Darwin Initiative for the Survival of Species
Final Project Report

1. Darwin Project Information

Project Reference Number	162/13/025
Project Title	Pioneering Community-Based Conservation Sites in the Polillo Islands
Country	Philippines
UK Contractor	Fauna and Flora International (FFI)
Partner Organisation	Polillo Islands Biodiversity Conservation Foundation, Inc. (PIBCFI)
Darwin Grant Value	£169,050.00
Start/End Dates	February 2005 – January 2008
Project Website	http://www.philbiodiversity.org/polillo/
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2. Project Background and Rationale

The project site is the Polillo Group of Islands[3] (Fig 1), located 29 kilometers off the east coast of Luzon in the Philippines. It comprises a small group of 27 islands and islets divided into five municipalities (Burdeos, Panukulan, Polillo, Jomalig and Patnanungan[4]) under the administrative and political jurisdiction of Quezon Province in Region IVa or CALABARZON (Provinces of Cavite, Laguna, Batangas, Rizal and Quezon).

The Polillos are an important biodiversity area of the Philippines, supporting numerous endemic species, globally important populations of various threatened Philippine threatened endemic species, such as the Philippine cockatoo[5] (*Cacatua haematuropygia*) and the Gray's monitor lizard[6] (*Varanus olivaceous*), and high degrees of both terrestrial and marine species diversity; the latter also being attributed to the wide range of habitats present in the area. The biodiversity importance of the Poilillos is further affirmed with its inclusion as one of the 128 Key Biodiversity Areas (KBAs) of the Philippines declared recently by the Department of Environment and Natural Resources (DENR) through the Protected Areas and Wildlife Bureau (PAWB), along with several international and national institutions.

Unfortunately, however, the extraordinary biodiversity of the Polillo Islands is seriously threatened by the loss and degradation of native habitats. The once extensive lowland forests were reduced to c. 16% of land area due to extensive commercial logging between the 1950's and 1980's, and most formerly forested areas have since been converted into human settlements and permanent agriculture, particularly coconut plantations, whilst most of the few remaining forests are

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[3] *Also referred to as the Polillos and/or the Polillo Archipelago*

[4] *The municipalities of Polillo, Burdeos and Panukulan occupy the mainland of the Polillos, while Jomalig and Patnanungan are two separate island municipalities*

[5] *IUCN 'Critically Endangered'*

[6] *IUCN 'Vulnerable'*

secondary, fragmented and otherwise disturbed. Whilst the importance of these remaining forests cannot be understated in terms of their biological significance re. both species endemism and species' richness characteristic of lowland rain forest, the continued attrition of these fragments *via* slash-and-burn cultivation (locally referred to as '*kaingin*') and the similarly unregulated and unsustainable extraction of other forest products, poses obvious and severe threats to the last remaining habitats and wildlife of the region.

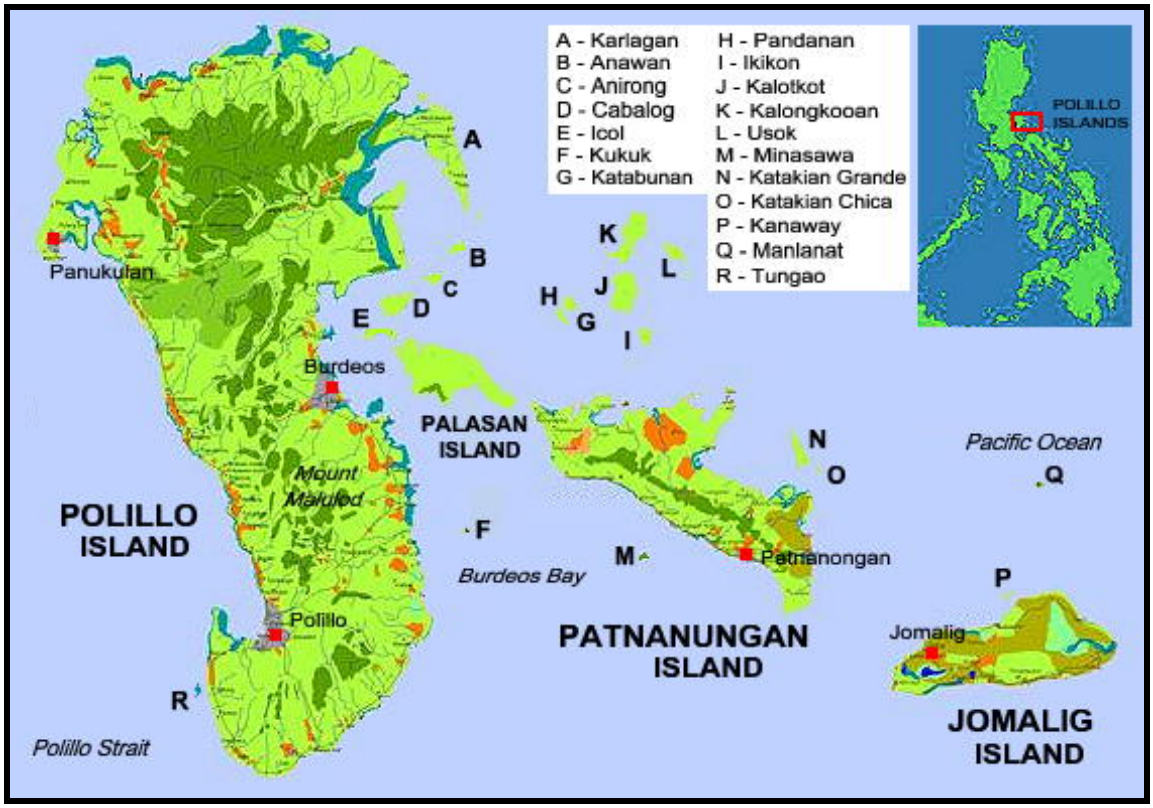

Fig. 1: Location of the Polillo Islands

Prior to this project, only two small areas were declared as critical watersheds and one protected area through national proclamations[7], though no meaningful and effective conservation and management strategies had been developed or implemented in any of these sites. Moreover, relevant stakeholders, especially local governments and communities, were evidently unprepared or under-capacitated to manage and conserve these or any other biodiversity important sites in the Polillos. Indeed, any such actions were generally regarded as being the primary responsibility of the national government through the Department of Environment and Natural Resources, though the DENR had also taken no effective measures to conserve these areas, whether for reasons of its own limited resources or other institutional constraints. In any event, inadequacy of locally available resources and support, lack of capacity and technical expertise, and absence of appropriate institutional arrangements to manage these watersheds and other biologically

[7] *These areas are the Sibulan Watershed in Polillo, Panukulan Watershed in Panukulan and Minasawa Island Birds and Game Refuge in Burdeos, which are considered as initial components of the Philippines' National Integrated Protected Areas System (NIPAS) and yet no management systems have been in place in these sites.*

important areas was an important contributing factor to the general and continuing erosion of the natural resources and important wildlife heritage of these islands.

This project was conceived in consultation with local stakeholders to address the underlining need to establish institutional mechanisms to enable the more effective and sustainable management of the remaining forests (including key watersheds) and other terrestrial wildlife habitats in the Polillos[8]. The ultimate purpose of this project was therefore to identify and develop a new network of terrestrial protected sites selected on the basis of their biological importance and representation in terms of species, habitats and ecosystems diversity. In so doing, this project capitalised on existing legislature empowering local government units (LGUs) to declare biologically important sites, especially those harbouring threatened endemic species and habitats, as municipal reserves through local legislative processes by municipal governments in consultation with relevant communities, concerned authorities and other key stakeholders.

The project opted to make use the Philippines' Local Government Code (LGC) of 1991 as the main policy framework to ensure local ownership of the declared biodiversity important sites as "Local Conservation Areas" (LCAs). The LGC mandates local governments to share responsibility with the national government on environment and natural resources management of the country. It also devolved some responsibilities and authorities of the DENR to LGUs, including certain forest management functions, such as the establishment and management of forest tree parks, communal forests, micro-watersheds and other community-based forest management programmes.

The LCA concept was also an innovation developed by the project as an alternative conservation modality to the conventional and nationally driven protected areas system of the Philippines. The *modus operandi* for this concept, as implemented by the project, was entirely limited at the municipal level (Fig. 2) and thus vastly less complicated, tedious and expensive compared to the procedures and requirements in establishing and managing protected areas, as mandated by the National Integrated Protected Areas System (NIPAS)[9] of the Philippines. The declaration of these LCAs further led to a collaborative management of the different stakeholders through the execution of partnership agreements that defined the terms of reference (TORs) and engagements of each of the involved parties and institutions. All such TORs were reflected, detailed and reinforced further in the management plans prepared for LCAs, which were also developed and implemented in close collaboration with the said stakeholders.

The project was also able to capitalise on both extensive earlier field work (especially biological surveys) and the existing good relations with local stakeholders forged through several previous years of applied research, personnel training and education/awareness activities, and a

[8] *Priority was accorded to terrestrial habitats owing to their higher degrees of threat and endemism, though it is proposed to assist establishment of a similar network of new 'marine protected areas (MPAs) in the future, funding permiting.*

[9] *There are 13 steps involved in the declaration of protected areas under the NIPAS. The final designation of protected area is through an Act, which shall be passed by the Philippines' Congress following the issuance of a Presidential Proclamation.*

community-based forest wardening scheme; all of which activities had been developed and funded under the auspices of the Philippines Biodiversity Conservation Programme (PBCP) of the Fauna and Flora International (FFI) and implemented by its local partner agencies, organisations and associates.

The major implementing partners of the FFI for this project were the Polillo Islands Biodiversity Conservation Foundation Inc. (PIBCFI), and the Philippines Biodiversity Conservation Foundation Inc. (PBCFI); the latter providing much of the requisite technical expertise via consultants seconded to the PIBCFI for this purpose. Both the PIBCFI and PBCFI are non-stock, non-profit. non-government organisations (NGOs), duly registered with the Philippines' Securities and Exchange Commission (SEC). Prior to the establishment of the PIBCFI there were no formal organisation in the Polillo Islands focusing on biodiversity conservation issues, particularly in regards to terrestrial ecosystems, yet just such an organisation was clearly and urgently urgent needed to assist, support and collaborate with local institutions in developing and implementing conservation interventions in this region.

2. Project Summary

The logical framework (Annex 1) set for this project provided the guidance in the implementation of the work programme to achieve various target outcomes. All planned objectives and outputs were achieved with notable accomplishments over and above the minimum target outputs. These accomplishments were made possible by modifying the originally proposed operational plan in compliance with local conditions and needs, and by incorporating a range of additional activities (not planned in the original project document), such as the socio-cultural and economic surveys, institutional and management capacity assessments, additional capacity and partnership building and resource mobilisation. These innovations in the work programme were essential to ensure sustainability and acceptability of the proposed conservation agenda, whilst nonetheless adhering closely to all of the original intents and purposes of this project.

The main purpose of this project was to establish a network of protected or conservation sites in the Polillo Islands, and to do this with the active participation and approval of relevant communities and other stakeholders, in order to conserve endemic and globally threatened species and habitats. It was proposed to accomplish this via the following means:

- Biological surveys completed and priority sites selected and mapped;
- At least six top-priority areas agreed by a process of consultation with local communities, authorities and other key stakeholders;
- Management strategies and operational plans developed and agreed for the protected sites;
- Local personnel trained in site management and monitoring, and essential management resources provided;
- Essential habitat and species restoration/recovery, enforcement, and other management interventions initiated in the protected sites;
- Heightened awareness and understanding among local communities and government of the need to conserve biodiversity in Polillos and the wider Philippines.

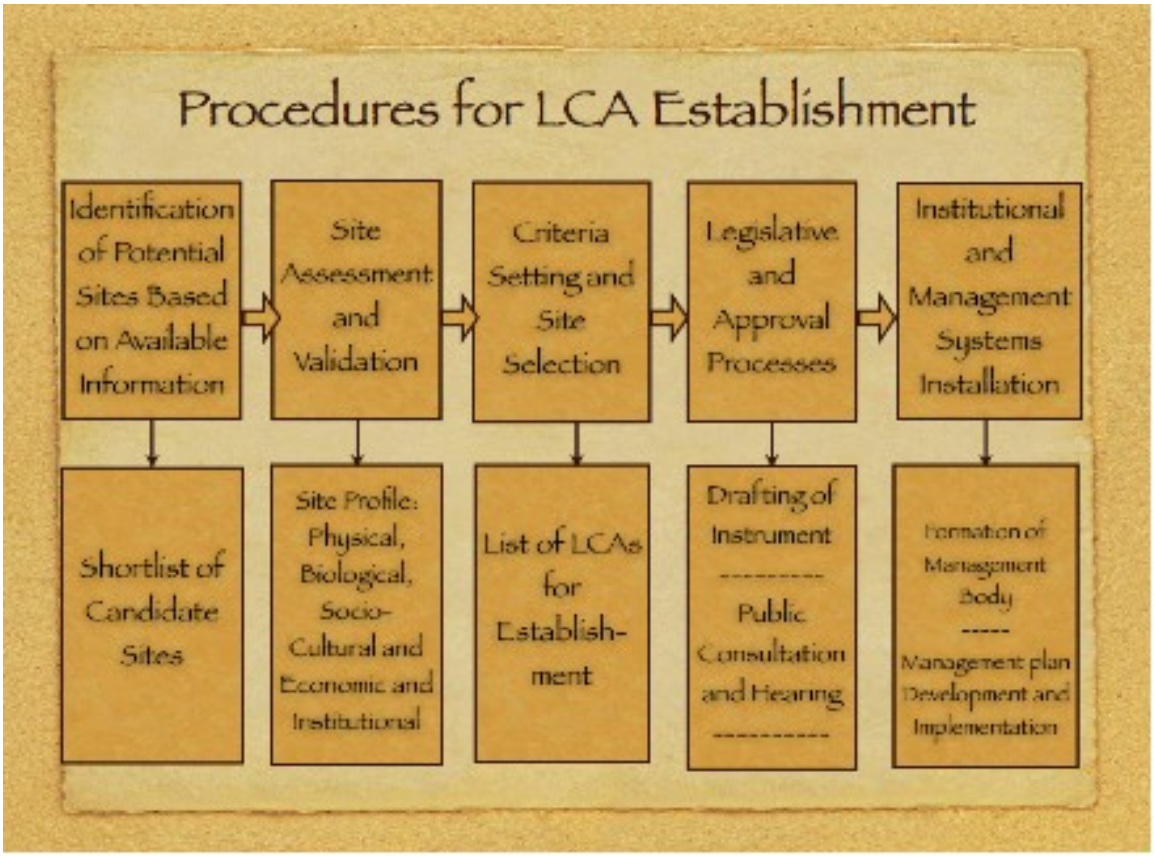

Fig. 2: Procedures for LCA establishment developed by the project (*N.B.* local government and community representatives were involved in all processes)

The project commenced in February 2005 by setting up the project management structure, developing operational systems and procedures, and preparing work and operational plans; all of the latter also being developed in collaboration with local government agencies and other partners, following initial project presentation meetings and orientations in each of three Polillo municipalities.

Relevant personnel included a full-time 'Project Manager' and three full-time 'Local Area Coordinators (LACs)', and part-time Project Assistant and Finance Officer. The project also assembled a multi-disciplinary team of highly qualified and experienced technical consultants with specialist expertise in GIS and Mapping, Community Development, Habitat Restoration, Flora and Fauna, Communication and Conservation Planning and Management, in providing support in the implementation of the project.

