

giz 2/A PDCP Bank Centre | corner V.A. Rufino & L.P. Leviste Streets| Salcedo
Village - 1227 Makati City - Philippines

DR. EDWIN G. DOMINGO
Overall Director
FASPO
Department of Environment and Natural
Resources
Visayas Avenue, Diliman
Quezon City, 1100

**German Development Cooperation
GIZ Office Manila**

GIZ Philippines Green Sector Forum
2/A PDCP Bank Centre corner V.A. Rufino & L.P.
Leviste Streets, Salcedo Village
1227 Makati City, Philippines
T +63 2 651 5135
F +63 2 753 1441
Bernd-markus.liss@giz.de

Your reference:
Our reference: Forest and Climate Protection Panay

November 4, 2014

Forest and Climate Protection Panay Phase I - draft final report

Dear Director Domingo

Greetings and hope you are fine!

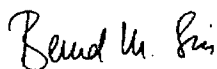
On behalf of GIZ, please find attached the draft final report to BMUB on the Forest and Climate Protection Project (ForClim) Panay for your kind reference.

The ForClim Panay Project Phase I was implemented from August 2010 to May 2014 in partnership with DENR BMB, FMB and Region VI in collaboration with local government units and local communities with the objective to protect the forest and biodiversity of the Panay Mountain Range.

The final report consist of a main report, a short summary of results (Annex 1) and a performance report (Annex 2), according to BMUB reporting format.

We are looking forward to your kind comments and endorsement, if possible until November 24, in order to meet the deadline for submission of the report to BMUB on November 30, 2014. Should you have any questions, we will be gladly available to discuss these.

Yours, truly



Dr. Bernd-Markus Liss
Green Sector Coordinator GIZ Philippines
Principal Advisor Climate Program

CC:
Director Dr. Mundita Lim, BMB
Director Ricardo L. Calderon, FMB
Regional Director Jim O. Sampulna, DENR Region VI

Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

Registered offices
Bonn and Eschborn, Germany

Friedrich-Ebert-Allee 40
53113 Bonn, Germany
T +49 228 44 60-0
F +49 228 44 60-17 66

Dag-Hammarskjöld-Weg 1 - 5
65760 Eschborn, Germany
T +49 61 96 79-0
F +49 61 96 79-11 15

E info@giz.de
I www.giz.de

Registered at
Local court (Amtsgericht)
Bonn, Germany
Registration no. HRB 18384
Local court (Amtsgericht)
Frankfurt am Main, Germany
Registration no. HRB 12394

Chairman of the Supervisory Board
Dr Friedrich Kitschelt, State Secretary

Management Board
Tanja Gönner (Chair)
Dr Christoph Beier (Vice-Chair)
Dr Hans-Joachim Preuß
Cornelia Richter

Annex 1: Brief Summary Report

BMUB project signature:	10_III_003_PHL_G_Waldschutz Panay
Implementing agency:	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
Project partner:	Philippine Department of Environment and Natural Resources (DENR)
Duration:	08/2010 –05/2014
Budget (BMUB financing):	EUR 1,950,000

The project "Forest and Climate Protection Panay" (10_III_003_PHL_G) contributes to the protection of the last remaining forest areas with biodiversity of global significance on Panay Island and to the sustainable management of natural resources by the local population. The project activities were carried out over the period August 2010 to May 2014 and were financed with 1.95 million EUR. The target group was the Philippine Department of Environment and Natural Resources (DENR, project partner), the provincial, municipal and village authorities and the rural population in the vicinity of the forest areas.

The project has significantly contributed to setting up environmental offices with their own staff and budget in all 18 participating partner communities, and to promote local capacity. This has created the basis for a decentralized, autonomous and sustainable management of natural resources. The support of participatory forest land use planning in nine partner communities led to the establishment of jointly agreed strategies for forest protection and management, which include the establishment of protected areas (critical habitat) for critically endangered species covering 12,000 ha. The large-scale rehabilitation of 1,948 ha of degraded forest areas contributed to the improvement of catchment areas, to the supply of renewable raw materials, to the maintenance and increase of biodiversity and to the adaptation to climate change. The reforested and enriched forest area comprises 1,059 ha of species-rich mixed forests, while the introduction of site-specific agroforestry systems (fruit trees, banana, abaca, coconut, coffee and cocoa) created alternative income in an area of 889 ha.

This set of measures successfully contributed to achieve the project objective: the forest in the Panay Mountain Range has been largely maintained, and the total forest loss in the 3.5 years of the project was only 1.74% (target was less than 2%). An annual reduction of CO₂ release of 16,800 t was calculated based on the reduced rate of deforestation. In addition, CO₂ fixation of 11,650 t annually was achieved through afforestation, enrichment planting and agroforestry areas totaling 1,948 ha.

Based on transect surveys, a total of 121 animal species were confirmed in the mountain forest area, comprising 75 species of birds, 23 reptiles and amphibians, and 23 mammal species. Of these, 13 species are endangered and 4 are critically endangered (two mammals, one bird and one reptile). A nest study was carried out for the critically endangered Walden's Hornbill (worldwide only 600-700 breeding pairs) and 36 of the original 38 were still occupied after six years. The protection measures, therefore, contributed to a more or less unchanged population.

Annex 2: Performance Assessment Report

1. The project's contribution to the grant policy objectives of the International Climate Initiative

Reduction of greenhouse gas emissions

A concept was developed for the use of bioenergy as an alternative to fossil fuels. Initial discussions with the private sector have already taken place about the construction of decentralized biomass power plants and rice-drying facilities. The maximum possible CO₂ saving through the use of biomass energy for the province of Antique alone is estimated to be 64,000 t annually.

