure, and discussion of additional resource needs

Results will be broken down to cover investment requirements for activities at:

- National level,
- Regional level, and
- Global level.

6 Discussion

This section will be developed for the final report. It will include:

- Discussion of estimates of resource needs, including:
  - Level of confidence in the estimates produced,
  - Sensitivity of results to assumptions, methods, key variables,
  - Gaps,
  - Caveats, and
  - Further research needs,
- Benefits of delivering the Target
  - Brief overview of existing evidence, and
  - Examples/ short case studies,
- Funding opportunities
  - Brief overview of potential sources of funding, and
  - Including innovative financing, opportunities for funding from wider programmes – examples / short case studies.

ANNEXES

Annex 1 References

The reference list will be developed for the final report to include complete citations.

- http://www.bioversityinternational.org/fileadmin/bioversity/publications/pdfs/1487_Crop_wild_relatives__a_manual_of_In_situ_conservation_.pdf?cache=1326826312 on botanic gardens p.285
- CBD 'quick guide' to Target 13 (*draft*) (2012)
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- http://www.croptrust.org/content/resources
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- http://www.bioversityinternational.org/fileadmin/bioversity/publications/pdfs/1450_Assessing%20farmer%20willingness%20to%20participate%20in%20minor%20millet%20conservation%20programmes%20and%20estimating%20conservation%20costs.pdf?cache=1313284509
- http://www.bioversityinternational.org/fileadmin/bioversity/publications/pdfs/1447_Competitive%20tenders%20designing%20agrobiodiversity%20conservation%20programmes%20so%20as%20to%20minimise%20costs%20while%20maximising%20social%20equity.pdf?cache=1314422295
- http://www.thegef.org/gef/project_detail?projID=2120
- http://www.thegef.org/gef/node/2339
- http://www.thegef.org/gef/project_detail?projID=1902
- http://www.thegef.org/gef/project_detail?projID=490
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Annex 2 Sample resource breakdown for projects

Table A2.1 Conservation and Sustainable Use of Traditional Medicinal Plants in Zimbabwe: US$ 1,631 900.

Item	project total
PDF-A	25 000
PERSONNEL	160 000
SUBCONTRACTS	609 000
TRAINING	314 000
EQUIPMENT	132 000
TRAVEL	270 000
MONITORING & EVALUATION	95 200
MISCELLANEOUS	26 700
PROJECT TOTAL	1 631 900

Table A2.2 Kibale Forest Wild Coffee in Uganda: 4,150,000 USD

Item	project total
Design CMAs with villages surrounding KNP	INCREMENTAL COSTS OF $39,000
WRITE MASTER PLAN FOR COFFEE RESOURCE, CONTROL OF ACCESS AND SALE	INCREMENTAL COSTS OF $209,000
DESIGN AND IMPLEMENT KNP PERMITTING AND CMAS	INCREMENTAL COSTS OF $131,000
DESIGN MONITORING, IMPACT ASSESSMENT AND ACCEPTABLE SYSTEM TO BACK UP CLAIMS	INCREMENTAL COSTS OF $173,000
CREATE SYSTEM TO CONTROL COFFEE POST HARVEST	INCREMENTAL COSTS OF $90,000
ASSURE READINESS TO MEET LIKELY INTERNATIONAL STANDARDS	INCREMENTAL COSTS OF $41,000
CREATION OF FUNDING CHANNEL TO ALLOCATE BENEFITS	TOTAL COSTS OF $367,000
PROJECT TOTAL	$4,150,000

Table A2.3 In-situ Conservation of Crop Wild Relatives through Enhanced Information Management and Field Application: 12, 678,994 USD (incremental cost/output)

Cost/Benefit	Baseline (B)	Alternative (A)	Increment (A-B)
Output 1. **An internationally accessible information system available**	Information on CWR held by international agencies (IPGRI, IUCN, UNEP-WCMC, FAO and BGCI etc.) and key institutions often difficult to identify and access.	A single internet address connects users to CWR information held by international institutions.	