The project pursued vigorous efforts to enable and strengthen close collaboration with relevant local communities and governmental units (LGUs) via the organisation and conduct of strategic planning workshops in each area. These workshops also helped define levels of partnership and the respective responsibilities of each party, which were duly formalised by Memorandums of Agreement (MOAs) signed between PIBCFI and the Municipal Governments of Polillo, Burdeos

and Panukulan. As required under the Local Government Code of the Philippines, PIBCFI was also awarded formal NGO accreditation in each of these municipalities, and has applied for similar accreditations in Patnanungan and Jomalig in order to assist on-going efforts to establish additional protected sites in these areas. Similarly, support from DENR was secured following project presentation to the DENR Regional Executive Director of Region IVa, which also enabled DENR representatives to be involved in the implementation of project activities.

The principal objective of the project to establish the first ever network of at least six (6) 'Local Conservation Areas (LCAs)' - in effect local municipal reserves - was not only achieved, but considerably exceeded, via the formal declaration in November 2007of no less than ten (10) such sites spread across all three Polillo Island municipalities (Fig. 3).These 10 LCAs cover a total land area of 7,443.73 hectares (or c. 9.8% of total land area), and encompass most of this island's most important remaining native forest fragments and other wildlife habitats, including the known population sites for most of the most threatened and endemic species and subspecies occurring on this island. Moreover, at least one other key wetland site on Polillo Island, and three or more key sites on the neighbouring islands Patnanungan and Jomalig Islands have been identified for future declaration as additional LCAs following further consultations with relevant LGUs and detailed biodiversity and other surveys undertaken during last year of this project. Efforts are also underway to secure the requisite resources to complete wide-ranging coastal and marine surveys undertaken prior to this project, with a view to establishing a similar and 'complementary' network of new 'marine protected areas (MPAs)', selected on the same basic principals of biological 'importance' and 'representativeness', whilst also taking local community fishing and other livelihood interests into close account.

The declaration of these sites followed a consultative process also involving all affected communities and officials in the 23 separate barangays[10] covering these sites prior to the Municipal Councils (or '*Sangguniang Bayan'*) in each of the three municipalities finally approving the salient ordinances (Table One). In these respects, it is also important to note that the Philippine Local Government Code requires the conduct of public hearings for ordinances to be passed by LGUs, and that this process was also completed with the active assistance and technical support provided by this Project. Thus, the involved project staff not only helped to ensure that issues and concerns raised during public consultations were considered in the final drafting of the three ordinances, but that these ordinances also included numerous provisions balancing biodiversity requirements of LCAs and community needs for livelihood and land tenure.

[10] *Barangay (village) is the basic (i.e. smallest) political unit in the Philippines.*

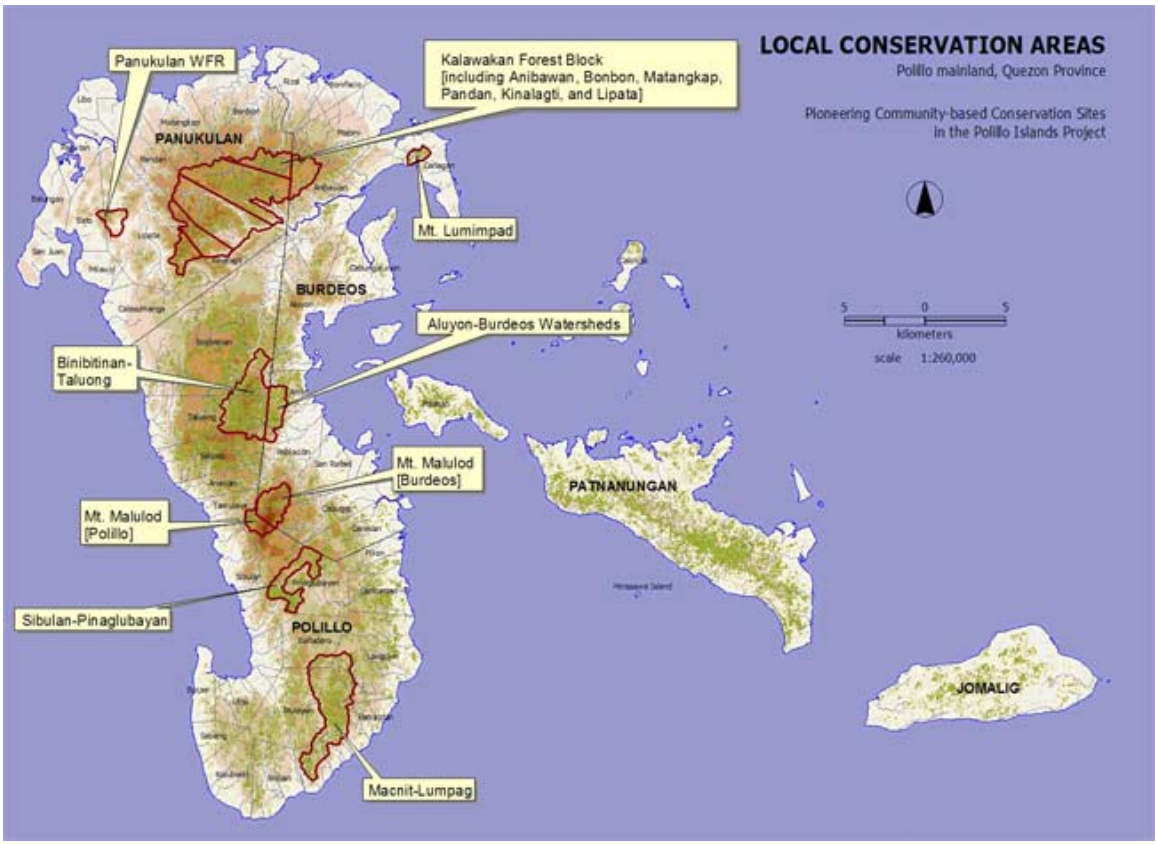

Fig. 3. Local Conservation Areas declared in the Municipalities of Polillo, Burdeos and Panukulan.

Table 1: Ordinances Declaring Local Conservation Areas in the Polillos

Ordinance Number	Title of Ordinance	No. of Sites and Total Area Declared	Barangays Covered
. 02 – 2007	Burdeos Local Conservation Areas Code of 2007: An ordinance declaring biologically important sites of Local Conservation Areas of the municipality of Burdeos, province of Quezon and providing for their management, appropriation and for other purposes.	Four Sites covering a total of 1,044.84 has.	Seven Barangays: Aluyon, Amot, Poblacion, Anibawan, Carlagan, San Rafael and Cabugao
09 – 2007	Panukulan Local Conservation Areas Code of 2007: An ordinance declaring biologically important sites of Local Conservation Areas of the municipality of Panukulan, province of Quezon and providing for their management, appropriation and for other purposes.	Two sites covering a total land area of 3,718.17 has.	Six Barangays: Bonbon, Matangkap, Pandan, Kinalagti, Lipata and Bato.
052 – 2007	Polillo Local Conservation Areas Code of 2007: An ordinance declaring biologically important sites of Local Conservation Areas of the municipality of Polillo,	Four sites covering a total land area of	10 Barangays: Atulayan, Banadero, Languyin, Pamatdan, Sibulan, Binibinitan,

	province of Quezon and providing for their management, appropriation and for other purposes.	2,680.72 has.	Pinaglubayan, Taluong Tumalaya, and Salipsip.

The major contribution of this project was therefore the introduction and development of an innovative new and far more localised system of management for the enhanced conservation of biologically important areas. Prior to this project, the only feasible option for the development of new protected areas was the 'National Integrated Protected Areas System (NIPAS)', though the NIPAS is not only extremely cumbersome and expensive, but has the further disadvantages of very seldom completing its own 13 stage process to the point of congressional budget releases for the enactment of site management plans and implementation of active protection measures.

All areas covered by the new network of LCAs would also now qualify as 'Critical Wildlife Habitats' under the terms of the new Wildlife Resources Conservation and Protection Act (2003), although the salient guidelines for the establishment of critical habitats[11] were not issued until 28 February 2007, by which time PIBCFI has already developed the LCA concept and assisted the LGUs in initiating due processes for the formal declaration of these areas. However, even if these guidelines had been issued at an earlier date the PIBCFI and this project would have undoubtedly opted in favour of using the LGC as a policy framework for the declaration of these sites, since the establishment and declaration of 'critical habitats' also transfers legal and administrative responsibilities away from the most concerned LGUs and other key local stakeholders to national government agencies whose presence is barely felt in these areas. In marked contradistinction, the LCA process, as defined by this project, not only invokes and empowers relevant LGUs, but accrues crucially important additional benefits to other local stakeholders, especially the communities most affected by the change in status of these areas. Nonetheless, the establishment of LCAs was coordinated

Thus, the LCA process not only by-passes most of the intrinsically cumbersome processes of the NIPAS and CH requirements, but it clearly offers more 'ownership' and other benefits to all local stakeholders. More importantly, it also greatly increases the prospects of both more effective, shorter-term enactments of agreed conservation management priorities and the likely longer-term sustainability of these interventions *via* key funding mechanisms and other provisions of the covering municipal government ordinances specifically tailored to address priority concerns identified and agreed during prior consultative processes orchestrated by this project.

The latter aspects are covered by the provisions of each of the three (3) the LCA ordinances, all of which also enabled the:

- delineation of sites declared as LCAs with specific technical descriptions;

- acceptance (and incorporation of) any 'prior rights' (i.e. areas within LCAs covered by existing legal private land titles, stewardship contracts and other valid and legitimate resource use rights are respected), whilst nonetheless also requiring that all activities in these areas conform to the management plans prepared for each site (where and if necessary by creating formal partnership agreements with 'prior rights' holders designed to enable the cooperative management and protection of the titled or tenured areas);

[11] *DENR Memorandum Circular No. 2007-02: Guidelines on the Establishment and Management of Critical Habitats.*

- formal establishment of 'LCA Councils' in each municipality to serve as the requisite (but previously non-existent) local 'management authority'; each of which councils are co-chaired by the municipal mayor and senior regional DENR officer, but must also include council member representatives from all relevant local NGOs and POs representatives;
- development and implementation of detailed management plans for each declared LCA and which also define any necessary management zones re. the strict protection of core areas *versus* any other 'limited use' areas per essential (and pre-existing) local community livelihood requirements and land tenure agreements;
- definition of prohibited activities and corresponding penalties and policing mechanisms; and:
- establishment of relevant financing mechanisms via annual LGU budgetary allocations.

The latter aspect is especially important in that it also breaks the mould of protected areas being declared – whether under both NIPAS and the 'Critical Habitats' category - without any such budgetary allocations being provided or assured. By contrast, therefore, the Municipal Governments of both Polillo and Panukulan have (initially) committed annual budget allocations of PhP 400,000 (c. £4,800 at current exchange rates) for each of their declared LCAs (i.e. 4 LCAs @ PhP1.6 million or c. £19,200 p/a, and 2 LCAs @ PhP0.8 million or c. £9,600 p/a, respectively); whilst Burdeos Municipality has (also initially) appropriated PhP 200,000 p/a per LCA (i.e. 4 LCAs @ PhP0.8 million or c. £9,600 p/a).

Even more importantly, and almost certainly uniquely in the Philippine context, the identification and subsequent declaration of these LCAs was firmly centred on both 'region-wide' and 'site-based' biodiversity surveys led by the most experienced local field research biologists best able and qualified to enable the key objective of establishing a network of new protected areas based on both biological importance and representativeness, where no such protected areas – let alone any such network of protected areas - existed previously. As such, the new LCA network was not only established on the basis of sound scientific criteria, but via means designed to optimise local social acceptability and stakeholder ownership. Moreover, three additional sites were identified and surveyed on the neighbouring island municipalities of Patnanungan and Jomalig, though we were unfortunately unable to complete the (on-going) LCA process in these areas within the timeframe of this project.

In any event, all of these surveys also constituted the first ever attempt to complete both biological and socio-economic profiles of all five municipalities in the Polillo Islands; the information thereby generated also providing the basis for the identification and declaration of the LCAs, and optimising the development and implementation of conservation interventions, such as policy issuances, conservation awareness and capacity building of local stakeholders, among others. Survey results presented to local governments and other relevant stakeholders also resulted in greatly enhanced understanding on the importance of biodiversity of the area, as well as the need to implement conservation measures. Similar surveys on Jomalig and Patnanungan Islands also identified further three additional sites potential for declaration as LCAs, which FFI and PIBCFI intend to pursue as future project interventions.

Before the end of the project, participatory management planning workshops were initiated in which the different stakeholders developed and defined the goals, objectives, strategic directions and

activities for the management of LCAs. As a gesture of commitment and interest in managing the LCAs, the LGUs of Burdeos, Polillo and Panukulan sponsored the cost of the planning workshops and outputs of which were prepared in the local language. The project staff acted as facilitators and secretariat in these workshops.

With the awareness, capacity and partnership building activities provided by the project, several barangays also implemented pilot habitat restoration sites, and otherwise responded The LGUs started to respond to the conservation effort through issuances of policies and formation of barangay-based resource protection volunteers in areas covered by the declared LCAs. Moreover, all 23 barangays covered by the 10 new LCAs have each appointed at least three new *Bantay Gubat/Kalikasan* (i.e. forest guards/wardens), currently comprising a total of 69 new volunteer wardens to implement forest protection and law enforcement in each of these barangays across all three Polillo municipalities!

The recruitment and deployment of these guards has not only already resulted in significant reduction of illegal activities in LCA areas, but also compensated for the absence of local DENR personnel to undertake forest protection duties. However, the project was also able to strengthen the authority of *Bantay Gubat/Kalikasan* volunteer forces by facilitating the submission of their requirements for formal deputisation as 'Wildlife Enforcement Officers (WEOs)' and/or 'Deputized Environment and Natural Resources Officers (DENROs) to the DENR. Too these ends, and in close collaboration with the regional, provincial and community offices of the DENR and LGUs, the project also provided additional training to the *Bantay Gubat/Kalikasan* volunteers to enhance their of legal and para-legal techniques and strategies related to resource protection and law enforcement. Similarly, all LGUs in the Polillos have also now officially appointed new 'Municipal Environment and Natural Resources Officers (MENROs)'.

In all of these regards, it is important to note that these three municipal governments have, since 2006 and as a direct consequence of this project, each allocated at least PhP1,000,000 (c. £12,000) annually for environment and natural resources management (see earlier text), and they also now provide modest honoraria for *Bantay Gubat/Kalikasan* members. True, the total equity funds generated by these means is still modest, but is nonetheless considered a major achievement in the area of environmental governance since it amply demonstrates the commitment and sincerity of the LGUs to biodiversity conservation, despite their own low economic capacities. Moreover, and also as a direct consequence of this project, these LGUs are also now prioritizing the delivery of basic social services and livelihood opportunities in barangays covering the declared LCAs.

In summary, the main purpose and objectives of this three-year project were not only accomplished, but considerably exceeded in terms of the number of declared LCAs, additional trainings and other outputs. The new network of LCAs now established on Polillo was not only the first such network of new reserves established in this region, but also the first such LCA network established anywhere in the Philippines. Consequently, the significance of this development lies not only in the greatly enhanced future conservation prospects of these habitats and wildlife in this region, but the fact the precedents and legal mechanisms for doing this were also established and may now be usefully applied in other key conservation areas elsewhere in the country. Indeed, a similar project has already been initiated by the FFI-PBCP and its local partner agencies in the

Calamian Islands (off northern Palawan), and initial consultations have been entered into re. other possible LCAs in key sites in Mindoro, Panay and other islands.

It is also clear that the project outcomes, although very localised and site specific, also contribute to the wider targets of the 'Convention on Biological Diversity (CBD)' as outlined in Annexe 2. Of these, the most significant contribution to the CBD is the promotion and implementation of *in-situ* conservation with the via establishment of the new LCA network and the specific guidelines and criteria detailed in the covering ordinances concerning the selection of these sites to enable the enhanced protection and restoration of threatened habitats and species, and the sustainable use of biological resources by traditional users. The LCA concept also offers incentive measures through the protection of ecological services provided by these areas to local communities, such as protection of critical watersheds, and the promotion of sustainable livelihoods and land tenure.