Adaptation to the impacts of climate change

The promotion of site-specific agroforestry systems (permanent tree and shrub crops on slopes as an alternative to non-sustainable agriculture) has increased the resistance to extreme climate events such as heavy rains, typhoons and drought. In addition, the protection and rehabilitation of water catchment areas ensures regular supply of drinking and process water (e.g. for irrigation rice farming) even in extreme rainfall distribution, and reduces the risk of negative impact of natural disasters on the population.

Preservation of natural carbon sinks, with a focus on reducing emissions from deforestation and forest degradation

The mountain forest in the project area covers approximately 51,600 ha and stores about 24 million tons of CO₂. A key objective of the project was to structurally embed the protection of this forest in the local municipalities and to reduce the emission from deforestation and forest degradation. The analysis of records of the Global Forest Cover Change (Hansen et al. 2013) shows a reduction of forest loss of 36 ha annually since the start of the project in 2010, compared with the period 2000-2010. This represents an annual reduction of CO₂ emission of 16,800 t. Reforestation, forest rehabilitation and agroforestry measures created additional carbon sinks sequestering about 11,640 t atmospheric carbon (CO₂) annually.

Biodiversity protection

During transect surveys, a total of 121 animal species were confirmed in the mountain forest area, comprising 75 species of birds, 23 reptiles and amphibians, and 23 mammal species. Of these, 13 species are endangered and 4 are critically endangered (two mammals, one bird and one reptile). Four species of bats have been recorded for the first time on Panay. In addition, two endangered *Rafflesia* plant species were found. This shows the paramount importance of Panay Mountain Range for the conservation of biodiversity. Studies which used the critically endangered Dulungan- or Walden's Hornbill as an example confirmed that effective protection has led to a more or less unchanged population of nesting birds since 2008.

Cooperation with local and indigenous communities for the conservation and rehabilitation of ecosystems

Particular emphasis was put on the involvement of indigenous people in the protection and rehabilitation measures. Participation in the project was voluntary and based on participatory land use planning carried out in accordance with the procedures prescribed by law.

2. Additional indications

2.1 Relevant results of the project (for details see section 3 of the final report)

Work package A: Effective protection of the rain forest of the central ridge and preservation of its ecological functions

By now, 9 municipalities have created a forest land-use plan (FLUP) and gazetted about 55,000 ha of protection forest. Land-use planning is underway in three additional municipalities. All 18 target municipalities have set up "Municipal Environmental & Natural Resources Offices" with its own staff and budget. A total of 10 municipalities have designated species conservation areas (critical habitat) as part of FLUP, three of them already have passed municipal regulations which adopt concrete measures to protect about 12,000 hectares of natural forest. The project has trained forest guards in 16 municipalities (in each case between 10 and 40 men and women). In 8 municipalities, forest guards were officially sworn in by the Department of Environment and Natural Resources (DENR).

The annual deforestation since the start of the project in 2010 is about 260 ha, corresponding to 1.74% (target was less than 2%), based on the "Global Forest Cover Change Mapping" by Hansen et al. The same analysis gives an annual deforestation rate of 296 ha for the period 2000-2010. This means a decrease in the annual deforestation by 36 ha or 12.2%. A study, which used the Walden's Hornbill as an example, has confirmed that the population of this critically endangered species has remained more or less the same.

Work package B: Analysis of the biomass potential of the Panay Mountain Range

A concept for the use of bioenergy for the province of Antique is available and initial discussions were held with interested parties for the construction of biomass power plants. The study calculated a potential reduction of CO₂ emissions from 650 to 1,150 tons per year (depending on usage) for a 200 kWel wood-fired power plant (suitable for small villages of about 80 households) and about 6,000 t CO₂ for a 1 MWel plant using rice husks.

Work package C: Large-scale reforestation and expansion of an adapted agroforestry

Eight Financing Agreements for afforestation and creation of agroforestry areas have been implemented by partner municipalities. The afforested and enriched forest area (species-rich forests) amounted to 1,059 ha, the agroforestry area to 889 ha (fruit trees, banana, abaca, coconut, coffee and cocoa).

The total area of 1,948 ha was somewhat below the target of 2,500 ha because: (a) after the detailed forest land-use planning with partner municipalities a tree species composition was used which differed from the original budget calculation, (b) the same cost norms had to be used as in the other projects financed by Germany (CBFMMP cooperation projects with KfW and the EnRD CBFM component, which also assisted communities around the Panay Mountain Range), and not least because (c) the available budget was only sufficient for eight financing agreements.

The original cost estimate assumed that approximately 1,500 ha of degraded forest can be enriched with valuable timber trees (costs about 200 €/ha) and about 1,000 ha can either be planted or used to create agroforestry areas (costs about 320 €/ha). After detailed planning with the beneficiary municipalities it became clear that the targeted distribution could not be achieved: instead of 1,500 ha of less expensive enrichment plantings there was only a concrete demand for approximately 600 ha, whereas 1,350 ha instead of 1,000 ha were required for the more expensive forestry and agroforestry areas.

Measured against the overall goal (comprehensive protection of the Panay Mountain Range), the target shortfall, however, was able to be more than compensated for by the two previously listed projects, since they succeeded in the reforestation and introduction of agroforestry systems across an additional 4,900 ha in the municipalities adjacent to the Panay Mountain Range.

A study to map the tree-biodiversity showed that the Shannon diversity index (taking into account the number of species and the respective individuals) has increased by an average of 19.7% in the reforested and the enriched areas. The reforestation and enrichment planting resulted in species-rich mixed forests with an average of 28 different, mainly indigenous tree species per unit (each about 20 ha).