through the internet that allows access to, processing and utilization of CWR information for conservation planning amongst the institutions within and outside of the target countries of the project.	Information on CWR difficult to use for decision making owing to differences in terminology, database structure, etc. and lack of system to bring information together for combined analysis.	Information on CWR held by international partners has appropriate form and structure to make common query and analysis of different databases possible and useful for CWR conservation.	Increment total: 1,503,000
	Baseline for Output 1: 2,885,785	Alternative for Output 1: 4,388,785	
***Output2*. National information systems are operational and allow the efficient collection, management, analysis, and presentation of CWR information in Armenia, Bolivia, Madagascar, Sri Lanka and Uzbekistan.**	Information held by different institutions and agencies (Ministries, botanic gardens, genebanks, herbaria etc.) is poorly accessible, cannot be brought together and used to determine CWR status, distribution and to plan conservation actions.	Information on CWR held by national institutions in 5 countries is integrated in national information systems; analytical tools exist to support use of information system in CWR conservation decision making; information used to support preparation of national plans.	Armenia: 443,120 Bolivia: 725,268 Madagascar: 631,960 Sri Lanka: 169,148 Uzbekistan: 453,062
	Information available in international and other leading non-country institutions cannot be easily accessed and incorporated into CWR conservation needs analysis.	Through a single internet address international information is available to the 5 countries; national and international information systems allow information from the 2 sources to be combined for CWR work.	
	Armenia: 119,129 Bolivia: 60,879 Madagascar: 109,229 Sri Lanka: 214,129 Uzbekistan: 31,529 Total: 534,895	Armenia: 562,249 Bolivia: 786,147 Madagascar: 741,189 Sri Lanka: 383,277 Uzbekistan: 484,591 Total: 2,957,453	Total: 2,422,558

Cost/Benefit	**Baseline (B)**	**Alternative (A)**	**Increment (A-B)**
***Output 3* Enhanced capacity to apply information management**	Inadequate collaboration between actors involved in CWR conservation and use.	Collaboration agreements exist between relevant agencies and institutions that allow common decision-making and coordinated action.	Armenia: 644,914 Bolivia:

	Inadequate policy framework to support CWR conservation actions; lack of information on appropriate benefit sharing mechanisms.	Policy and benefit sharing analyses used with technical information to formulate national action plans in the 5 countries.	
	Lack of staff trained in CWR conservation activities including information management and analysis, Red List procedures, CWR conservation prioritization and decision-making procedures.	National programme staff trained in CWR conservation activities including information management and analysis, Red List procedures, CWR conservation prioritization and decision making procedures.	
	Useful variation present in CWR not identified and used in crop improvement programmes.	Procedures for using CWR in crop improvement programmes in place and at least 1 model programme initiated in each country.	
	Armenia: 199,704 Bolivia: 272,404 Madagascar: 435,404 Sri Lanka: 155,604 Uzbekistan: 117,404 Total: 1,180,520	Armenia: 844,618 Bolivia: 1,539,884 Madagascar: 1,255,540 Sri Lanka: 731,799 Uzbekistan: 732,514 Total: 5,104,355	

Cost/Benefit	**Baseline (B)**	**Alternative (A)**	**Increment (A-B)**
Output 4: **Knowledge and public awareness of value of crop wild relatives are increased.**	Policy makers and public not fully aware of need, importance and value of CWR conservation and use.	Policy makers and public aware of key aspects of importance of CWR conservation and use.	Armenia: 63,372 Bolivia: 91,800 Madagascar: 162,988 Sri Lanka: 72,916 Uzbekistan: 114,850 Total: 505,926
	Armenia: 14,024 Bolivia: 83,504 Madagascar: 12,904 Sri Lanka: 30,904 Uzbekistan: 15,904 Total: 157,240	Armenia: 77,396 Bolivia: 175,304 Madagascar : 175,892 Sri Lanka: 103,820 Uzbekistan: 130,754 Total: 663,166	
Project management		Effective national and international collaboration to produce project outputs with required standards of monitoring, evaluation and stakeholder participation at national and international levels. Armenia: 94,000 Bolivia: 305,500 Madagascar: 324,000	

		Sri Lanka: 310,375 Uzbekistan: 93,800 Global: 2,521,000 Total: 3,648,675	

Table A2.4 Conservation and Sustainable Utilization of Wild Relatives of Crops in China: 20,898,000 USD. Cost detail for the first two years

Description	Total	2002	2003
International Consultants			
International Team Leader	45,000	25,000	20,000
International Consultants	29,000	15,000	14,000
Line Total	**74,000**	**40,000**	**34,000**
National Consultants			
National Project Development Co-coordinator and project brief drafting	16,000	5,000	11,000
National consultants in natural sciences for sites survey, investigation, and national assessment including site selection	45,000	35,000	10,000
National consultants in social sciences and economics, including social participation and poverty alleviation etc., for sites survey, investigation, and national assessment including site selection	25,000	20,000	5,000
National consultants for in-depth analysis of threats and root causes	10,000	4,000	6,000
Line Total	**96,000**	**64,000**	**32,000**
Training and Workshops			
Inception workshop	7,000	7,000	
Workshops on national assessment and site selection	7,000	7,000	
Logical Framework Analysis workshop	6,000		6,000
Stakeholder consultation	6,000		6,000
Line total	**26,000**	**14,000**	**12,000**
Reporting			
Audit	4,000	2,000	2,000
Sundries			
CICETE execution support cost	6,000	3,600	2,400
BUDGET TOTAL	**206,000**	**123,600**	**82,400**