3. Scientific, Training, and Technical Assessments

This project implemented research, training and technical assessments combining both technical/scientific and popular tools and methodologies within a thematic approach. The research component of the project also provided hands-on training to local personnel, some community members and academic institutions.

One of the essential basic activities implemented by the project was the inventory of terrestrial habitats, and flora and fauna of priority sites designated for development as Local Conservation Areas. The Team Leader for this particular component of the survey was Juan Carlos Gonzalez, a biology professor at the University of the Philippines – Los Banos (UPLB), who served as the project's key 'Biodiversity Specialist', whilst also serving as the President of the PIBCFI during the timeframe of this project.

The biological surveys of the project provided hands-on and practical training to the three Local Area Coordinators of the PIBCFI, seven ecology wardens under the 'Polillo Ecology Stewardship Project (PESP)', three personnel of the Museum of Natural History of the UPLB, and diverse local guides and *Bantay Gubat/Kalikasan* members

Six UPLB forestry and biology students also availed themselves of practical training during these surveys, five of whom conducting fieldwork for their undergraduate theses on various wildlife topics (as shown in Table 2). The participation of undergraduate students and other interested persons also underlined the importance of the Polillos as field laboratory for scholarly research and continued close collaboration with other visiting researchers and other research institutions, locally and internationally.

Table 2: Research conducted in the Polillos by UPLB students

Name of Student	Research Title	Presentation
Julius G. de Guia	Preliminary survey of small mammals of Mount Malulod, Polillo Island, Philippines	

Name of Student	Research Title	Presentation
Ana Katrina M. Mamangun	The impacts of Forest fragmentation on the density and fruit selection of the Island endemic Polillo Tarictic Hornbill (Penelopides manillae subnigra)	2nd place, Wildlife Conservation Society of the Philippines (WCSP) Student Paper Competition (BPI Conservation Award), Philippine Biodiversity Symposium, 12-16 April 2007, Ateneo de Davao University, Davao City
Arjay D. Dimaano	Comparative survey of under-storey birds in disturbed lowland rainforest sites on Polillo Island, Quezon	2nd place, WCSP Student Paper Competition (BPI Conservation Award), Philippine Biodiversity Symposium 12-16 April 2007, Ateneo de Davao University, Davao City
Lealde D. Pacres	Species Diversity of Understorey Bats along Disturbance Gradients in Northern Polillo Island, Quezon Province, Philippines	
Felipe Jose C. Gonzales	Comparative Morphometric Analysis of the Green Smooth-scaled Gecko (*Pseudogekko smaragdinus*) from Polillo Island, Philippines	4th place, WCSP Student Paper Competition (BPI Conservation Award), Philippine Biodiversity Symposium 14-19 April 2008, Visayas State University, Baybay, Leyte

Equally important research initiated by the project was the comprehensive mapping and spatial profiling of LCAs and the entire Polillo Group of Islands; led by Jose Don de Alban, a geodetic engineering graduate of the University of the Philippines at Dilliman (UPD) and an experienced Geomatics Specialist. During the spatial surveys, the PIBCFI Local Area Coordinators and some local guides were provided with hands-on and practical training on GIS and mapping. Data on physical and geo-political properties of the five municipalities of the Polillos, including land cover and/or vegetation and land uses were updated, and technical descriptions of LCAs were delineated because of this survey.

The socio-economic research was somehow omitted from the original project design, despite constituting a crucially important contribution to the objectives of this project, given the involvement of the local communities and other stakeholders, and the need determine their awareness, knowledge and skills, resources and aspirations. Mrs. Salve Narvadez, a Community Development Specialist with extensive experience in the NGO sector, was duly recruited as team leader for this component of the survey, which also provided important further training opportunities to other PIBCFI personnel and local community members re. participatory tools and methodologies utilised in socio-economic assessments and profiling. An institutional and management capacity assessment was also carried out to determine the training needs of local stakeholders, what projects and programmes are currently implemented and to determine appropriate institutional mechanism for the management of LCAs, among others.

Various other research activities, which directly or indirectly contributed to the conduct and outcomes of this project, included:

a) an on-going, longer-term field study of Gray's monitor (*Varanus olivaceous*) conducted by Daniel Bennett of the University of Leeds, UK; whose assistance and findings provided especially important insights into the effects of forest fragmentation and the important role played by these animals in distribution and dispersal of important forest tree species, especially *Pandanus*, *Canarium*, *Grewia* and *Gnetum* spp; as well as training opportunities for project personnel and local (PESP) wardens in various field study methodologies, including camera trapping and identification and analysis of faecal deposits and other field 'sign';

b) a longer-term field study and monitoring of the small, but nonetheless globally important, population of Philippine cockatoos in the Polillo Islands, particularly on Patnanungan Island, conducted by Mrs Liza Dans, Project Assistant and Secretary of the PIBCFI Board of Trustees. This project, which is being undertaken in close collaboration with the 'Katala Foundation (KFI)' an NGO based in Puerto Princesa, Palawan; also provided additional training opportunities to PESP field wardens, assisted the conduct of related biodiversity, geomatic and socio-economic surveys on Patnunagan (which are expected to lead to the early establishment of one or more additional LCAs on Patnanungan), and which is now being extended to include similar studies of the endemic, and equally severely threatened, Polillo blue-naped (*Tanygnathus lucionensis hybridus*) and Polillo blue-backed (*Tanygnathus sumatranus freeri*) parrots; whose ultimate survival prospects are also likely to be crucially dependant on the new LCA network on Polillo.

c) a newly developing series of freshwater fish inventory surveys and species identification workshops organised and led by Colin Grist, Aquarium Programmes Coordinator, North of England Zoological Society. The field work components of this project are now almost exclusively focussed on Polillo, where they constitute the first such comprehensive surveys of the island's freshwater fish fauna, and therefore add an important new dimension to the wider assessments of the biodiversity of these islands, and additional training opportunities to key programme personnel and field wardens. Initial survey results in Burdeos are also now expected to result in the likely future declaration of an important stretch of the Anibawan River and neighbouring forest patches as another new LCA in this municipality.

d) a preliminary survey of selected coral reef systems off the northern and eastern coasts of Polillo island, conducted in September 2006 in collaboration with Coral Cay Conservation, a UK based NGO, which complemented earlier, and more comprehensive coastal habitat surveys conducted by marine biologists from UPLB, with funding support provided by P&O through the FFI-PBCP. These projects have therefore also provided important baseline information for future programme developments and collaborations on the islands' coastal and marine ecosystems, from which basis it is hoped to secure additional funding and technical support for the establishment of a similar network of 'marine protected areas (MPA)' in this region.

The different tools, methodologies and findings of these projects were also subject to peer review among the technical specialists and consultants of this project, and other noted authorities in the Philippines and elsewhere. Salient findings and recommendations were also presented and

validated to local officials and some community representatives. Various and diverse scientific papers were also produced and presented in meetings, conferences and workshops; many of which have published, or are expected to be published in the near future. These include two papers J. C. T. Gonzales, namely a paper entitled "Conservation Initiatives for Insular Fauna in the Polillo Islands", originally presented during the 2nd Tayabas Province Studies Conference in Tayabas, Quezon on 19 – 21 August 2005; and the preliminary findings of his on-going and longer-term field studies of the endemic Polillo tarictic hornbill (*Penelopides manillae subnigra*), which was originally presented at the 4th World Hornbills World Conference in South Africa in 2006.

Biological Surveys (Habitat, Flora and Fauna)[12]

As previously stated, detailed, wide-ranging biodiversity and GIS mapping surveys were conducted in all ten LCA priority sites on Polillo Island and three additional sites on Jomalig and Patnanungan Islands. These sites collectively encompass most of the most important remaining native forests, watersheds and other wildlife habitats in the Polillo Islands. These habitats are mostly comprised of residual and secondary lowland evergreen rainforest, though one of the Jomalig site also embraces the most important wetland habitats in this region.

Analyses of these habitats was conducted by completing standard habitat description forms and computing tree dominance by calculating the results of Point-Center Quarter Method (PCQM) following Gonzalez *et al*. (2003) and adopted from Sajise and Cuevas (1983). Analysis using PCQM involved ranking of sampled trees in 50 x 10 m plots, which helped determine tree dominance, and vegetation/forest type. Trees were identified by their local names up to species level by experienced local guides formerly employed as tree surveyors during the past logging operations that ravaged the islands.

Identification methods used by these guides was based mostly on standard criteria, such as colour and texture of bark, type of root system (buttress, prop roots), growth form, colour of the wood, the

[12]*Please see separate DVD for copies of the full reports on these surveys*

size and shape of the foliage and, of course, flowers and fruits when in season. Scientific names of trees corresponding to the local names were based on available references (e.g. Salvosa, 1963). Para-taxonomic identification of the local guides was further confirmed through collection of voucher specimens (leaves, flowers or fruit) of tree species observed within each PCQM plot. Only large trees were included in the PCQM, with at least 10 cm in DBH to qualify in the plots. Additional notes on understorey and ground vegetation were described following Heaney's habitat
listing for small mammal surveys (Gonzalez *et al*., 2003). Other key plant species such as epiphytes, orchids, palms, screw pines, ginger, bananas, bamboo, figs and ferns were noted for each site. Identification was based on either local knowledge or through pictorial guides, such as Cootes (2001), Madulid (1995) and Heaney & Regaldo (1998). Elevation and coordinates of the PCQM plots were taken using a Garmin Etrex GPS.

The inventories of terrestrial fauna in these sites focused on the rapid survey of four major groups of vertebrates, namely, amphibians, reptiles, birds and mammals using standardized methods. Various sampling techniques were employed to gain the maximum amount of data recorded within

the designated sampling period of seven field days per site. Multiple sampling methods were implemented to ensure that nearly all aspects of observation were addressed and gaps or bias were avoided. Standardization allows comparison with other surveys, and supports quantitative analysis. The methods employed in the terrestrial fauna inventory are presented in Table 3. A detailed account of standard techniques used in this inventory was enumerated in a manual prepared by Gonzalez *et al*. (2003).

Table 3: Terrestrial Fauna Inventory Methodologies (Gonzalez, J.C., 2007)

Terrestrial fauna	Summary of sampling techniques and standard methods adopted
Amphibians	Plot sampling for amphibians at 50x10 m plots along river Direct microhabitat sampling for amphibians Computation of similarity index
Reptiles	Direct microhabitat sampling for reptiles Direct observations on transect route, incidental capture in traps used for small mammals, particularly ground lizards Animal signs (faeces, shed skin) Computation of similarity index
Birds	Transect counts covering a 1 km route (rather than standard 2 km), with minimum 30-40 hours of cumulative transect counts per site Mist-netting for under storey birds at minimum 70-80 net-days Analysis of transect counts for relative abundance and BSD Analysis for netting success Computation of similarity index
Mammals	Mist-netting for bats at minimum 70-80 net-nights Several 3 hour Tunnel trapping for bats Cage trapping for small mammals with 300-500 cumulative trap-nights Direct observations and animal signs (faeces, prints) Analysis for netting success and trapping success Computation of similarity index

Most of birds and mammals captured from mist-nets and traps (or caught-by-hand) were carefully processed at base camp for biometrics prior to release, and noted in standard catalogue sheets. A selected number of birds and mammals were collected and preserved as voucher specimens. Frogs, snakes and lizards, as well as bats and rats make up the majority of the collections taken, with a maximum of five individuals of each from each site were allowed under the approved collection permit.

Voucher specimens collected were deposited at the University of the Philippines – Los Banos Museum of Natural History (UPLB-MNH) for purposes of identification and/or future scientific study. Most specimens were preserved as skulls and dried skins, or in 10% formalin or 70% methyl alcohol (denatured alcohol), with numbered tags or labels corresponding to individual field numbers, sex, place and date of collection and other basic data.

Data collected from the transect counts, netting and trapping results were analyzed quantitatively through the use of measurable computations of basic ecological parameters – diversity, similarity and abundance. Compiled data sets into species accounts allowed qualitative comparison of

species composition, dominance and other important trends in the data presented in various tables and graphs. Qualitative analysis of the data recorded from the sites was shown using comparative trends in species richness and degrees of endemism.

Quantitative analysis of the data recorded from the study sites was compared using measurable levels of diversity and abundance evaluated through the computation of the indices for species diversity based on the Shannon-Wei[ner function (H') and other comparative diversity (ex. Evenness) indices, using the PAST program and a standard t-test for statistical analysis supplemented it. Data between sites were compared for species assemblage using the Sorensen's Index of Similarity. With the summation of the values of (pi) multiplied to its logarithmic values to the determine (H'). Comparison of relative abundance (RA %) was derived from the proportion of individuals of a species (pi) over the total for all species, shown in percentage.

Data sets derived from results of trapping and mist netting for each site, were computed over the cumulative trap-nights and net-nights to determine values for trapping and netting successes (Rickart *et al*., 1993). Nomenclature used for terrestrial fauna presented in the final report follows current taxonomic arrangements taken from annotated checklists and monographs, given for each of the following vertebrate groups: Birds – Dickinson *et al*. (1991) and Kennedy *et al*. (2000); Mammals - Heaney *et al*. (2002); Amphibians - Alcala & Brown (1999); and Reptiles - Alcala (1986); Brown & Alcala (1978, 1980), and Crombie (1994).

Mapping and Spatial Profiling and Analysis[12]

Available secondary data pertaining to the physical and land use aspects of the Polillos were obtained including topography, climate, soil types, land cover, land classification, land tenure instruments and administrative boundaries. Hardcopy of maps and tabular coordinate data were procured, scanned, and converted to data formats for incorporation in a GIS. Relevant policies and local land use plans obtained from concerned government agencies for review and integration in this assessment.

The survey included resource mapping primarily to obtain information on the land cover status of each area, and current resource uses and patterns of the different communities in and around the proposed LCAs. The mapping activity was part of the key tools of the 'Participatory Rapid Appraisal (PRA)' and was conducted in communities covered by the proposed LCAs. Key participants from the different barangays were selected to join in the resource mapping exercises.

The resource mapping process began by listing important features and major landmarks in order to create a legend and incorporating these into a 'resource map' approximately 2.5 m x 1.5 m size, initially executed on Manila paper. The completed resource map was then re-drawn in permanent ink on a clear plastic sheet and displayed for reference and validation by community participants for the duration of each PRA workshop

Satellite image processing was used to determine land cover data, based on Landsat 7 ETM+ imagery acquired in July 2001, and used in conjunction with an existing 3D land cover map produced by the Oxford-UPLB expedition in 2001. A minimum of 30 ground control points for each

image, and located on NAMRIA 1:50,000 topographic maps, were used for image registration to project the image on the Universal Transverse Mercator Zone 51 North, Luzon datum. The panchromatic band (with a 15-meter spatial resolution), available from the Landsat ETM+ sensor, was rectified prior to registering the multi-spectral bands (with a 30-meter spatial resolution) to the higher resolution image. Allowable root-mean-square error at less than 0.50 of an image pixel was attained for each image. Training areas or representative sample sites of known cover type were collected using GARMIN® eTrex global positioning system receivers during ground surveys.

Image classification was done using supervised classification incorporating the training data with some minimal inference from visual interpretations. Land cover classes were based mainly on training area data. A maximum likelihood algorithm was applied to classify all images after developing signatures for each land cover class using equal prior probabilities for each signature. Accuracy assessment was done for the classified image by generating 100 stratified random sampling points and checking the same using field data. The Kappa coefficient of K = 0.9307 was obtained. Image registration was accomplished using ENVI 3.5 software developed by Research Systems, Inc. (RSI 2001), and image classification algorithms were executed using Idrisi32 software developed by Clark Labs (Eastman 2001).