2.2 Adherence to cost planning and scheduling (for details see section 4 of the final report)

The project started with a delay of three months. Based on a change offer in 2010, the project duration was extended by three months until May 2014. Despite the initial delay, the objectives were largely achieved in compliance with the planned budget.

2.3 Sustainable effects, including capacity development in the target region

The project has established the following basic principles for sustainability:

- Establishment of 18 environmental offices (Municipal Environment & Natural Resources Office) in the ForClim partner municipalities with their own staff and budget for the long-term management and protection of forest resources on their own responsibility.
- Participatory development of nine forest land-use plans as a basis for forest use planning (including protected forests and conservation areas/critical habitats), as part of the land-use plan (Comprehensive Land-Use Plan) and basis for mandatory municipal regulations on budgeting and implementation.
- Completion of "co-management agreements" between the Forest Department DENR and municipalities for the joint forest management as well as the allocation of long-term land-use rights to municipalities, individual households and groups.
- Set-up and training of village forest protection teams in 16 municipalities as part of the environmental offices which monitor compliance with the protection rules and report violations.
- Partnerships with private companies (PPP) in the fields of coffee, cocoa and abaca production to advice and support forest farmers with the aim to provide long-term marketing security and for further processing and added value.

The decentralized and autonomous management of forest resources could be clearly improved through the above measures. Most partner municipalities have created the structures necessary for the implementation of the agreed measures even after the end of the German support. Sustainable income from site-specific and climate-adapted agroforestry and reforestation have reduced the pressure on the natural forests. Sixteen village forest protection teams with 10-40 members monitor compliance with the protection regulations and ensure the conservation of biodiversity through patrols and checkpoints. Observations to date and the monthly reports of the protection teams indicate that a high level of project sustainability can be expected.

2.4 Possibility of duplicating results, visibility and multiplier effect

The advice and innovative approaches of the project on the subject of forest land-use planning, critical habitat, rehabilitation and protection of forest areas, adapted agroforestry systems and use of bioenergy were incorporated into the GIZ knowledge product "MOREFORESTS" which was made available to DENR, LGUs and other development organizations (see www.enrdph.org under "Publications"). Some of these documented lessons learned were considered by DENR for forest land-use planning and the National Greening Program and incorporated by provincial administrations and municipalities in their annual plans.

In early 2014, the Deutsche Welle has produced a film with the active participation of the project team. The film was broadcasted worldwide in the series "Global Ideas" in February 2014. This internationally disseminated the efforts of the International Climate Initiative of the BMUB for forest, climate and biodiversity protection based on the example of project.

2.5 Innovation level

The innovations developed include in particular the designation of wildlife conservation areas (critical habitats) in the context of forest land-use planning and the adoption of municipal ordinances to protect these critical habitats (first of this type of protected areas in the Visayas).

Together with the CBFM component of EnRD, a novel approach for the Philippines was introduced for forest rehabilitation: detailed technical description of the measures, ex ante defined M&E criteria and transparent subsidies after passing quality inspection, forest area recording with GPS and inclusion in a forest land-GIS.

Organisational innovations included the promotion and support of environmental offices in the participating municipalities with sufficient staff and budget for the implementation of protection and rehabilitation measures as a prerequisite for participation in the project.

2.6 Integration into national strategies and into the international cooperation as well as synergies with other projects and sectors

Advisory approaches developed by the project were integrated in the National REDD+ Strategy as a result of the close cooperation with the ICI projects "Climate-relevant Modernization of the National Forest Policy and Piloting of REDD Measures in the Philippines" (09_III_006_PHL_G_Pilotierung REDD) and National REDD+ system for the Philippines (12_III_047_PHL_G_Umsetzung REDD+). Furthermore, newly developed methods and approaches for participatory land-use planning, forest rehabilitation, protection of biodiversity (establishment of Critical Habitats), monitoring and quality control were introduced in national programs of DENR.

Through the Green Sector Forum, the internal knowledge platform of GIZ Philippines, experiences with other projects in the area of forest, climate change and biodiversity conservation (e.g. MOREFORESTS) were exchanged, policy issues advanced, and common knowledge products developed. This led to synergies and improved work effectiveness. In particular, cooperation with EnRD CBFM and the two ICI REDD+ projects was very valuable for improving the political, legal and administrative framework for the sustainable management and protection of forest resources.

Concerted actions with the aforementioned project pooled the resources for forest land-use planning and reforestation/agroforestry and thereby strengthen the project impacts (more FLUPs, greater afforestation in ForClim partner municipalities).

2.7 Ecological effects and optimization, vulnerability of the target region in adaptation projects and potential for CO₂ savings in mitigation projects

Ecosystems in the project area have been stabilized and the protection of biodiversity was supported through protection and rehabilitation of natural forest. The biodiversity study confirmed 121 animal species, including 13 endangered species. The organizational and budgetary inclusion of forest protection measures will lead to an expected future annual emission reduction of approximately 16,800 tons of CO₂ compared to the baseline. Protection and sustainable management of forest and water catchments reduce the vulnerability of ecosystems and people, and thus have positive effects with regard to adaptation to climate change.

2.8 Partner contributions, financing by third parties

Contributions of the partner institution DENR and municipalities were made in the form of personnel and budgets for operational costs (especially for the 18 environmental offices of municipalities, advisory services and monitoring by the DENR), office space, and in the form

of capital contributions for the implementation of project activities in the pilot area totaling approximately 18.6 million PHP or 320,000 Euro (average exchange rate 1:58).

DENR's contribution was about 2.4 million PHP (approximately 41,500 Euro). The main part was provided by local government units and local forest-user groups as an own financial contribution (approximately 16,150,000 PHP or 278,500 Euro) for the implementation of forest rehabilitation, reforestation and agroforestry systems as well as for personnel and operating costs of the environmental agencies including FLUP.