Ground surveys were conducted mainly to collect training area data for satellite image classification, and to validate the information on resource maps and other secondary map data. Coordination with the local communities was essential at the onset of the survey to request for their consent and for security purposes. Local guides, particularly those who were knowledgeable and familiar with the terrain, were employed based on the recommendation of barangay leaders to accompany the team and show which way to go around the area.

[12]*Please see separate DVD for copies of the full reports on these surveys*

Forest habitats and other land cover types within the LCAs were visited to assess their status and extent. Location and elevation readings of different land cover types were taken using a GARMIN® eTrex global positioning system (GPS) receiver set to the Geographic coordinate system and the WGS84 datum. Readings were recorded when positional accuracy was 15 meters or better. In cases where satellite reception was poor (especially within forests with closed tree canopies), GPS readings were taken again once there was enough opening in the canopy to acquire a position (e.g., triangulated from at least 3 satellite signals). All GPS readings and field observations were documented in a notebook and encoded in a spreadsheet. All spatial data were incorporated into a geographic information system (GIS) to facilitate better data integration, manipulation and analysis. Thematic datasets adopt the Universal Transverse Mercator projection Zone 51 North and the Luzon datum. ArcView® GIS 3.2 developed by ESRI was the primary software used including some developer extension tools such as XTools for geo-processing, ArcView Projection Utility for conversion between projections, Distance and Azimuth Tools for plotting technical descriptions, and the 3D Analyst for topographical analysis.

Socio-Cultural, Economics, Institutional and Management Capacity Assessments[12]

The Participatory Rapid Appraisal, the primary tool used in community profiling, focuses on the natural resource practices, patterns and values to the people. It also included an assessment on

the resource governance employed by the Local Government Units. Demographic and detailed economic data was gathered from various sources, such as the National Statistics Office (NSO) website, and the latest Socio-Economic Profile and Land Use Plans of LGUs.

Two-day workshops in each of the 23 different barangays covered by LCAs were organised in collaboration with relevant Barangay Councils, Barangay Health Workers (BHWs), Barangay Police, DENR and PO representatives, religious group representatives and other interested groups or residents, and convened in each Barangay Hall or Health Center to optimise participation of residents. The PRA tools used were presented in Table 4.

Table 4: Tools Used in the Participatory Rapid Appraisal (Narvadez, S.D., 2007)

PRA Tool	Purpose and Data to be Established
Timeline	To trace the history of the community and establish trends and patterns on settlement, demography, land use, resource utilization, governance, socio-cultural changes.
Seasonal Calendar	To determine and assess specific climatic patterns (wind, typhoon, rain, dry season, cold and hot months), and its effects to income, expenses, health, food availability and socio-cultural celebrations of the community every one whole calendar year.
Community Resource Mapping	To develop a community resource map, detailing the settlement, agricultural, forest, rivers, infrastructures and other physical features of the area, drawn by the community.

[12]*Please see separate DVD for copies of the full reports on these surveys*

Livelihood Matrix on Agriculture, Forestry and Fisheries	To secure specific data on the community's livelihood activities and their preference in terms of crops planted, livestock raised, forest products gathered and used, fishing gears, etc., and the reasons for their preferences.
SWOT (Strength, Weaknesses, Opportunities and Threats) Analysis	To determine and assess perceived and felt strengths, weaknesses, opportunities and threats in the community that affects people relationship, movement and development.
VENN Diagram (Stakeholder Analysis)	Secure and enumerate data on the interventions of the different groups, agencies, organizations, individuals that influenced the present community situation.

In support of the PRA, 'Key Informant Interviews (KIIs)' were also initiated to obtain any more sensitive or critical information unlikely to be disclosed in groups or community meetings. KIIs are usually conducted with key persons in each community, such as the Barangay Captain, President or Chair of people, civic and/or non-government organizations, but may also include ordinary residents respected by other members of the community.

The institutional and management capacity assessment, on the other hand, was done through individual interviews and focus group discussions with the Mayor, *Sangguniang Bayan* Committee on Environment, the Municipal Planning and Development Coordinator (MPDC), the Municipal Agriculture Officer (MAO), who is also the designated Municipal Environment and Natural

Resource Officer (MENRO), and representatives of the different quasi-government, non-government and people organisations within the Polillos. This assessment involved determining the management capacity of the different local institutions and organizations to formulate and implement biodiversity conservation-related programs and management plans; ascertain the training needs of local partners; and explore and help PIBCFI define a practical process for the formulation of a comprehensive management plan for the Local Conservation Areas in the Polillos.

Research Key Findings

In general, the major findings of the different surveys initiated of the project include the following:

- Areas covered by surveys contain the largest remaining forest blocks in the five municipalities;
- These areas are important habitats to numerous endemic and globally threatened species and sub-species of animals and plants, many of which had not been previously recorded in these areas;
- Several of these areas also comprise most of the island's watershed supplying the agricultural and domestic water requirements of the different municipalities;
- Forests in these areas although already fragmented contain economically and commercially viable species and are still the major source of timber and other forest products; but the collection of these products was unregulated and almost certainly unsustainable at existing rates of collection;
- Slash-and-burn agriculture is prevalent in surrounding areas and poses a continuing major threat, but assistance in developing non-destructive livelihood alternatives was absent in almost all areas.
- Hunting of wildlife for food and trade has diminished in recent years, but still reported in some sites;
- Settlers already occupy and claiming land tenure rights in certain areas, some of whom have also availed Certificate of Stewardship Contracts (CSCs) through the 'Integrated Social Forestry Program (ISFP)' of the DENR. Aside from the awarding of these land tenure instruments, however, no other assistance had been provided to CSC holders. Regulations on the use of land covered by ISFP such as the implementation of agro-forestry technologies and establishment of tree plantations were not observed and most CSC holders are apparently unaware of such requirements.
- Certain areas in the Polillos have also been claimed as ancestral domains of the indigenous people belonging to the Dumagat Tribe.
- There are no existing community or people's organisations in these sites; and even CSC holders are not organized into any community associations.
- Apart from the PIBCFI no NGOs are implementing conservation initiatives in any areas covered by surveys. Communities had low awareness of biodiversity issues and were not engaged in resource conservation and management; assistance provided by LGUs is focused on basic social services;
- Although two areas had been previously declared as critical watersheds and one other protected area, no management systems were in place and these sites were openly accessible for other uses. The seven other sites also have no prevailing management arrangements and

presence of concerned authorities was negligible in all sites prior to the implementation of this project.

4. Project Impacts

Policy level Impacts:

- Institutional Arrangements. A clearly defined institutional mechanism for the management of biologically important terrestrial habitats and ecosystems in the Polillos, through the concept of LCA, was developed and implemented successfully with the full support and active assistance of relevant local stakeholders. The development of LCAs also facilitated the first co-management arrangement in resource management between the DENR and local governments in the Polillos. The DENR designated representative co-chairs with the Mayor in the LCAs Management Council in the municipalities of Polillo, Burdeos and Panukulan. This initiative is in consonance with the national thrust on collaborative resource management between the national and local agencies as contained in a joint memorandum circular of the DENR and the Department of Interior and Local Government (DILG) issued in 2004 to support the further devolution of authority and functions of national government agencies to local governments mandated by the Local Government Code. The project, therefore, provided the enabling environment for the DENR and DILG local offices and local governments to comply with this national directive.
- Local Resource Management Authorities. The creation and institutionalization of the LCA Management Councils in the three Polillo Island municipalities was also a pioneering effort in establishing a formal local resource management body on terrestrial biodiversity in this region, which was entirely absent in the past. As such, this initiative addressed the former issue on lack of institutional mechanism to manage the biologically important sites in the Polillos. Moreover, and the participation of NGOs and communities/people's organisations to this management council is now assured. This innovation of the project also conforms with the President's Executive Order on Sustainable Forest Management of the Philippines, which invokes participation of civil society groups in resource management.
- LCA Network. This project enabled the establishment of the first ever network of meaningful protected sites identified and selected on the basis of both biological importance and representation in terms of species, habitats and ecosystems diversity. The identification and development of these LCAs was based on sound scientific criteria, guidelines and methodologies; the vast majority of which data was also collected and assessed during the course of this project, a process greatly benefited by enabling the involvement of many of the most experienced local practitioners, most noted for their technical and specialist expertise.
- Participation of local stakeholders in natural resource management. The establishment of these LCAs was initiated entirely through local processes and approval, thereby also creating strong senses of ownership and collaboration among the different stakeholders. The development of ordinances declaring these LCAs was also undertaken by a participatory approach, which included technical capacity building among local legislators via providing practical training on policy development on environment and natural resources management.

The identification and selection of LCAs were also subject to extensive consultations involving local officials and community representatives, and the public hearing requirements of the LGC for the passage of LGU ordinances was likewise enabled through the technical assistance and support provided by this project.

- Biodiversity and livelihoods. With the establishment of LCAs, communities were also provided with concrete opportunities pertaining to land tenure security and sustainable livelihood; all of which provisions were included in the ordinances for the declaration of LCAs. Similar provisions also enabled additional assistance in terms of community organising; wherein no such peoples organisation previously existed in the communities within and surrounding these LCAs.
- Conservation Investments. The management sustainability of the LCAs is likely assured via creation of the LCAs financing mechanisms. To these ends, the Municipalities of Polillo and Panukulan each have allocated an initial annual budget of PhP 400,000, and Burdeos an initial annual budget of PhP 200,000, for the protection and management of the declared LCAs; a process duly assisted by the recruitment, training and deployment of at least 3 new *Bantay Gubat/Kalikasan* (forest wardens) in each of the 23 barangays covering the ten LCA sites; these same wardens having also been formally deputised by the DENR 'Wildlife Enforcement Officers (WEOs)' and/or 'Deputized Environment and Natural Resources Officers (DENROs). Similarly, all LGUs in the Polillos have also now been officially designated 'Municipal Environment and Natural Resources Officers (MENROs)'.
- Conservation road map. Clear road maps for the management of LCAs were laid down with the development of management plans for these sites. These management plans enumerate necessary strategies and key actions to ensure the protection and conservation of biodiversity, with identified institutions responsible for the implementation of various activities. These management plans were developed and prepared in local dialect and have enumerated appropriate forestland use plans. The development of the forestland use plan is also a requirement for the Comprehensive Land Use Planning (CLUP) of LGUs. The management plans incorporated issues and concerns related to livelihood and land tenure requirements of communities in areas covered by the declared LCAs.
- Expansion opportunities. Perhaps most importantly, these project accomplishments have established diverse, innovative and potentially important mechanisms that may be equally well applied elsewhere in the country. The concept of LCA is now becoming an alternative modality to the existing resource management systems in the Philippines. Several organisations have already expressed interest over this concept. In particular, the 'Philippines Biodiversity Conservation Programme (PBCP)' aims to implement this concept in its other key project sites in the Calamians, Mindoro, Panay, Negros and other islands.

Site level Impacts:

Additional and direct consequences of this project, particularly resulting from the implementation of capacity building, technical assistance and partnership building, the local governments in the Polillos have instituted the following conservation initiatives:

- Each municipality of the Polillos has a designated Municipal Environment and Natural Resources Officer to take charge of the environment and natural resources management of the municipality.
- With the technical assistance and support provided by the project, Panukulan has already enacted its Environment Code, while Burdeos and Polillo are on the process of developing their Environment Code too. Several ordinances on biodiversity conservation were also passed in these municipalities, such as banning of wildlife hunting and *kaingin*.
- The municipalities of Panukulan, Burdeos and Polillos have started to allocate annual budget for environment and natural resources management, including budget for the modest honorarium of *Bantay Gubat/Kalikasan* members, establishment of forest nurseries, forest protection activities and livelihood assistance.
- In as much that the design and budget of this project did not include direct development and provision of livelihood assistance and support to communities, the project strongly advocated to LGUs in prioritizing delivery of basic services and livelihood to barangays covered by the declared LCAs. Moreover, the project conducted community orientations on the provisions governing the Certificate of Stewardship Contracts awarded through the Integrated Social Forestry Programme of the DENR and the possible awarding of the Community Based Forest Management Agreements to qualified forest occupants during public consultations for the declaration of LCAs;
- Since 2006, the Municipalities of Polillo, Burdeos and Panukulan have each allocated at least Php 1,000,000 (c. £12,000) annually for environment and natural resources management. The annual allocation is over and above with the appropriation provided for LCAs.
- Each barangay within the declared LCAs has designated at least three members of the Bantay Gubat/Kalikasan to implement forest protection and law enforcement activities. These volunteers totaling to at least 69 members have already responded to several illegal forest cases. The forest protection initiated by the project have made the collaboration between communities, LGUs, DENR and Philippine National Police (PNP) possible as they were all supporting the actions of *Bantay Gubat/Kalikasan*. The Barangay Councils in each barangay are supervising the operations of these volunteers with technical support and guidance from the project.
- Several barangays that participated in the habitat restoration and protection training courses of the project have started to construct forest nurseries and implement pilot habitat restoration sites. Several schools also implemented tree planting, while a demonstration area for habitat restoration was established in collaboration with the Southern Luzon State University (SLSU) – Polillo Campus, with funding support from the municipal government.
- With a variety of school-based conservation awareness activities implemented by the project, the SLSU administration has declared the official observation of commemorative events related to conservation, such as the Earth Day, Biodiversity Day and Environment Month. Similarly, the Biodiversity Club in SLSU was formed.

The implementation of this three-year project has therefore contributed directly to the commitment of the Philippines to the Convention of Biological Diversity because it increased the number of land area placed under “protection status” for biodiversity purposes. Moreover, this project has provided

invaluable insights and strategies on how to effectively carry out conservation interventions with the active participation of local stakeholders. The capacity building exercises implemented by the project has enhanced resource management in the Polillos, which is also an important component of the CBD. Reports from the field also confirmed the reduction of illegal forest activities, especially the curtailment of wildlife hunting. The other most important contribution of this project to the commitment of the Philippines to CBD is the accumulation of scientific information, which will serve as baseline on monitoring and evaluation on the status of biodiversity in the Polillo Islands.

This initiative has also resulted in greatly increased collaboration among concerned agencies. With the lobbying and aggressive coordination of the project, the DENR has issued a memorandum directing its local personnel to collaborate in implementing project activities. Similarly, local officers of DILG were also involved in training activities while members of the PNP were mobilized in resource protection and law enforcement. The Department of Education (DepEd) was also the project partner in implementing teacher's training on biodiversity education and conservation.

This project also exemplified collaborative efforts of international, national and local organizations in delivering conservation outcomes. The FFI, as a lead contractor of this project has provided valuable technical and administrative support and assistance, and other UK nationals and organisations have been directly involved in project implementation, such as in biological research, development of biodiversity handbook and in information and education activities. Similarly, the project has established coordination with national NGOs, such as the Philippines Biodiversity Conservation Foundation (PBCFI), Tanggol Kalikasan, Katala Foundation and Center for Environmental Awareness and Education. Coordination is also being initiated with the Philippines Tropical Forest Conservation Foundation (PTFCFI) Team Energy Foundation (TEF) and Foundation for the Philippine Environment (FPE) for possible collaboration in project development and implementation.

5. Project Outputs

Output 1. Priority sites selected and biological surveys and mapping completed.

The project considerably exceeded its original targets under this component in two crucial respects, namely: a) completing the survey and mapping of a total of 13 sites[13] in the entire Polillo Group of Islands, and the successful declaration of 10 sites as new LCAs, *versus* the originally agreed target of only 6 sites; and b) successfully incorporating a number of important additional activities – e.g. the socio-cultural and economic surveys, institutional and management capacity assessments, and paralegal training workshops - omitted from the original work plan and budget. Unfortunately, limited time and resources precluded the declaration of the three additional sites surveyed in Jomalig and Patnanungan as LCAs, though the PIBCFI, in collaboration with the FFI-PBCFI Philippines Biodiversity Conservation Programme, is actively pursuing additional funding opportunities for the establishment of these and other LCA networks in the Polillos and other highest conservation priority areas in the Philippines.