International Climate Initiative

Proof of Use

Final Report

Status Report

1 Project information

BMUB project number	10_III_003_PHL_G_Waldschutz Panay
Project title	Forest and Climate Protection (ForClim) Panay
Country/countries of implementation	Philippines
Service provider	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
Project term	August 2010 to May 2014
Reporting period	- see duration -
Date due	30 November 2014

	Funding applied for, in € 1,950,000	Funds disbursed, in € *
Overall project term	August 2010 to May 2014	

* The exact total figure of the disbursed funding volume will be specified once the details of the final settlement of project accounts are available.

2 Project concept

2.1 Starting situation

The Philippine island of Panay is one of the Visayan Islands and has an area of 12,300 km². Like all the islands in the archipelago, Panay was also originally entirely covered with tropical rainforests, of which only about 8% remains today. The region's largest remaining contiguous block of forest (approx. 50,000 ha) is found along a mountain range running from north to south across the island and rising to elevations of up to 2,100 metres. The primary mountain forest in the Central Panay Mountain Range constitutes an important carbon store. According to the latest studies, the primary forest is not only an important carbon store, but also a key carbon sink.

The forest along the central mountain range is important for stabilizing the local climate and is also the source for multiple rivers. In addition, it is the last refuge for unique plants and animals like the Dulungan hornbill and the Rafflesia plant. It is therefore enormously important to protect this forest. At the same time, it comes under huge pressure from exploitation. The entire ecosystem is threatened by slash-and-burn practices, unregulated logging and poaching. Unadapted agricultural practices on steep slopes and unused biomass contribute to greenhouse gas emissions that could be avoided. The pressures on the forest and buffer zone can only be lifted through a combination of alternative use and monitoring.

Panay is part of the Western Visayas region (Region VI) and divided into the Aklan, Antique, Iloilo and Capiz provinces. The population is around 3.4 million.

2.2 Project goals and target group

Overall project goal

The largest of Panay Island's remaining areas of natural forest, which is home to some of the world's richest biodiversity, is being conserved and adjacent communities are using natural resources sustainably.

Additional project goals

The carbon storage capacity in the primary forest should be secured through the designation and establishment of critical habitats across the 50,000 ha mountain range.

The expansion of adapted agroforestry activities as well as large-scale reforestation in the adjacent areas should reduce greenhouse gases and/or promote carbon fixation.

Sustainable and decentralised management and protection of forest resources is enshrined in the community land-use plans and annual budgets are made available for implementation.

The energy potential of organic materials (e.g. firewood from reforestation activities or agroforestry systems) should be used as a substitute for wood from the natural forests as the primary energy source.

The conservation of the mountain ecosystem with its range of elevations and climate zones secures refuges for flora and fauna to adapt to climate change.

Target groups

Philippine Department of Environment and Natural Resources (DENR)

Provincial, municipal and village administrations

Rural households surrounding the block of forest

Indicators

By the end of the project, at least 12 of the 18 adjacent municipalities have established a land-use plan for the forests, designated protected areas and protected area management plans, and made financial resources available within the budget for management activities.

Forest areas in the central mountain range are reduced by no more than 2%.

At least 1,500 ha of new forests/stand improvements and 1,000 ha of agroforestry systems have been created (2,500 ha in total).

Population densities of endangered species, particularly the Dulungan hornbill, remain unchanged.

An energy plan for households in the buffer zone has been prepared.

Positive result in greenhouse gas monitoring in connection with BMUB REDD project (PN 09.9063.0)

2.3 Proposed measures and approach

A. Effective protection of the Central Panay Mountain Range rainforest and conservation of its ecological functions.

- Designation of the habitats of threatened plant and animal species in the connected forest areas as critical habitats and the mainstreaming of these activities in the municipal forest land-use plans

The basis of this designation is a 2007 decree from the DENR that is supposed to protect the habitats of critically endangered species in critical habitat areas. The proclamation is carried out by the DENR secretary in Manila following verification by the local DENR offices. The

basic requirements are an application by a municipality and the designation of a protected area through a municipal ordinance.

In order for the proclamation to also be recognised, financed and implemented as a critical habitat also at the municipal level, within the context of the project all of the protection measures and reforestation/agroforestry areas had to be included in the forest land-use plan as part of a municipality's comprehensive land-use plan. These plans were created in a participatory manner with all those involved, conflicts were addressed, and solutions were developed. Municipal ordinances were used to designate protected areas in the respective municipalities and annual budgets were planned for their management.

The forest area to be protected extends across a total of approximately 50,000 hectares. Data were collected for all 18 participating municipalities on endangered species, whose distribution is the legal basis for designating critical habitats in the context of forest land-use plans and the proclamation of protected areas. Current forest distribution and precise borders were identified based on Google Earth satellite data by specialised consultants, who verified their findings on the ground.

- Establishment of a project office and enhancement of alliance-building among participating administrative bodies

Since Antique Province has the largest number of protected areas, the project office was set up in the centrally-located Culasi Municipality and is taking responsibility for regional coordination. In accordance with DENR guidelines, a supervisory steering group was also created.

In addition, an alliance should be established including all four participating provinces and, if possible, all 18 adjacent municipalities to coordinate and jointly implement protection activities in the Panay Mountain Range. Five municipalities have formed an alliance on the regulation of fishing rights and designation of marine protected areas. The attempt to establish an alliance on the protection of mountain forests, however, was unsuccessful.

- Development of Critical Habitat Management Plans

The development of management plans for the individual protected areas was carried out following DENR guidelines and in accordance with IUCN standards. In addition to the collection of baseline data on natural resources, socio-economic issues and tourism potential, moderated workshops were also conducted with community participation on the planning and management of 'critical habitats'. This resulted in a document developed in a participatory manner, which provides both a comprehensive description of the starting situation and instructions for the effective conservation of protected areas.

Since it cannot be assumed that the DENR will be able to use its own budget to continue the activities in accordance with the management plans following the conclusion of the project, one of the most important measures taken was to incorporate all the activities into the land-use plans as well as the annual municipal budget plans and to thereby ensure project sustainability.

- Protection of forests and globally important fauna and flora

The development and deployment of municipal wildlife enforcers (Bantay Gubat) played a special role in this respect. These enforcers come from the respective villages themselves and therefore are protecting their own resources in a way that helps themselves. The promotion of municipal self-help approaches seemed more sustainable and effective than the securing of external financing for ranger units (as undertaken by the local NGO PESCP before the project started). Emphasis was placed on ensuring that the participating partner municipalities provided for an annual budget for wildlife enforcers within their budgets.

- Inventory of endangered endemic flora and fauna

The main focus here was placed on critically endangered species: Dulungan hornbill (*Aceros waldeni*, only approximately 600-700 breeding pairs worldwide), Viasayan spotted deer (*Cervus alfredi*), Visayan warty pig (*Sus cebifrons*), Panay monitor (*Varanus mabitang*) and the Rafflesia plant (*Rafflesia lobata*). The incidence and distribution of these species was recorded based on analysis of documents, interviews with local people, and transect inspections conducted by the project.

- Protection measures for the Dulungan hornbill and other target species

Originally, the local NGO PESCP paid (former) hornbill hunters premiums for monitoring their nesting holes and stopping poaching activities. This system, however, proved a failure because after the premium payments ceased, the original conditions emerged again. The project therefore used an explanatory approach, worked to improve the living conditions of local people through agroforestry and forest rehabilitation, and deployed local wildlife enforcers.

- Environmental education for the local population

The understanding and acceptance of the village communities for the project as a whole was supported by accompanying environmental education. It was found to be successful to focus environmental education on flagship species recognised by the people and viewed as favourably as possible. This is why focus was placed on the Dulungan hornbill, whose habitat requirements made it possible to pick up on issues of forest conservation and protected areas, adapted agriculture and wood-substituting energy production.

B. Analysis of biomass potential of the Panay Mountain Range generated by wood from reforested areas and organic waste, and the description of specific utilisation opportunities for communities around the protected areas.

The planned and conducted measures included:

- Analysis of the current use of firewood in the natural forest.
- Identification of alternative fuels for energy production in adjacent municipalities in the Panay Mountain Range (organic waste from agroforestry systems, agriculture, firewood plantations).
- Promotion of reforestation to produce fuel wood, improved cooking stoves; also ovens for burning rice husks in areas where rice is cultivated.

The pressure on the natural forest of the Panay Mountain Range is not caused by the shipping of firewood to the lowlands or cities, but primarily through unsustainable subsistence agriculture and individual use of wood by surrounding communities. In terms of energy sources, the most important and easiest alternative to wood from natural forests is fuel wood reforestation and forest residues from agroforestry systems. Fuelwood reforestation generates a sustainable and carbon neutral source of household energy, creates income for participating households, and reduces the pressures on natural forests. The majority of the newly established reforestation areas should therefore also serve as a source of firewood. Due to budgetary limitations, it was not possible to implement additional measures (e.g. optimised stoves).

- Estimating changes in greenhouse gas emissions

The calculation of emissions reductions from the individual approaches presented in the feasibility studies are based on computational work by the Deutsches Biomasseforschungszentrum.

C. Dissemination of adapted agroforestry practices and creating additional sources of income in the buffer zone (approx. 1,000 ha of agroforestry systems).

- Development of agroforestry systems

Support was provided to develop agroforestry systems across approximately 1,000 hectares of hillsides in the 18 adjacent municipalities, in line with the model developed for Panay and Negros by the cooperative GIZ-KfW Community Based Forest and Mangrove Management Project (CBFMMP). Households within the buffer zone received grants for the development of up to 1 ha of agroforestry systems as well as seedlings of fruit trees like lanzones, rambutan, durian, jackfruit, banana, coconut, cacao, coffee and abaca. Advisory support on the agroforestry systems was based on analyses and informational materials developed within the context of the Environment and Rural Development (EnRD) programme financed by BMZ. This enabled the maximisation of synergies.

- Marketing and value creation

To improve sustainable sources of income within the buffer zone, support for the processing and marketing of selected agroforestry products (e.g. coffee, cacao, abaca) was provided through public-private partnerships (PPP), just as in the EnRD programme.

D. Large-scale reforestation with particular focus on rehabilitating watersheds (approx. 1,500 ha)

Some of the areas surrounding the central mountain range have already been severely damaged by slash-and-burn practices and grazing of farm animals, but play a key role for local watersheds due to their locations. Parts of these areas could be reforested through the establishment of nurseries within the municipalities and subsequent planting activities.

Rehabilitation of degraded forest areas was carried out using a financing agreement with eight partner municipalities that expressed interest. The municipalities received subsidies for the raising, planting, care and safeguarding of seedlings, which were then given to local community groups who had pledged their cooperation. Support was provided for reforestation activities on exposed mountain slopes and for the rehabilitation and enrichment of degraded forests using indigenous tree species and rattan.

The issuing of subsidy payments depended on whether specific criteria were met, including the survival rate and actual size of reforested areas. It was possible to adopt the criteria developed within the GIZ-KfW cooperation project CBFMMP. Disbursal of subsidy payments was preceded by strict monitoring of the success of the activities by DENR staff and the project itself (boundary measurements using GPS, sampling of the transplanted and surviving seedlings).