In the interim, the 13 sites surveyed thus far by the project also collectively constitute all of the most important remaining terrestrial habitats in the Polillo Islands. Surveys conducted in each of

these sites included: (i) biological assessments (habitats, flora and fauna), (ii) mapping and spatial profiling and analysis (physical profiling), and (iii) socio-cultural and economic survey; and (ivi) institutional and management assessments, with the two latter activities being added to assist in designing and developing management interventions.

The project also pioneered the first ever attempt to complete physical, biological, socio-cultural and economic, and institutional profiles of the municipalities covering the Polillos. These profiles did not only provide essential reference data, but also offered strong justifications for the declaration of LCAs, were crucial in the development and implementation of management plans and in determining appropriate institutional mechanisms to effectively manage the different LCAs.

[13]*Four sites in Polillo, 4 in Burdeos, 2 in Panukulan, 2 in Patnanungan and 1 in Jomalig.*

Output 2. At least 'six' priority areas agreed by a process of consultation with local communities, authorities and other key stakeholders.

As previously stated, a total of 10, not 6, priority sites were not only agreed, but formally declared as new LCAs across the main island of Polillo, with a further 3 sites having been 'agreed in principle', but not yet fully developed or declared on the neighbouring island municipalities of Patnanungan (2 sites) and Jomalig (1 site). Consultations pertaining to the establishment of the 10 LCAs so far declared in the municipalities of Polillo, Burdeos and Panunkulan, also extended to the 23 barangays covering these 10 sites; the majority of which barangays subsequently issued resolutions to their respective *Sangguniang Bayan* endorsing the passage of municipal ordinances declaring the 10 LCAs, all of which resolutions were passed following representations to each of these councils by project personnel. The project also provided the requisite technical support in the crafting of barangay resolutions and ordinances for the declaration of the 10 LCAs, and organized various additional training workshops and seminars aimed at enabling and capacitating relevant LGUs to manage these sites.

In addition to barangay consultations, the project included the orientation and consultation on the establishment and management of LCAs during the training on 'Basic Ecology and Environment and Natural Resources Laws', where representatives from 15 barangays affirmed the need to establish these conservation sites. The same presentation was initiated during the 'Habitat Protection and Restoration Training' involving representatives from 18 barangays across the thre municipalities of Polillo, Burdeos and Panukulan. Further consultations were also included during the PRAs and FGDs in several barangays in these municipalities.

During the 'Eco-Governance Enhancement Seminar Workshop' facilitated by the project, the Mayors and Municipal Councils of Polillo, Burdeos and Panukulan unanimously affirmed the necessity for the establishment and declaration of LCAs. These consultative processes also enabled the fast tracking passage of the ordinances declaring the 10 LCAs.

The project also orchestrated and conducted various information, education and communication (IEC) activities aimed at disseminating and popularising the concept of LCAs, not only in communities within and surrounding the LCAs, but including other Polillo residents. As a

requirement of the Local Government Code, the LGUs conducted public hearings for the declaration of LCAs with technical assistance and support provided by the project.

The intensive public consultations for the establishment of LCAs have identified numerous related issues and concerns, which were duly incorporated in the ordinances for the final declaration of these LCAs. Issues related to land tenure security and livelihood that were of particular concern amongst salient communities were addressed during further consultations with community leaders, barangay officials and key representatives of each of the three municipal councils (or *Sangguniang Bayan*), which ultimately resulted in the inclusion of the (aforementioned) provisions relating to 'prior rights', awarding of appropriate land tenure security agreements, and additional livelihood support to communities within and surrounding the declared LCAs.

Output 3. Management strategies and operational plans developed and agreed for protected sites

As a matter of strategy, the project adopted a two-tiered approach to management planning of the LCA network. The first level of the planning process involved development of thematic plans initiated during the capacity building activities conducted by the project. Thematic plans prepared as outputs of these trainings and seminar workshops included:

- Formulation of management strategies and operational plans for habitat protection and restoration in 18 barangays covering the 10 LCAs.
- Development of legislative agenda as an output for the training on environment and natural resources involving 15 barangays.
- The three Municipalities of Polillo, Burdeos and Panukulan adopted conservation action plans as final outputs of the Eco-Governance Enhancement Seminar Workshop organised by the project in 2006.
- Communication plans were also drafted as outputs of the Teachers' Training on Biodiversity Education and Conservation to advance the conservation awareness in the Polillos.
- Action plans prepared for resource protection and law enforcement in the municipalities of Panukulan and Burdeos as outputs of the Para-Legal Training on Environment and Natural Resources Management for the *Bantay Gubat/Kalikasan* members.

The second level of management planning was implemented following the declaration of LCAs. The project facilitated two-day participatory management planning workshops in each of the three municipalities, wherein the various stakeholders gathered to identify key management issues and concerns affecting the LCAs and defined corresponding goals, objectives, strategies and management activities to ensure the protection and conservation of these LCAs. The ensuing management plans for each LCA, prepared by each municipality in the local dialect, also elaborated the responsibility of each involved institutions in implementing these plans over an initial five-year period and the resources and sources of funds required to implement agreed activities. Other outputs of the planning workshops included the establishment of appropriate management or land use zones in all areas covered by the LCAs, aimed at reconciling the primary objectives of biodiversity conservation *versus* the livelihood and land tenure requirements of the involved

communities. The LGUs shouldered the cost of these planning exercises, which also facilitated their compliance with the Forest Land Use Planning requirement of the Philippines.

The implementation of management strategies and operational plans for the declared LCAs has already been started in Polillo, Burdeos and Panukulan. These strategies involve resource protection, monitoring and law enforcement, habitat restoration, development and implementation of conservation policies, awareness building on biodiversity and local livelihood assistance.

Project personnel also participated in the 'Legislative and Executive Agenda (ELA)' priority setting in each of these three municipalities. The ELAs are intended to ensure local governments prioritise and implement biodioversity conservation actions. In coordination with the Municipal Government of Polillo, the project prepared a watershed management proposal amounting to PhP 300,000 (c. £3,615), which was submitted to the Quezon Provincial Government for approval. Similarly, discussions with the Polillo Water District were initiated for possible collaboration in the watershed management of Polillo. Thus far, the PIBCFI has prepared four project proposals submitted for possible funding to further support the implementation of management plans for the declared LCAs and to secure counterpart resources for funds provided by LGUs.

Output 4. Local personnel trained in site management and monitoring and essential management resources provided

All activities for this output were carried out as planned, though it also proved necessary to augment originally proposed outputs *via* additional training activities when it became clear that the salient LGUs had little knowledge of relevant environmental protection legislature or prior experience in natural resource management. The project responded by organising a number of additional seminars, workshops and training courses, and producing relevant training manuals and audio-visual presentation materials aimed at assisting and capacitating these agencies to prepare, develop and implement local environmental conservation policies and actions, including management of the LCAs. Key topics included in the different capacity building exercises of the project are as follows:

- Basic Ecological Concepts and Biodiversity Importance of the Polillos.
- Relevant Environment and Natural Resources Laws of the Philippines.
- Habitat Protection and Restoration.
- Teachers' Training on Environmental Education and Biodiversity Conservation.
- Eco-Governance Enhancement Seminar Workshop.
- Para-Legal Training on Environment and Natural Resources Management.
- LCAs Management Planning Seminar Workshops.

The Basic Ecology and Environment and Natural Laws Seminar Workshops enabled the participants to better comprehend the biodiversity conservation importance of the Polillos, and the importance of ensuring that the legal framework needed to support biodiversity conservation actions are in place. However, despite the enactment of the Local Government Code in 1991, all participants readily acknowledged that their unfamiliarity with these statutes had also resulted in

little or no enforcement. Legislative agenda for the 15 barangays covering the 10 LCAs were crafted as key outputs of these workshops.

The Eco-Governance Enhancement Seminar Workshop on 11-13 October 2006 also brought together for the first time the relevant senior-most officials from Polillo, Burdeos and Panukulan, including all three mayors and the majority of members of the each of three municipal councils. Discussion between these officials and attending representatives of DENR, DILG, NCIP and other local NGOs, were facilitated by PIBCFI and PBCFI consultants, which together with FFI-PBCP Director, also prepared audio-visual presentations on all key topics, including existing legislation pertaining to environmental protection and natural resource management. As a result, the three LGUs issued a joint resolution calling for the formulation of a unified ordinance on biodiversity conservation in the Polillos, and established a technical working group composed of representatives from each municipality to draft this ordinance. Each LGU also formulated a conservation action plan, defining key strategies to be implemented in each municipality. Subsequent discussions on continued illegal logging and collection of other forest products, resulted in the Provincial Environment and Natural Resources Officer (PENRO) of the DENR issuing a memorandum calling for more intensive patrol operations by local DENR personnel, who became noticeably more active as a consequence.

The project also provided essential capacity building to local communities and officials in the management of important conservation sites in collaboration with local governments and the DENR. In addition to basic ecology and environment laws, technical training provided on habitat restoration and protection to representatives from 18 barangays. This training emphasised the need to use indigenous and native tree species for habitat restoration, with additional inputs being provided on the establishment of production forest to meet local timber requirements. During the training, hands-on demonstrations on the construction of growth chambers; collection, storage and maintenance of seeds and seedlings; and forest nursery establishment, were also provided. Following this training, several barangays in Burdeos, Polillo and Panukulan have established forest tree nurseries and implemented pilot habitat restoration sites.

The project also sponsored a para-legal training on environment and natural resources management, which was organised for the benefit of 80 local officials and *Bantay Gubat/Kalikasan* members in Panukulan and Burdeos, most or all of whom are expected to be as formally deputised by the DENR as 'Environment and Natural Resources Officers (ENROs)' and/or 'Wildlife Enforcement Officers (WEOs)'. This training provided orientation on applicable laws and regulations re. environment and natural resources, strategies and methodologies in enforcing these laws, monitoring and identification of illegal activities, and preparation of documentation for the filing of cases in appropriate courts against suspected offenders. Local governments of Panukulan and Burdeos provided counterpart funds amounting to PhP70,000 (c. £845) and PhP50,000 (c. £600), respectively, for these trainings. During the training exercises, participants prepared action plans executing actual resource protection and law enforcement in the different areas covered by LCAs. The project is now assisting the participants of the training in securing and complying with requirements for deputation, which will be submitted to DENR for approval. The project also provided similar training on ENR laws and regulations to the members of the Philippine National Police in all three municipalities of Burdeos, Polillo and Panukulan.

The potential of teachers to deliver multiplied conservation messages was also capitalised upon as a means of gaining wider public support on biodiversity conservation. A second[13] teachers' training on biodiversity education and conservation was sponsored by the project in coordination with the Department of Education and the LGUs, where selected teachers from the Southern Luzon State University (SLSU) and elementary and secondary schools in the Polillos were not only provided with basic knowledge training on key biodiversity and conservation issues, but guidance in the development of multi-media technical skills in developing information, education and communication materials (both print and audio-visual).

[13]*The first such teacher's Training Course on Polillo was kindly sponsored by NEZS (Chester Zoo) in 2002.*

Details on other training courses, seminars and workshops implemented by the project are presented in Table 5.

Table 5: Trainings, Seminars and Workshops Implemented by the Project

Training/Workshop	Schedule	Participants	No. of Participants
Polillo Teacher's Training Needs Assessment and Workshop	5. 11.05	Principals, Teachers In Charge, Day Care Teachers, Elementary Teachers, High School Teachers, College Teachers	42
Basic Ecology and Environmental Laws Training Workshop in Panukulan	6-7. 6. 06	Municipal Mayor, Vice Mayor, Municipal Council Members, Municipal Agriculture Officer, Municipal Planning & Development Coordinator, Barangay Captains, Chief and Members of Barangay Tanod, Barangay Health Workers, Barangay Council Members and other local community members	47
Basic Ecology and Environmental Laws Training Workshop in Burdeos	23-24.6. 06	Municipal Mayor, Vice Mayor, Municipal Council Members, Municipal Agriculture Officer, Municipal Planning & Development Coordinator, Barangay Captains, Chief and Members of Barangay Tanod, Barangay Health Workers, Barangay Council Members and other local community members	51
Basic Ecology and Environmental Laws Training Workshop in Polillo	12-13 & 15-16.8 06	Municipal Mayor, Vice Mayor, Municipal Council Members, Municipal Agriculture Officer, Municipal Planning & Development Coordinator, Barangay Captains, Chief and Members of Barangay Tanod, Barangay Health Workers, Barangay Council Members, Senior Citizens and Some Other Community Members	35 in 1st batch; 40 in 2nd batch
Habitat Restoration Training in Burdeos	August 06	Municipal Mayor, Vice Mayor, Municipal Council Members, Municipal Agriculture Officer, Municipal Planning and Development Coordinator, Barangay Captains, Chief Barangay Tanod, Barangay Tanod (police), Barangay Health Workers, Barangay Council Members and *Bantay Kalikasan* members	40
		Municipal Mayor, Vice Mayor, Municipal Council	

Training/Workshop	Schedule	Participants	No. of Participants
Habitat Restoration Training in Panukulan	August 06	Members, Municipal Agriculture Officer, Municipal Planning and Development Coordinator, Barangay Captains, Chief Barangay Tanod, Barangay Tanod (police), Barangay Health Workers, Barangay Council Membersand *Bantay Kalikasan* members	47
Habitat Restoration Training in Polillo	Sept. 06	Municipal Mayor, Vice Mayor, Municipal Council Members, Municipal Agriculture Officer, Municipal Planning and Development Coordinator, Barangay Captains, Chief Barangay Tanod, Barangay Tanod (police), Barangay Health Workers, Barangay Council Members and PESP Wardens	75
Eco-Governance Enhancement Seminar Workshop: Municipal Basic Ecology and Environmental Laws Training	11-13.10. 2006	Involving the Municipalities of Polillo, Burdeos and Panukualan: Municipal Mayor, Vice Mayors, Municipal Council Members, Municipal Agriculture Officers/MENROS, Municipal Planning and Development Coordinators, Secretaries of the Municipal Councils, Integrated FARMC, DENR and DILG Representatives, NGO & PO representatives	37
Teachers Training Workshop on Biodiversity Conservation	11.11.06	Elementary Teachers, High School Teachers, College Teachers	30
Habitat Restoration Training in Brgy. Pamatdan, Polillo	1.3.07	Barangay Captain, Barangay Council Members, Barangay Tanods	10
Habitat Restoration Training in Southern Luzon State College	2007	Teachers, 4th Year Students, Biodiversity Club members	50
Paralegal Training Workshop in Burdeos	28-29.9.07	Municipal Mayor, Vice Mayor, Municipal Council Members, Municipal Agriculture Officer, Municipal Planning and Development Coordinator, Philippine National Police, Barangay Captains, Chief Barangay Tanod, Barangay Tanod (Police), Barangay Health Workers, Barangay Council Members, Patnanungan LGU representative, Phil. Cockatoo Program Volunteers from Patnanungan, and *Bantay Gubat* and *Bantay Dagat* members	65
Paralegal Training Workshop in Panukulan	8-9.11.07	Municipal Mayor, Vice Mayor, Municipal Council Members, Municipal Agriculture Officer, Municipal Planning and Development Coordinator, Philippine National Police, Barangay Captains and Council Members, Chief Barangay Tanod, Barangay Tanod (police), *Bantay Kalikasan* and *Bantay Dagat,* members	40
		Municipal Mayor, Vice Mayor, Municipal Council MembeR, Municipal Agriculture Officer/MENRO,	

Training/Workshop	Schedule	Participants	No. of Participants
LCA Management Planning Workshop in Burdeos	9-10.12.07	Municipal Planning and Development Coordinator, Barangay Captains, Chief Barangay Tanod, Barangay Tanod (police), Barangay Council Members, *Bantay Gubat, Bantay Dagat* and other local community representatives	55
LCA Management Planning Workshop in Polillo	10-11.1.08	Municipal Council Members, Municipal Agriculture Officer/MENRO, Municipal Planning and Development Coordinator, Municipal Budget Officer, Philippine National Police Representatives, Barangay Captains, Chief Barangay Tanod, Barangay Tanod (police), Barangay Council Members, *Bantay Gubat* and other local community representatives	30
LCA Management Planning Workshop in Panukulan	14-15 1.08	Vice Mayor, Municipal Council Members, Municipal Agriculture Officer, Municipal Planning and Development Coordinator, Municipal Budget Officer, Philippine National Police Representative, Barangay Captains, Chief Barangay Tanod, Bantay Kalikasan, Bantay Dagat, Barangay Tanod (police), Barangay Council Members and other local community representatives	35

Output 5. Essential habitat and species restoration/recovery, enforcement and other management interventions initiated in protected sites

To institutionalise and sustain conservation initiatives in the Polillos the project also facilitated the mainstreaming of conservation strategies to local governments and communities by assisting in the planning and implementation of conservation interventions. Most of these interventions resulted from the various thematic plans formulated in the capacity building activities initiated by the project, including:

- Barangay-based resource protection volunteer groups or *Bantay Gubat/Kalikasan* are successfully operationalised in all 23 barangays covered by LCAs.
- Barangay Councils in these areas are supervising the operations of these volunteer forces, while the municipal LGUs are providing the requisite funding support.
- Members of the Philippine National Police are also supporting the forest protection and law enforcement initiatives in these areas.
- All of the above activities are coordinated with the local DENR offices.
- The *Bantay Gubat/Kalikasan* volunteers have already acted against several illegal forest activities, including the apprehension of illegally sourced forest products and prevention of *kaingin*, and relevant Barangay Councils have initiated administrative proceedings against the suspected violators.