To increase the impacts of the project, the GIZ EnRD-CBFM forest component provided additional support to partner municipalities for the establishment of biodiverse reforestation and stand improvements (in total, 1,680 ha). The modalities and conditions were identical to the BMUB programme and complementary in terms of the promotion of coherent forest areas and biocorridors for endangered species.

3 Results

3.1 Achievement of project goals

The overall project goal was the conservation of the largest of Panay Island's remaining areas of natural forest, which is home to some of the world's richest biodiversity, and the sustainable management and use of natural resources in the adjacent communities. Additional project goals were (i) the reduction of greenhouse gas emissions and carbon sequestration; (ii) the inclusion of sustainable management and protection of forest resources in the municipal land-use plans; (iii) the use of the energy potential of organic materials (e.g. firewood from reforestation activities or agroforestry systems) as substitutes for wood from the natural forests; and (iv) the conservation of the mountain ecosystem with its range of elevations and climate zones as refuges for flora and fauna to adapt to climate change.

The project has contributed substantially to the establishment of environmental offices with their own staff and budgets in all 18 participating partner municipalities, and to the promotion of local capacities. This generated the basis for decentralised and accountable management of natural resources. Support for participatory forest land-use planning in the partner municipalities led to the development of consensus strategies on forest protection and management including the establishment of critical habitats for critically endangered species. The large-scale rehabilitation of degraded forest areas contributed to improved watersheds (increased water storage capacity for adaptation to increasingly frequent heavy rains), the provision of renewable resources, and the conservation/increase of biodiversity levels. The introduction of locally-appropriate agroforestry systems created alternative sources of income to unsustainable methods and supported climate change adaptation (increasingly extreme weather events). This package of activities successfully contributed to achieving the project goal: the forest in the Panay Mountain Range was largely conserved, with the total loss of forest cover across the 3.5 years of the project being only 1.74% (indicator value was 2%).

Details on the achievement of the goals are included in the following chapters.

3.2 Quantitative evidence of project achievements

The project proposal was submitted using the old format without project planning or monitoring tables, and therefore the reporting provided here on quantifying the project outcomes is based on the target indicators. Over the course of the annual reporting, the activities were combined into work packages.

Work package: A.

Effective protection of the rainforest in the central mountain range and the conservation of its ecological functions

Indicator A1: By the end of the project, at least 12 of the 18 adjacent municipalities have created a land-use plan for the forests, designated protected areas and protected area management plans, and made financial resources available within the budget for management activities.

Indicator 75% met.

Nine municipalities developed a forest land-use plan (FLUP) and designated approximately 55,000 ha (!) as protected forests. The land use planning process is fully underway in three additional municipalities, and the work is expected to be completed within the next few months. All 18 participating municipalities established Municipal Environmental and Natural Resources Offices with their own staff and budget. A total of 10 municipalities have designated critical habitats within their FLUP, and three of these have already passed corresponding municipal ordinances – with specific activities for the conservation of approx. 12,000 ha of natural forests. The project has trained forest guards in 16 municipalities (between 10 and 40 men and women in each). In 8 municipalities, these forest guards have been officially deputised by the DENR.

Indicator A2: Forest areas within the central mountain range are reduced by no more than 2%.

Indicator met.

Based on the 'Global Forest Cover Change Mapping' conducted by Hansen et al., 2013¹, the forest area in the 18 partner municipalities has decreased by 780 ha from 52,443 ha to 51,663 ha from the end of 2010 until the end of 2013. This corresponds to an annual reduction of 260 ha, or 910 ha for the 3.5 project years. The percentage rate of deforestation since the start of the project is thus 1.74%. From 2000 to 2010, the same analysis recorded an annual deforestation rate of 296 ha. This means there has been a reduction in annual deforestation of 36 ha, or 12.2%.

Indicator A3: Population densities of endangered species, particularly the Dulungan hornbill, remain unchanged.

Indicator met.

To measure this indicator, 5% of the 720 Dulungan nesting holes that were identified in 2008 (PESCP baseline) were surveyed during the April/May 2014 breeding season. Of the 38 nesting holes monitored, 36 were still occupied. The population has therefore remained around the same level, especially since no attempt was made to find new nesting holes. In addition to data on the Dulungan population, there are distribution maps and information about the occurrence of the other four critically endangered key species, and these can be used as a basis for additional monitoring.

During the transect surveys in the mountain forests, it was possible to identify 121 animal species, including 75 bird species, 23 reptiles and amphibians, and 23 mammals. Of these, 13 are considered to be endangered and four of these are even listed as critically endangered (two mammals, a bird and a reptile). Four bat species were confirmed for the first time on Panay. In addition, two species of *Rafflesia*, which are also endangered, were found. This confirms the exceptional importance of the Panay Mountain Range for the conservation of biological diversity.

Indicator A4: Positive result in greenhouse gas monitoring

Indicator met.

From 2000 until the project started in 2010, the annual deforestation rate in the 18 partner municipalities was 296 ha (source: Hansen et al.¹), but this fell by 36 ha to 260 ha from 2010 to 2013. Based on average forest biomass levels in comparable areas (collected within the context of the BMUB project 09_III_006_PHL_G_Pilotierung REDD), this corresponds to an annual reduction in CO₂ emissions of 16,800t. This is complemented by CO₂ fixation through the 1,059 ha of reforested areas and stand improvement as well as 889 ha of agroforestry systems, totalling 11,650 t per year.

Work package: B.

Analysis of the biomass potential in the Panay Mountain Range from fuel wood reforestation and organic waste, and description of specific utilisation possibilities for communities adjacent to the protected areas.