- As a matter of strategy, all illegal forest cases acted upon by members of the resource protection groups were officially recorded at the PNP. Some of these cases are listed in Table 5.
- Representatives of several barangays who attended the habitat protection and restoration training have constructed growth chambers and forest tree nurseries. A forest tree nursery previously established by the PESP close to the Sibulan Watershed in Polillo Municipality is also being expanded.
- The project devised and produced requisite models and references materials for these purposes and assisted in the selection of suitable sites.
- Other strategies developed for these purposes included: i) protecting remaining habitats from destructive human activities; ii) initiating enhancement planting of native species in inadequately stocked forest areas; and iii) planting of native species in open and degraded habitats.]
- The project also provided technical assistance and support for the establishment of a pilot/experimental habitat restoration site in collaboration with the Southern Luzon State University and with the funding support from the Municipal Government of Polillo.
- Barangay and municipal ordinances were issued on biodiversity protection and conservation, such as banning wildlife hunting, *kaingin* and other destructive forest activities.
- The Municipality of Panukulan has already enacted an Environment Code, while Burdeos and Polillo Municipalities are on the process of approving their Environment Codes
- Annual allocations of at least PhP1million (c. £12,000) for environment and natural resources management were approved and provided in all three municipalities since 2006; these allocations being additional to both the annual budgets subsequently approved and provided for LCA management (see earlier text) and livelihood support in barangays covered by the declared LCAs.
- All 5 municipalities in the Polillos have also designated Municipal Environment and Natural Resources Offices (MENROs).

The PIBCFI, through the FFI-PBCP, has also facilitated the development and management of the forest wardening and wildlife monitoring activities of the 'Polillo Ecology Stewardship Project (PESP)' for the past 8 years, *via* annual funding and technical support kindly provided by the 'Conservation and Research Department' of NEZS. However, and following extensive local consultations, this project, which currently involves the deployment of one full-time and seven part-time forest wardens, is now being restructured and upgraded to bring it closer in line with the recently evolved and wider needs of the 'Polillo Islands Biodiversity Conservation Programme (PIBCP)', and to therefore also include close liaison and coordination with the newly formed *Bantay Gubat/Kalikasan* security forces (totalling c. 70 forest guards) now assigned in each of the ten LCAs, the three (hopefully soon to be five) 'Local Area (i.e. municipal) Coordinators (LACs)' engaged through this project, and other wider objectives and mechanisms of the PIBCP in assisting wildlife and habitat protection and restoration activities throughout the Polillo Archipelago. PIBCFI is likewise supported on-going field studies of Gray's monitor lizards; protection and monitoring of Philippine cockatoo in Patnanungan (in collaboration with the Katala Foundation); and production of the Polillo Biodiversity Conservation Handbook. PIBCFI also mobilized a total of PhP300,000 (c, £3,615) for the purchase of patrol boats deployed in each of the three

municipalities of Polillo, Burdeos and Panukulan from then Congressman, now Senator, Miguel Zubiri.

Table 6: Examples of Illegal Cases Acted Upon by Project and Resource Protection Personnel

Date of Incident	Particulars
10 April 2007	A green turtle inadvertently caught in a fishing net rescued and released in Panukulan
22 June 2007	A second turtle rescued and released unharmed by project staff in Panukulan, following a report received that fishermen were offering to sell the animal for its meat.
24 May 2007	Reports received of seven families in Brgy. Pagitan, Panukulan, engaged in illegal production of charcoal from mangrove tree species, leading to local community consultations concerning the crucial importance of mangroves as fish nurseries (etc.) and consequent agreements by these families to curtail their illegal activities;
1 July 2007	Incidences of mangrove cutting by a resident of Brgy. San Juan, Panukulan, reported to local officials
10 July 2007	Reports of wild bird trapping in forest areas of Brgy. Aluyon in Burdeos, investigated and confirmed in collaboration with local *Bantay Kalikasan* members, who removed and destroyed the traps;
13 July 2007	Community consultation re. illegal collection of dead mangrove stands and corals in Brgy. Pagitan, Panukulan, conducted
31 July 2007	Project staff together with DENR and local officials visited Brgys. Languyin and Pamatdan to conduct investigations into illegal slash and burn farming (*kaingin*) by local residents, who were issued with warning notices.
4 August 2007	Reports of mangrove destruction in Brgy. Cabungalan, Burdeos, were investigated and referred to local officials, who promptly conducted seizures of cut lumber, demanded the immediate cessation of these activities and forwarded case details to the DENR for possible legal action against the perpetrators.
9 & 11 April 08	Five marine turtles accidentally caught in fishing gear were rescued, tagged and released with the help of the Municipal Agriculture Officer.
1 May 2008	Reports of a large green turtle being offered for sale as meat were investigated and the animal was rescued and released.
27 March 2008	Verification of report for planned cutting of narra trees aborted in Barangay Pinaglubayan after propject interventions leading to refusal to issue cutting permit. .

Output 6. Heightened awareness and understanding amongst local governments & communities of the need to conserve biodiversity in the Polillo Islands.

Outputs of the project under this component included:

- The project prepared and distributed manuals, presentation materials and handouts to support the various training activities.
- A CD on the compilation of the different laws and regulations on environment and natural resources management was produced and distributed.

- In partnership with the Center for Environmental Awareness and Education (CEAE), the biodiversity features of the Polillo Islands were featured in a documentary entitled "Endangered Tales", which also covers some other important biodiversity areas of the Philippines.
- Steel Spyda produced a 1 hour documentary on the Gray's monitor field research on Polill, which was broadcast on Animal Planet on several occasions. GMA 7, a national television network in the Philippines, also produced a 30 minute documentary on this project, which is being conducted by Daniel in collaboration with the PIBCFI and PESP project.
- The development of the Polillo Biodiversity Conservation Handbook is in the first complete draft form, and scheduled for publication before the end of 2008.
- Two posters featuring the Polillo Forest Frog and Threatened and Endemic Species of Polillo were produced. Outputs of the teachers' trainings further included the development of three posters, three brochures, three flyers and three flipchart. The Municipal Government of Polillo sponsored the printing and distribution of two of these posters.
- Several school-based conservation awareness campaigns were initiated by the project to increase the biodiversity awareness of students and to reach out a larger number of teachers. These activities, included: lectures, film shows, exhibits and distribution of communication materials depicting the importance and threats of the Polillos' biodiversity and conservation measures needed, were presented at several schools and various other forums.
- Biodiversity conservation awareness activities were also incorporated into various several special events, such as the annual kite making contest in Panukulan and Burdeos and the Tarictic Festival in Polillo with the latter including a kite-flying context, an exhibit and wildlife mascots featured in the parade.
- The project also had an exhibit during the 2nd Philippine Birdfest held in Quezon City on 23 September 2006. Exhibit materials produced for this purposes were re-used on various later occasions, such as the annual town fiestas of Burdeos, Polillo and Panukulan.
- Articles about the project were also featured in national newspapers, and in the March 2007 issue of the Darwin Newsletter. An article about the project, prepared by E. A. Gatumbato, was also posted in *Samu't Saring Buhay* (Biological Diversity) Blog (*http://samutsaringbuhay.wordpress.com*).

The project also implemented or assisted diverse other communication strategies intended to generate increased public support for biodiversity conservation in the islands, often in close collaboration with other local agencies and institutions. For example, in response to the project awareness campaigns, the Southern Luzon State University in Polillo issued a resolution incorporating in the annual school calendar the celebration of biodiversity day every 5th May, Earth Day on 22nd April, environment month every June, and International Celebration for the Preservation of Ozone layer every 15th September The school board also awarded recognition to PIBCFI for the efforts of the project and approved the formation of the school-based biodiversity club of students, which is already organised.

The project also conducted extensive orientations on the importance of biodiversity and conservation in the Polillo Islands in all (23) barangays covering the LCAs. This was done to help ensure the declaration and management of LCAs was acceptable to local officials and communities

and to gain their support for the protection and conservation of these areas. As a result, relevant barangay councils issued resolutions endorsing the establishment and declaration of LCAs. In addition, the project's three 'Local Area Coordinators (LACs)' convened meetings in each of these barangays to explain the need to form community based resource protection groups and to establish and maintain habitat restoration areas, all of which have since been successfully implemented with funding support provided by salient LGUs. Since many new officials were elected during the national elections on 14th May 2007, extensive project orientations had to be repeated in all three Polillo mainland municipalities, as well as being initiated amongst the newly elected officials of Jomalig and Patnanungan. Specific conservation awareness activities implemented by the project are enumerated in Tables 7 and 8 (below).

Table 7: Information, Education and Communication (IEC) Activities Implemented by the Project

Activity Title	Schedule	Participants	Number of Participants
Film showing of Discovery Channel's "Butaan: The Lost Dragon"	16 March 2006	Municipal Mayor, Residents of Polillo, Local tourists	c. 500
Panukulan Exhibit 06	22-24 June 2006	Municipal and Barangay officials, parish priest, residents and local tourists	c. 200
Saranggolipad 06	23 June 2006	Residents, Local tourists	c. 150
Coral Survey Presentation in Polillo Municipal Conference Room and in Polillo National High School	19 September 06	Municipal Mayor, Municipal Planning and Development Coordinator, Executive Secretary, Barangay Captains	20
Coral Survey Presentation in Polillo National High School	19 September 06	Teachers, Science Students	c. 75
Coral Survey Presentation in Southern Luzon State College	September 2006	Teachers, Students	c. 40
Freshwater Fish Survey Presentation in Polillo Municipal Conference Room	February 2007	Municipal Mayor, Municipal Planning and Development Coordinator, Executive Secretary, mayor's office staff	10
Freshwater Fish Survey Presentation in Polillo National High School	February 2007	Teachers, high school students	c. 200
Freshwater Fish Survey Presentation in Southern Luzon State College	February 2007	Teachers, students	30
Lipad Bulador 07	17 March 2007	Elementary students, high school students	c. 150
Panukulan Exhibit 07	23-24June 2007	Municipal and Barangay officials, parish priest, residents and local tourists	c. 200
		Municipal and Barangay officials,	

Activity Title	Schedule	Participants	Number of Participants
Burdeos Exhibit 07	24-25 October 07	parish priest, residents and local tourists	c. 300
Film Showing in Brgy. Taluong Elementary School	October 2007	Teachers, students, parents	50
Lipad Bulador 08	17 March 2008	Elementary students, high school students	c. 100
Polillo Exhibit 08	17-18 March 2008	Municipal and Barangay officials, parish priest, residents and local tourists	c. 500
Lipad Bulador 06	18 March 2008	Elementary students, hjigh school students	150
Polillo Exhibit 06	18-19 March 2008	Municipal and Barangay officials, parish priest, residents and local tourists	c. 200
Polillo Exhibit 07	18-19 March 2008	Congressmen, Municipal and Barangay officials, parish priest, residents and local tourists	c. 300

Table 8: School-Based Orientations on Habitat Restoration and Protection Implemented by PIBCFI Local Area Coordinators

School	Date of Activity	Number of Participants	
		Male	Female
Southern Luzon Polytechnic College (Natural Science II Class), Polillo	4 July 2006	17	10
Southern Luzon Polytechnic College (Natural Science II Class), Polillo	14 September 2006	15	7
Mount Carmel High School, Burdeos	15 September 2006	65	72
Burdeos National High School	15 September 2006	45	34
San Juan National High School, Panukulan	14 November 2006	198	216
Calasumanga Nat'l High School, Panukulan	16 November 2006	96	82
Libo National High School, Panukulan	15 November 2006	180	220
Southern Luzon Polytechnic College (Students with Research Subject), Polillo	12 December 2006	15	40
Mount Carmel High School, Polillo	5 January 2007	100	150
Pinaglubayan Elementary School (with teachers and parents), Polillo	6 March 2007	25	45
Polillo National High School, Polillo	8 March 2007	45	95

Other IEC activities implemented by the project included:

- Film showing on biodiversity importance in Sito Burawis, Panukulan on 9th May 2007;

- Symposium on biodiversity importance in Brgy. Bato, Panukulan on 23rd May 2007;
- Orientation on LCA establishment and management in Brgy. Aluyon, Burdeos on 6 July 2007;
- Conducted biodiversity orientation to the members of the League of Barangay Captains in Panukulan on 7th July 2007;
- Film showing in Mount Carmel High School on 13th July 2007 and in Sitio Catmon in Burdeos on 15th July 2007;
- Forum on forest occupancy in Brgy. Poblacion, Burdeos on 18th July 2007;
- Orientation on the establishment and management of LCAs in Brgy. Lipata, Panukulan on 1st August 2007;
- Conducted orientation on biodiversity importance to the students of the Southern Luzon State University and invited them to become members of the Biodiversity Club on 17th August 2007. The project assisted the formation of this club and serves as technical advisor;
- Presentation of Polillo endemic species to the students of Taluong Elementary School in Polillo on 5th September 2007;
- Lecture with the students of the Polillo National High School on the importance Polillo's ecosystems on 18th September 2007;
- Orientation on the biodiversity importance of Polillos to the first and second year students of the Taluong National High School in Polillo on 19th September 2007;
- Film showing and forum in Burdeos National High School on 20th September 2007.

6. Project Expenditure

Project expenditures were generally in accordance with the financial plan, although there were certain adjustments were agreed with the Darwin Secretariat in terms of allocation by budget item. The item on salaries and wages consumed about 46% of the budget because this budget line also covered the required technical assistance and support of the project. About 17% of the budget covered travel and subsistence because of the participatory nature of this project, which required project personnel and technical experts to travel to different barangays scattered throughout the islands. On the other hand, fewer funds were expended on conferences and seminars since the project was able secure substantive counterpart support from the LGUs and other sources in the implementation of several trainings, seminars and workshops.

In general terms, project expenditures were also commensurate to the numerous outputs of this project. The available fund was optimised, and counterpart funds secured wherever possible, by the project team to in order to realise many more outputs and outcomes than had been envisaged in the original project proposal/document, as detailed in the preceding sections of this report.