Indicator B: An energy plan for households in the buffer zone has been prepared.

Indicator met.

¹ Hansen, M. C., P. V. Potapov, R. Moore, M. Hancher, S. A. Turubanova, A. Tyukavina, D. Thau, S. V. Stehman, S. J. Goetz, T. R. Loveland, A. Kommareddy, A. Egorov, L. Chini, C. O. Justice, and J. R. G. Townshend. 2013. "High-Resolution Global Maps of 21st-Century Forest Cover Change." *Science* 342 (15 November): 850–53. Data available on-line from: <http://earthenginepartners.appspot.com/science-2013-global-forest>."

A bioenergy usage plan has been prepared for Antique Province and initial discussions have been conducted with interested parties regarding the construction of biomass plants. The study calculated the annual potential reduction in CO₂ emissions as 650-1,150 t (depending on utilisation) for a 200 kWel wood gasification turbine (appropriate for smaller villages with about 80 households) and approximately 6,000 t CO₂ for a 1 MWel system fed on rice husks.

Work package: C.

Large-scale reforestation with particular focus on reactivating water catchments, spreading adapted agroforestry systems and creating additional sources of income in the buffer zone.

Indicator C1: At least 1,500 ha of new forests/stand improvements and 1,000 ha of agroforestry areas have been created (2,500 ha in total).

Indicator 78% met.

Eight financing agreements were implemented for reforestation and the development of agroforestry systems by the partner municipalities. The reforested and enriched forest areas (biodiverse mixed forests) expanded across 1,059 ha, while agroforestry systems were developed on 889 ha (fruit trees, banana, abaca, coconut palm, coffee and cacao).

The total area of 1,948 ha is somewhat below the target of 2,500 ha, because (a) based on the detailed forest land use plans developed with the partner municipalities, a different mix of seedlings was used than the one on which the original budget calculations were based; (b) the same rates had to be used as those from the other projects being financed by Germany (CBFMMP cooperation project with the KfW and the EnRD CBFM component), which likewise focused on municipalities around the Panay Mountain Range, and not least because (c) the available budget was only sufficient to cover eight financing agreements.

In the original cost estimate, it was assumed that it would be possible to reforest approximately 1,500 ha of degraded forests with valuable wood species (cost ca. EUR 200/ha) and to introduce agroforestry systems on around 1,000 ha (cost ca. EUR 320/ha). After detailed planning with the participating municipalities, however, it became clear that the targeted distribution could not be achieved: instead of 1,500 ha of the lower-cost forest enrichment activities, it turned out that there was only a specific need for about 600 ha, while the areas needing the much more expensive forestry and agroforestry systems ultimately covered 1,350 ha rather than 1,000 ha.

Measured against the overall goal (comprehensive protection of the Panay Mountain Range), the target shortfall, however, was able to be more than compensated for by the two previously listed projects, since they succeeded in the reforestation and introduction of agroforestry systems across an additional 4,900 ha in the municipalities adjacent to the Panay Mountain Range.

A study assessing the diversity of tree species found that the Shannon Diversity Index (based on the number of species and the respective individuals) increased by an average of 19.7% in the areas that had been reforested or enriched. The reforestation and stand enrichment activities resulted in biodiverse mixed forests with an average of 28 different and predominantly indigenous tree species per area (20 ha each).

3.3 Project sustainability

The fundamental strategy for ensuring project sustainability entails the following elements and measures:

- Establishment of 18 Municipal Environment and Natural Resources Offices in the ForClim partner municipalities with their own staff and budget, for long-term autonomous management and protection of forest resources.
- Participatory development of nine forest land-use plans as the basis for a forest use plan (including protected forests and critical habitats), as part of the comprehensive land-use

plan and basis for binding municipal ordinances on budgeting and implementing the measures.

- Conclusion of co-management agreements between the DENR Forest Management Bureau and municipalities on joint forest management and the allocation of long-term land-use rights to municipalities, individual households and groups.
- Creation and training of forest protection teams in 16 municipalities as part of the environmental offices, which monitor compliance with conservation regulations and report transgressions.
- Public private partnerships (PPP) focusing on coffee, cacao and abaca production, with the aim of providing advisory services and support for participating forest farmers, securing the marketing over the long-term as well as for additional processing and value creation.

The listed activities succeeded in visibly improving the decentralised and autonomous management of forest resources. Most of the partner municipalities have set up the structures needed to implement the agreed activities even beyond the end of the German support period. Sustainable sources of income from locally appropriate and climate-adapted agroforestry and reforestation have reduced the pressures on the natural forests. Sixteen village forest protection teams with 10–40 members monitor the compliance with conservation regulations and ensure the conservation of biodiversity with patrols and checkpoints. Past observations and monthly reports by these teams raise expectations that the project activities will be largely sustainable.

A potential risk for the project sustainability, however, is the widespread lack of secure land-use rights for the rehabilitated forests and agroforestry systems. Long-term land-use rights only exist for around 780 ha, or some 40% of the 1,948 ha of rehabilitated areas. The original project plan assumed that – as piloted by GIZ in multiple provinces – the municipalities and the DENR would be able to conclude co-management agreements that include long-term usage rights for municipalities and individual households. However, following the conclusion of two co-management agreements in the project area, in 2012 the DENR suspended further agreements with municipalities across the country and indicated its exclusive support for designated usage rights to individual self-help groups (CBFMA to People's Organizations). The allocation of these rights, however, is very slow due to bureaucratic procedures and a lack of capacity in the DENR. The granting of additional land use rights (CBFMA and municipal forests) is a crucial requirement for securing project sustainability and should therefore continue to be addressed in the follow-up ForClim II project.

3.4 Other relevant results

The project's advisory support and innovative approaches on issues of forest land-use planning, critical habitats, rehabilitation and conservation of forests, adapted agroforestry systems, and the utilisation of bioenergy have all fed into the GIZ knowledge product 'MORE-FORESTS', which has been made available to the DENR, participating regional authorities and other development organisations (see www.enrdph.org under 'Publications'). These documented learning experiences were partly considered by the DENR for forest land-use planning and the National Greening Program, and were also picked up in the annual plans of provincial administrations and municipalities.

With active cooperation by the project team, Deutsche Welle prepared a film in early 2014 on forest conservation and biodiversity in Panay. It was subsequently broadcast around the world as part of the Global Ideas series in February 2014. Based on the example set by this project, the forest, climate and biodiversity conservation efforts of the BMUB's International Climate Initiative were internationally disseminated.

4 Comparison with Project Proposal

4.1 Timetable

Due to delays in the issuing of a *note verbale*, the project started three months behind schedule (in October instead of July 2010). As a result, a modification offer was submitted in November 2010 (three month extension of the project term to May 2014), which was then approved by the BMUB in January 2011. Despite the initial delay, it was largely possible to achieve the goals in accordance with the planned budget.

4.2. Project measures and outputs

All of the project measures were implemented in accordance with the original planning to the greatest possible extent. The target sizes of forest and agroforestry areas, however, needed to be adapted based on the specific needs in the partner municipalities and the rates for re-forestation, stand enrichment and agroforestry activities. As a result, the available budget was only sufficient for 1,948 ha, or 78% of the original 2,500 ha that was planned.

In addition to the planning activities, the project also worked in coordination with other projects supported by GIZ to establish public-private partnerships to support the target groups in the cultivation, processing and marketing of coffee, cacao and abaca. As a result, the sustainability of the advisory support and value creation was strengthened beyond the conclusion of the project's term.

The project worked together with the Leipzig-based Deutsches Biomasseforschungszentrum (DBFZ) on evaluating the biomass potential as an alternative energy source to fossil fuels. This enabled the completion of a professional and qualified analysis of the starting situation as well as concrete recommendations.

4.3 Overall cost and financing

The total planned cost of the project was EUR 2.2 million, with a EUR 1.95 million BMUB contribution and EUR 0.25 million in partner inputs.

Additional information on cost planning and the total expenditures will be provided after the data from the final accounting is available.

Partner contributions were made across the entire term of the project in the form of provision of staff and operating costs (in particular for the 18 municipal environment offices, advisory support and monitoring by the DENR), office space and financing agreements, as well as in the form of counterpart contributions for the implementation of project measures in the pilot area totalling PHP 18.6 million, or approximately EUR 320,000 (at average conversion rate of 1:58). The DENR share of this totalled PHP 2.4 million (approximately EUR 41,500). The main part was provided by regional authorities and local forest user groups as counterpart contributions (approximately PHP 16.15 million, or EUR 278,500) for implementing activities associated with forest rehabilitation, reforestation and agroforestry systems, as well as for staff and operating costs of the environment offices including the FLUP.

5 Necessity of the grant

Not applicable.

6 Conclusions and recommendations

Close cooperation and networking with similar projects financed from the German side proved to be very advantageous: first and foremost with the Environment and Rural Development Program (EnRD) financed by the BMZ and its CBFM forest components, but also with the cooperative GIZ-KfW Community Based Forest and Mangrove Management Project (CBFMMP) and the BMUB IKI projects on 'Climate-related modernisation of national forest policy and piloting of REDD measures' (09_III_006_PHL_G_Pilotierung REDD) and 'National REDD+ system in the Philippines' (12_III_047_PHL_G_Umsetzung REDD+). This enabled the uptake of previously tested methods and approaches to participatory land-use planning, forest rehabilitation and assessment of the amount of carbon stored in the forests. The knowledge exchange and coordination of the measures created synergies, added value and cost efficiency. Concerted efforts together with the EnRD-CBFM and CBFMMP projects pooled forest land-use planning and reforestation/agroforestry resources, which strengthened the impacts of the projects (more forest land-use plans, larger reforested areas in the project-partner municipalities around the Panay Mountain Range).

Using the Green Sector Forum, the internal knowledge platform of GIZ Philippines, experiences were continually exchanged with other projects focused on forestry, climate protection and biodiversity conservation, policy issues were advanced, and joint knowledge products were developed (e.g. MOREFORESTs). This led to synergies and improved impacts from the project efforts. The support from EnRD and REDD+ was very valuable, particularly towards improving the political, legal and administrative conditions for the sustainable management and conservation of forest resources.

One basic issue that has been well-known for some time is that without secure land-use rights, it is impossible to achieve sustainable forest management and long-term conservation of biodiversity. The project therefore immediately started working on forest land-use planning within the partner municipalities and providing support for those seeking land-use rights. However, in expectation of a co-management agreement between the DENR and the participating municipalities to secure land-use rights, financing agreements were already concluded *before* all of the land-use rights were established in order to implement reforestation and forest rehabilitation activities within the project timeframe. After the DENR turned away from the co-management agreements policy in 2012, it was not possible to allocate land rights for a portion of the areas in line with the originally agreed plans. At this point, the remaining time left in the project was too short for major conceptual changes. As a result, a portion of the areas remained without defined land use rights. Therefore in the follow-up project, emphasis needs to be placed on securing land-use rights for all of the project areas. In recent discussions within the Forest Management Bureau of the DENR, a promising approach emerged, namely the allocation of land rights to entire communities rather than to people's organizations that are usually artificially created.

7 Components of the Performance Assessment Report

The Performance Assessment Report is attached as Annex 2 to this report.