Table 9: Summary of Project Expenditures

Items	3-Year Budget (in £)	Expenditure (in £)	Balance (in £)
Rents, rates, heating, overheads, etc.			
Office costs (postage, telephone, stationery, etc.)			
Travel and subsistence			
Printing			
Conferences, seminars, etc.			
Capital items/equipment			
Others			
Salaries (including consultancies)			
TOTAL:			

7. Project Operations and Partnerships

The importance of the Polillo Islands to biodiversity conservation, especially in terms of numbers of threatened endemic species and degrees of threat, prompted the FFI-PBCP to initiate, in collaboration with local and international partner agencies, a variety of key activities commencing in the mid-1990's. These included the following:

- region-wide avifaunal surveys, with particular reference to the Polillo tarictic hornbill and other threatened endemic taxa, conducted in 1994 and 1995.
- a ground breaking forest wardening scheme, locally referred to as the 'Polillo Ecology Stewardship Project', which has been in continual operation since 1998, with annual funding support from the North of England Zoological Society.
- A whole series of local (from 1993) and UK (from 1999) university research expeditions mostly focusing on volant mammals, avifauna and herpetofauna..
- Two pioneering and on-going field studies of Gray's monitor (initiated in 1999) and Philippine cockatoo (initiated in 2004).
- A series of marine and coastal biodiversity and habitat surveys (from 2002);
- A wide range of education and awareness activities, including the first Polillo Teacher's Training Project (in 2003).

The increasing local and regional interests in the Polillos spurred by these activities, and the corresponding and increasing need to assist and coordinate these interests, therefore also prompted the conceptualisation of the Polillo Islands Biodiversity Conservation Programme (PIBCP) and the formal establishment (via SEC registration in December 2003) of the Polillo Islands Biodiversity Conservation Foundation Inc, to enable the effective implementation and development of the programme and closer collaboration with relevant local stakeholders.

All these also neatly set the scene for the Darwin supported project in Polillos inasmuch as local partnership and capacity building remain a key premise of the PIBCP. This strategy lies at the heart of this project and has been duly manifested in the development of formal agreements between PIBCFI and the three key municipal governments of Polillo, Burdeos and Panukulan. It

has also resulted in diverse and ground-breaking new commitments from these LGUs, including internal revenue allotments for agreed biodiversity conservation activities, and the active participation and assistance of nearly all key barangay councils having local administrative responsibility for the declared LCAs.

Other important linkages established during the course of this project included a new MOA between PIBCFI and the Department of Education covering the teachers' training activities, and agreements with the DENR (being the CBD Focal Point of the Philippines), the Department of Interior and Local Government and the National Council for Indigenous People (NCIP) on various conservation activities. The project also mobilised the participation of the Philippine National Police in resource protection and law enforcement. LGUs response to this project have also resulted in the development of new, and more effective deployment of existing *Bantay Kalikasan/Gubat*, development of several new native species tree nurseries, accession of no less than three new patrol boats, and the production and distribution of diverse new awareness and education materials.

The PIBCFI through this project also developed and agreed new partnership arrangements with several other local NGOs aimed at facilitating various project activities, including the Marine Aquarium Council; Tanggol Kalikasan; Ateneo Institute of Social Order; and the Katala Foundation (KFI), based in Puerto Princessa (Palawan Island) with the latter not only assuming financial responsibility for the continuing operation of the Philippine cockatoo project in Patnanungan Island, but also agreeing to extend the scope of this project to include the first ever studies of the two Polillo endemic races of Tanygnathus parrots, which undoubtedly are also highly threatened.

Two UK-based NGOs also provided invaluable assistance, namely the Coral Cay Conservation (CCC), which conducted pilot studies of coral reef resources with a view to the development of collaborative follow-up projects, and the North of England Zoological Society (NEZS), being especially important in that it not only supported the PESP forest wardening project for the eighth successive year, but also enabled and led the first freshwater fish survey, underwrote all Phase I development costs of the new Polillo Islands Biodiversity Conservation Handbook (now in first complete draft stage) and sponsored several new Polillo Tarictic Festival activities (including a kite-flying contest and new Polillo biodiversity exhibit), and new costumes for the Tarictic Fiesta Parade. Co-financing for the Gray's monitor study was also received via the FFI-PBCP from NEZS, and from Cincinnati, Dallas and Los Angeles Zoos in the USA.

Whilst this project has implemented pioneering and ground breaking initiatives, the partnership established by PIBCFI with several local and international agencies and institutions will not end with the conclusion of the project since there is still a long way to go in terms of biodiversity conservation in the Polillo Islands and diverse follow-up and other projects are in the planning or early implemental phases. Indeed, it is expected that most existing partnerships, especially local institutional partnerships, will be reinforced and extended in the wake of the good progress made, and many important new precedents established, during the course of this project; thereby also enhancing prospects of the longer-term sustainability of these initiatives. As it is, PIBCFI's continuing presence and technical support is likely to prove crucial, until such time as the local authorities and communities are able to take full responsibility and accountability of their own natural resources and reaping the benefits of well-managed ecosystems. Whilst community

participation was invoked in the declaration and management of LCAs, further community empowerment in resource management is the major task ahead because relevant community organisations have still be established in the key areas. Moreover, the present land tenure instrument being awarded to forestland occupants, specifically the Community Based Forest Management Agreement, requires that the proposed recipients are formally constituted as people's organisations (POs). PIBCFI is taking this as an opportunity for future interventions to advance further the conservation initiatives in the Polillo Islands.

8. Monitoring and Evaluation, Lesson learning

Based on the project proposal and logframe, the project team developed an operational plan and framework to guide in the preparation of annual work and financial plans, and in the implementation, monitoring and evaluation of project activities. The Project Manager also convened quarterly and/or *ad hoc* meetings to assess progress, wherein all involved staff and technical specialists reported on the progress *vis-à-vis* expected and actual outputs and accomplishments in their areas of expertise and responsibility. This process was greatly facilitated by the three Local Area Coordinators hired by the project to assist and coordinate delivery of conservation outcomes by the project and partners, particularly the LGUs. In addition, the Project Manager, together with LACs, also monitored the effects and impacts of the awareness campaigns, capacity building and other initiatives carried out by the project in each area.

Monitoring activities were carried out before the preparation of the bi-annual and annual reports by identifying key progress indicators during the period based on the annual work plan. This monitoring also involved the identification of key activities implemented and the determination of gaps so that adjustments in work plan and schedules could be made in succeeding periods.

A more detailed monitoring and evaluation of project accomplishments was also undertaken at the end of each year. Aside from determining the different activities implemented, assessments were made as to the resulting outputs of the project, including identification of facilitating and hindering factors in implementing and/or not implementing particular activities, as well as determining and evaluating lessons learned during the period. The basic tools used for monitoring and evaluation ware the quarterly plans and reports prepared by the LACs and the accomplishment reports submitted by the specialist technical consultants recruited by the project.

One of the most notable concerns during the implementation of this project was the results of the local government elections on 14 May 2007, wherein the majority of the former (and generally very supportive) senior officials in Polillo, Burdeos and Panukulan lost their seats and it was feared that the newly elected officials might be far less interested and/or supportive, especially during their first terms. In the event, however, these fears proved groundless inasmuch as the new administrations have proved equally, if not more, supportive; albeit that these circumstances also imposed severe additional demands on project resources owing to the need for many repeat presentations, workshops and trainings. Moreover, the majority of newly elected officials were already familiar with PIBCFI's presence and activities in promoting and assisting environmental conservation interests in the island's, and the Memorandum of Agreements previously signed between PIBCFI

and the Burdeos, Panukulan and Polillo LGUs were still binding and newly elected officials recognized the validity of these instruments.

Amongst the most important lessons learned during the implementation of this project were:

- In order to address and understand complex issues associated to biodiversity conservation, there is a need for a comprehensive baseline scenario and situational analysis that takes full account of the socio-cultural, economic and management variables, as well as the salient biological components and needs, in order to develop most appropriate and effective conservation strategies and interventions. Baseline information is also crucial in monitoring and evaluation, and determining project results, outcomes and impacts. This project exemplified the use of scientific survey results in: i) justifying the need for the LCAs and in developing the institutional mechanisms for the management of these sites; ii) raising conservation awareness of local officials, communities and other residents on the importance of Polillos in terms of biodiversity conservation; iii) enhancing the capacity of local stakeholders on environment and natural resources management; and iv) implementing conservation policies and other direct interventions.
- As a matter of strategy, awareness raising should invoke emotional and personal appeal, as well as the scientific and technical perspectives, so that local stakeholders may take pride and honor in the biodiversity values of their area. Such presentations may include, among others: emphasis on the uniqueness values in terms of both the number of endemic taxa and extraordinary range and levels of diversity of wildlife in the area; and, hence, also the richness and variety of the different habitats; the importance of this biodiversity to the lives of the local people, as well as its values in national and global scales; and the enrichment of opportunities associated with intact and well-managed natural environments. Awareness raising is often an especially crucial component in remote areas where communities are often closer to nature, but are seldom reached, let alone affected, by conservation messages and interventions more familiar to inhabitants in more developed areas. As such, however, these same communities can often relate more easily to the need to, for example, institute more sustainable resource management practices, and may be both amazed and gratified to learn that many of the species they are familiar with do not occur or are uncommon elsewhere; thereby often invoking local patrimony as an aid to conservation. This may be especially true in hinterland areas, where many (most?) residents customarily regard wildlife as an expendable resource of little or no intrinsic value, except for those species generally regarded as pest or threats best controlled or eliminated. Nonetheless, most Filipinos are also law abiding and respectful of authorities, and may readily and positively respect regulations they were previously entirely unaware or unmindful of if the need for such regulations is explained and justified in positive and non-confrontational terms. Even so this has to be done in language that is readily comprehensible to people who may have had no prior exposure to the basic precepts of conservation, let alone such (seemingly familiar) terms as ‘conservation’, ‘biodiversity‘, endangered’ (which many local people automatically assume to mean ‘dangerous’), let alone ‘endemism’ (though the latter is perhaps most easily explained and most likely to engender a positive response in local interest terms – i.e. something special in their backyards they were previously unaware of)!

- Local awareness raising and capacity building are also crucial, particularly amongst LGUs and other community leaders, most of whom were not only unaware of the biodiversity conservation significance of the region, but equally unfamiliar with salient legislation and, hence, the tools at their disposal to quickly effect conservation actions, such as the adoption of ordinances and implementation of habitat protection and restoration activities.
- This project provided valuable insights on how local governments can deliver conservation outcomes once informed, educated and capacitated. Capacity building, however, needs complementation in terms of technical assistance and support and partnership institutionalisation (such as LGU-NGO partnership) in order to effectively implement conservation interventions. The proximity and presence of LGUs in biodiversity important areas enable the concerned local governments to immediately respond to arising issues and concerns. This arrangement is the most and best applicable and practical arrangement in areas where the presence of concerned national agencies could hardly be felt.
- The Local Government Code is the most appropriate and feasible legislative framework to invoke participation of local governments and other local stakeholders. The declaration of LCAs was implemented entirely through local processes and approval, and thus created local ownership of these sites. Similarly, any such conservation initiatives are most likely to be sustained via the establishment of local management authorities, such as the LCAs Management Councils, and the appropriation of local funds. However, it is also true the resources of those LGUs, especially those classified as fourth class municipalities, may be extremely limited, thereby creating an added need for other institutions, such as NGOs, to assist LGUs in sourcing additional funding support, .
- The concept of LCA is also a highly viable approach for conserving biologically important sites, partly because the LCA process is much less expensive and far more easily and quickly accomplished than the NIPAS process, partly because it empowers LGUs and other stake holders in resource management (as opposed to transferring primary administrative responsibilities to concerned central government agencies), and partly because it is therefore also far more the requisite resources will be made available to implement and sustain relevant management and protection activities.
- The concept of LCA is a very viable approach for biodiversity important sites, especially for smaller areas and proved to be an effective mechanism in empowering local governments and other stakeholders in resource management. This concept offers an alternative modality in the existing resource management framework, such as the protected areas, because the processes for the establishment and approval of LCAs were simplified but yet were undertaken in participatory approaches with clear guidelines and criteria for site selection with best available scientific information and judgment. This project, therefore, has established highly important precedents (and modus operandi) that can be applied elsewhere.
- Enabling national legislations, once enacted, are often misapplied and/or poorly sustained; meaning the availability of pertinent data and continued expert guidance via strong partnership linkages with credible, experienced and (preferably) locally-based NGOs is likely to prove equally crucial.

- Land tenure and livelihood are two crucial issues that should be addressed in biodiversity conservation. Support and participation of local communities could only be enlisted once their interests are also being considered. As such, a clear policy statement supporting community needs for land tenure security and livelihood shall be in place.

9. Actions taken in response to annual report reviews (if applicable)

A full and detailed response to reviewer concerns in connection with the first annual report were submitted shortly after these were received. However, reviewer's comments pertaining to the second annual report were not received until late last year. These comments were duly considered and incorporated in the drafting of this report, but may also be summarised as follows:

One of the major concerns raised in the review was the insufficient evidence in the previous report of "bringing into the project decision-making the opinions and realities of relevant communities affected by the conservation sites". The review further stressed that the establishment of conservation areas may poses a "threat to land tenure and user rights and claims and livelihood situation". However, and as discussed in the preceding sections of this report, the project has implemented a broad participatory approach in the establishment of LCAs with numerous consultations conducted with the affected communities. As the reviewer rightly presumed, land tenure and livelihoods were among of the major concerns raised during public consultations and these issues were seriously considered and duly provided for in the ordinances that declared the 10 LCAs in Polillo, Burdeos and Punukulan. In particular, the LCAs ordinances made specific provisions re. : a) respect of prior rights, meaning all valid and legal land tenure rights will be fully respected; b) communities occupying these LCAs will be assisted to secure appropriate land tenure; and c) communities within the LCAs will be accorded priority in terms of livelihood and other assistance. In effect, therefore, this project, through the establishment of LCAs, became instrumental in ensuring a formal local legislation that would respect land and other resource use rights of communities.

The project team recognizes that livelihood is a crucial element in biodiversity conservation. However, given both the primary focus on, and the global importance of, biodiversity conservation interests in the Polillo Islands, and also given the limited time and resources available for this project, it was not felt appropriate to redesign and refocus this project on implementation of livelihood. Nonetheless, and as a matter of strategy, the project made every efforts in ensure that concerned LGUs prioritised the delivery of basic services and livelihood assistance to communities within and adjacent to the declared LCAs. PIBCFI will also continue to explore and enact strategies that include sustainable livelihood projects as its future conservation initiatives in this region.

The management planning adopted by the project was also in a participatory approach. The planning workshops for the management of LCAs were all conducted in the local dialect, and all corresponding outputs were prepared and packaged in the local dialect. Local community concerns re. livelihood support and appropriate land tenure arrangements were accorded special priority and importance in these dialogues and outputs, and the requisite provisions addressing these issues were duly proposed and agreed by all key stakeholders.

As discussed in the earlier sections of this report, this project was essentially collaborative in nature and therefore based largely on participative partnership approaches at all levels. At the local level, and apart from the aforementioned local community consultations, partnership agreements with the salient LGUs were developed and formalised via memorandum of agreements. The project also addressed the need for the proper representation and involvement of other concerned national government agencies, especially the DENR, and it also actually facilitated local and regional DENR offices to comply with national guidelines regarding co-management approaches in resource management via the establishment of LCA Management Councils in Polillo, Burdeos and Panukulan.

The project also adopted local processes in the establishment and approval of the LCAs to ensure and optimise local ownership of these sites; thereby also facilitating: i) the likely future financial and management sustainability of these areas *via* the aforementioned financing mechanisms (in which LGUs are already providing core funds) and the creation of the LCA Management Councils, respectively; and ii) ensuring incorporation of enhanced livelihood land tenure security provisions in the covering ordinances.

10. Darwin Identity

The identity of Darwin was properly considered in the various phases of project implementation and duly conveyed and promoted in all of the following ways:

- In all project presentations and media reports Darwin was recognised as the major partner and funding institution of this project. This was similarly communicated to all international, national and local partners, including (for example) the DENR as the CBD Focal Point in the Philippines.

- All IEC materials and technical reports developed, produced and distributed by the project carried the Darwin logo and other appropriate accreditations. These materials include thousands of copies of various posters and brochures, as well as training manuals and exhibit materials, in both both digital and hard copy formats.

- Streamers and billboard canvasses produced by the project during seminars, trainings and workshops also prominently featured the Darwin logo.

11. Darwin Identity

This was duly considered in all phases of project implementation. In particular, the Darwin identity was carried by the project in following instances:

- In all project presentations, Darwin is recognised as the major partner and funding institution of this project. This was similarly disclosed and made known to all international, national and local partners. In particular, this was also communicated to the DENR as the CBD Focal Point

in the Philippines.

- All information, education and communication materials developed, produced and distributed by the project also carried the logo of the Darwin. These materials include posters, brochures, training manuals and exhibit materials, among others. The logo of Darwin also appeared in the cover page of various technical reports prepared by the project.
- Streamers produced by the project during seminars, trainings and workshops also carried the logo of the Darwin.

Although recognised as having a distinct identity for the purposes of this project and the wider aspirations of the 'Polillo Islands Biodiversity Conservation Programme (PIBCP)', this project also constituted an important component in the larger 'Philippines Biodiversity Conservation Programme', which has also benefited greatly from a previous Darwin Initiative grant (see later text). Darwin has therefore been (and will continue to be) regarded as a key benefactor and duly acknowledged in these regards in all relevant PBCP outputs.

12. Leverage

The leverages gained during the implementation of this project included direct financial resources, technical assistance and expertise, materials, equipments and, to varying extents, a diverse range of collaborating and complimenting projects and activities, including:

- Locally sourced funds for training courses, seminars and workshops, as well as funds provided by LGUs for environment and natural resources management, amounting to at least PhP4 million (c. £48,000+ at current exchange rates);
- A total of PhP300,000 (c £3,615) for the purchase of patrol boats deployed in each of the three municipalities of Polillo, Burdeos and Panukulan from then Congressman (now Senator) Miguel Zubiri.
- Complimentary projects on forest wardening through the Polillo Ecology Stewardship Project, diverse education/awareness activities (including the Polillo Biodiversity Conservation Handbook) and the new freshwater fish surveys; all supported by the North of England Zoological Society (NEZS, Chester Zoo);
- Substantive additional support provided from various sources (mostly UK, European and US zoos and zoological societies) for: a) D. Bennett's Gray's monitor field studies; b) monitoring and protection activities focussed on the Polillo population of Philippine cockatoos; and similarly related coastal and marine surveys;
- Various related field surveys and inventories conducted by local scientists from UPLB (e.g. reptiles and arthropods) and Mindanao State University (bats); and:
- Funding support from both FFI and NEZS (respectively) which enabled: a) a series of three (annual) FFI-Philippines Programme 'partner meetings', in which the LCA process was described and shared to all relevant local partner agencies (several o whom are now actively involved in the development of similar projects in other biological critical regions elsewhere in the Philippines); and b) two 'cross-visits' by local community forests wardens in Polillo (i.e. PESP) and Cebu (i.e. Nug-as Forest Wardens) Islands. The latter project was initiated in the

wake of a previous FFI-PBCP grant from DI, which likewise prompted and enabled the development of the Cebu Biodiversity Conservation Foundation (CBCFI) and the Cebu Biodiversity Conservation Programme (CBCP) – both of which are now widely regarded as the best examples of their kind in the country! Thank you Darwin.

13. Sustainability and Legacy

The most important legacies of this project are undoubtedly:

a) the creation of the new network of 10 LCAs on Polillo (and commensurate expectations that this network will soon be extended to include at least 3 more LCAs on Patnanungan and Jomalig Islands), thereby also establishing the first such network of LCAs anywhere in the Philippines;

b) establishment of the LCA process as a viable (and in many ways advantageous) alternative to the NIPAS and Critical Habitats in the development of new protected areas, and one which both empowers and helps capacitate LGUs as opposed to transferring management authority to relevant national government agencies; thereby also accessing greatly increasing local resource investments and local stakeholder assistance and support; and therefore:

c) the crucially important precedents established during this project and which can (indeed already are) being applied in other highest biodiversity conservation priority areas elsewhere in the Philippines.

Clear evidences of the likely sustainability of this project are also already in place via the declaration of these LCAs and the covering LGU ordinances; the latter having provided for and enabled the:

d) formation of locally organised management authorities;

e) development and implementation of salient management plans over an (initially agreed and confirmed, but indefinitely renewable) 5 year period;

f) establishment of relevant financing mechanisms in annual LGU budgetary appropriations; and

g) strong local incentives re. the new opportunities for land tenure security and livelihood of local communities expressed in the ordinances and developed in conjunction with the implementation of other agreed conservation interventions.

All of these initiatives were also built upon through the intensive awareness raising activities, effective capacity building and enhanced partnership building implemented by the project.

In all of these respects, it is also important to note that although this project has a distinct and important identity of its own, it was also designed and intended as part of a longer-term conservation programme in this region. Indeed, the PIBCFI was specifically established to facilitate the wider aspirations of the 'Polillo Islands Biodiversity Conservation Programme (PIBCP)', which

has successfully accommodated and assisted an increasing range of other activities during the lifetime of this project, whilst also firmly developing PIBCFI's identity and presence with key local stakeholders, etc. As such, this project was developed and integrated as a key component of the PIBCP, which is set and expected to continue long after the conclusion of this project. We are confident that this will happen because it has happening elsewhere and it has happened before - as evinced by the Cebu Biodiversity Conservation Foundation (CBCFI) and the Cebu Biodiversity Conservation Programme (CBCP), which are widely regarded as being the best examples of their kind in the country, and which were similarly enabled by a Darwin Initiative grant awarded to FFI in 1998. Moreover, both the PIBCP and CBCP are important components of the wider 'Philippines Biodiversity Conservation Programme', which was initiated in (and has been in continual operation since) 1990, and which is now jointly managed and coordinated by FFI and the Philippines Biodiversity Conservation Foundation (PBCFI); both of which are committed to sustain their assistance and support for the PIBCP and PIBCFI.

14. Value for money

It is respectfully suggested that this project has not exceeded its original outcomes and expectations, but has, and will hopefully long continue, to yield significant counterpart funding and other resources that will considerably exceed the original investments.

ANNEX 1
Project's Logical Framework

Project summary	Measurable indicators	Means of verification	Important assumptions
Goal: To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources			
Purpose Establishing a network of protected sites, with the active participation and approval of relevant local communities and other stakeholders, in order to conserve endemic and globally threatened species and habitats.	Number of protected sites has increased, bringing the total area under protection to at least 5%. Effective management measures in place, including trained site wardens. Longer-term management strategies agreed with all relevant stakeholders.	Relevant municipal ordnances, management agreements for all sites. Trained wardens registered and deployed in all sites. Stakeholder-endorsed agreements, management plans for all sites.	Relevant communities and authorities continue to be supportive. All protected sites contain recoverable wildlife populations and habitat. Conservation measures can be sustained in all protected sites.
Outputs			
1. Biological surveys completed and priority sites selected and mapped.	All remaining forest patches and other key wildlife habitats surveyed, mapped and entered onto computer database.	Survey reports, maps and database.	Relevant specialist expertise available. Surveyed taxa are good indicators of overall biodiversity. Sites and the necessary protective measures can always be agreed. Personnel will remain in Polillo after receiving training.

2. At least six top-priority areas agreed by a process of consultation with local communities, authorities and other key stakeholders.	10 sites formally declared as new LCAs All communities and key stakeholders enabled to contribute to consultations/ workshops, and any conflicts resolved.	Minutes and other records of consultations and meetings. Municipal ordinances and/or private or village contracts.	
3. Management strategies and operational plans developed and agreed for the protected sites.	Strategies and plans agreed with all relevant stake-holders for 6 priority sites (at least 4 finalized by end Yr 2).	Endorsed management strategies and plans.	
4. Local personnel trained in site management and monitoring, and essential management resources provided.	c. 30 persons (from the local population) trained in site management and monitoring. Polillo biodiversity conservation manual completed by Year 3.	Training records and personnel evaluations. Manual published.	
5. Essential habitat and species restoration/ recovery, enforcement, and other management interventions initiated in the protected sites.	Essential interventions underway in at least 3 of the protected sites by Year 3.	Site activity records and annual inspections.	
6. Heightened awareness and understanding among local communities and government of the need to conserve biodiversity in Polillo and the wider Philippines.	Teacher-training course (Year 1), at least 2 posters & other materials produced each year; extensive media coverage (including national television) every year;	Archive of published and digital awareness materials Teacher-training records (materials, attendance and performance, including independent Dept of Education records).	

ANNEX 2
Project Contribution to Articles under the Convention on Biological Diversity (CBD)

Article No./Title	Project %	Article Description
6. General Measures for Conservation & Sustainable Use	10%	Develop national strategies that integrate conservation and sustainable use.
7. Identification and Monitoring	10%	Identify and monitor components of biological diversity, particularly those requiring urgent conservation; identify processes and activities that have adverse effects; maintain and organise relevant data.
8. In-situ Conservation	30%	Establish systems of protected areas with guidelines for selection and management; regulate biological resources, promote protection of habitats; manage areas adjacent to protected areas; restore degraded ecosystems and recovery of threatened species; control risks associated with organisms modified by biotechnology; control spread of alien species; ensure compatibility between sustainable use of resources and their conservation; protect traditional lifestyles and knowledge on biological resources.
9. Ex-situ Conservation		Adopt ex-situ measures to conserve and research components of biological diversity, preferably in country of origin; facilitate recovery of threatened species; regulate and manage collection of biological resources.
10. Sustainable Use of Components of Biological Diversity	10%	Integrate conservation and sustainable use in national decisions; protect sustainable customary uses; support local populations to implement remedial actions; encourage co-operation between governments and the private sector.
11. Incentive Measures	10%	Establish economically and socially sound incentives to conserve and promote sustainable use of biological diversity.
12. Research and Training	10%	Establish programmes for scientific and technical education in identification, conservation and sustainable use of biodiversity components; promote research contributing to the conservation and sustainable use of biological diversity, particularly in developing countries (in accordance with SBSTTA recommendations).
13. Public Education and Awareness	10%	Promote understanding of the importance of measures to conserve biological diversity and propagate these measures through the media; cooperate with other states and organisations in developing awareness programmes.
14. Impact Assessment and Minimizing Adverse Impacts		Introduce EIAs of appropriate projects and allow public participation; take into account environmental consequences of policies; exchange information on impacts beyond State boundaries and work to reduce hazards; promote emergency responses to hazards; examine mechanisms for re-dress of international damage.

15. Access to Genetic Resources		Whilst governments control access to their genetic resources they should also facilitate access of environmentally sound uses on mutually agreed terms; scientific research based on a country's genetic resources should ensure sharing in a fair and equitable way of results and benefits.
16. Access to and Transfer of Technology		Countries shall ensure access to technologies relevant to conservation and sustainable use of biodiversity under fair and most favourable terms to the source countries (subject to patents and intellectual property rights) and ensure the private sector facilitates such assess and joint development of technologies.
17. Exchange of Information	10%	Countries shall facilitate information exchange and repatriation including technical scientific and socio-economic research, information on training and surveying programmes and local knowledge
19. Bio-safety Protocol		Countries shall take legislative, administrative or policy measures to provide for the effective participation in biotechnological research activities and to ensure all practicable measures to promote and advance priority access on a fair and equitable basis, especially where they provide the genetic resources for such research.
Total %	100%	Check % = total 100

ANNEX 3
Project Outputs

Please quantify and briefly describe all project outputs using the coding and format of the Darwin Initiative Standard Output Measures.

Code	Total to date (reduce box)	Detail (←expand box)
Training Outputs		
1a	Number of people to submit PhD thesis	1 (D. Bennett)
1b	Number of PhD qualifications obtained	-
2	Number of Masters qualifications obtained	-
3	Number of other qualifications obtained	-
4a	Number of undergraduate students receiving training	6 (UPLB students)
4b	Number of training weeks provided to undergraduate students	3 weeks per student
4c	Number of postgraduate students receiving training (not 1-3 above)	-
4d	Number of training weeks for postgraduate students	-
5	Number of people receiving other forms of long-term (>1yr) training not leading to formal qualification(i.e not categories 1-4 above)	-
6a	Number of people receiving other forms of short-term education/training (i.e not categories 1-5 above)	At least 1,000 persons
6b	Number of training weeks not leading to formal qualification	2 and a half weeks
7	Number of types of training materials produced for use by host country(s)	7 training materials
Research Outputs		
8	Number of weeks spent by UK project staff on project work in host country(s)	c. 42 weeks
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (s)	8 thematic and general management plans
10	Number of formal documents produced to assist work related to species identification, classification and recording.	At least 3 manual and 9 ID charts
11a	Number of papers published or accepted for publication in peer reviewed journals	4 papers thus far
11b	Number of papers published or accepted for publication elsewhere	1 paper
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	1 DVD containing results of surveys implemented by the project; plus >2 photo archives
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country	1
13a	Number of species reference collections established and	1

Code	Total to date (reduce box)	Detail (←expand box)
	handed over to host country(s)	
13b	Number of species reference collections enhanced and handed over to host country(s)	1
Dissemination Outputs		
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	At least 17
14b	Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated.	At least 17
15a	Number of national press releases or publicity articles in host country(s)	2
15b	Number of local press releases or publicity articles in host country(s)	2
15c	Number of national press releases or publicity articles in UK	-
15d	Number of local press releases or publicity articles in UK	-
16a	Number of issues of newsletters produced in the host country(s)	-
16b	Estimated circulation of each newsletter in the host country(s)	-
16c	Estimated circulation of each newsletter in the UK	-
17a	Number of dissemination networks established	At least 10
17b	Number of dissemination networks enhanced or extended	At least 10
18a	Number of national TV programmes/features in host country(s)	2
18b	Number of national TV programme/features in the UK	1
18c	Number of local TV programme/features in host country	1
18d	Number of local TV programme features in the UK	-
19a	Number of national radio interviews/features in host country(s)	2
19b	Number of national radio interviews/features in the UK	-
19c	Number of local radio interviews/features in host country (s)	2
19d	Number of local radio interviews/features in the UK	-
Physical Outputs		
20	Estimated value (£s) of physical assets handed over to host country(s)	At least £16,000
21	Number of permanent educational/training/research facilities or organisation established	1
22	Number of permanent field plots established	At least 3 forest tree nurseries, excluding the 10 LCAs
23	Value of additional resources raised for project	At least £60-80,000 thus far, and therefore excluding future LGU annual budget appropriations and other currently expected funds.

ANNEX 4
Project Publications

NOTE: Technical reports and other outputs of the project are not yet published but PIBCFI is seriously considering the publications of these reports.

Provide full details of all publications and material that can be publicly accessed, e.g. title, name of publisher, contact details, cost. Details will be recorded on the Darwin Monitoring Website Publications Database that is currently being compiled.

Mark (*) all publications and other material that you have included with this report

Type * (e.g. journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (e.g. contact address, website)	Cost £
N.B. Several scientific papers and are currently 'in press' and can be forwarded at a later dates, though none are published as yet. However, a DVD containing copies of technical reports and other materials produced by this project has been forwarded to Darwin Secretariat				

Annex 5

Darwin Contacts

To assist us with future evaluation work and feedback on your report, please provide contact details below.

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