RESEARCH THAT MAKES A DIFFERENCE

A Process Documentation of the Philippines-Netherlands Biodiversity Research Programme (BRP) for Development in Mindanao

Philippines-Netherlands Biodiversity Research Programme (BRP) for Development in Mindanao: Focus on Mt. Malindang and its Environs

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The Biodiversity Research Programme (BRP) for Development in Mindanao is a collaborative research programme on biodiversity management and conservation jointly undertaken by Filipino and Dutch researchers in Mt. Malindang and its environs, Misamis Occidental, Philippines. It is committed to undertake and promote participatory and interdisciplinary research that will promote sustainable use of biological resources, and effective decision-making on biodiversity conservation to improve livelihood and cultural opportunities.

BRP aims to make biodiversity research more responsive to real-life problems and development needs of the local communities, by introducing a new mode of knowledge generation for biodiversity management and conservation, and to strengthen capacity for biodiversity research and decision-making by empowering the local research partners and other local stakeholders.

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List of Acronyms

ABC	Association of Barangay Captains
AMP	Aquatic Ecosystem Master Project
ARCBC	ASEAN Regional Centre for Biodiversity Conservation
Aus-AID-PALS	Australian Agency for International Development-Philippines-Australia Local Sustainability
BFAR-DA	Bureau of Fisheries and Aquatic Resources-Department of Agriculture
BRAHMS	Botanical Research and Label Information on Herbarium Management Systems
BIOMES	Biodiversity Monitoring and Evaluation System
BRP	Biodiversity Research Programme
BSC	Bukidnon State College
CAFGU	Citizens Armed Forces Geographical Unit
CARE-AWESOME	CARE- Agencies Working for Ecological Sustainability of Mt. Malindang's Environs
CIDS	Center for Integrative and Development Studies (Philippines)
CIFOR	Center for International Forestry Research
CML	Centre for Environmental Science (Leiden University)
CMU	Central Mindanao University
DBM	Diamondback moth
DENR	Department of Environment and Natural Resources
DENR-NIPAP	DENR-National Integrated Protected Areas Program
DGIS	Netherlands Ministry for Development Cooperation
DOSCST	Davao Oriental State College of Science and Technology
ETC	Ecoculture Foundation
EU	European Union
FGD	Focus Group Discussion
FMDC	Forestry Manpower Development Consultants
FPIC	Free and Prior Informed Consent
GIS	Geographic Information System
GO	Government Organization
IAC	International Agricultural Centre
ICOPHIL	International Conference on Philippine Studies

IEC	Information, Education and Communication
IHE-Delft	International Institute for Infrastructural Hydraulic and Environmental Engineering
IKS	Indigenous Knowledge System
IPGRI	International Plant Genetic Resources Institute
IPM	Integrated Pest Management
JM&E	Joint Programme Monitoring and Evaluation Project
JPC	Joint Programme Committee
LAG	Local Advisory Group
LAN	Local Area Network
LGU	Local Government Unit
LOI	Letter of Intent
LRs	Local Researchers
LTER	Long-term Ecological Research
MMRNP	Mt. Malindang Range Natural Park
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MPSC	Mindanao Polytechnic State College
MSU	Mindanao State University
MSU-IIT	MSU-Iligan Institute of Technology
MU	Misamis University
NATURALIS	Netherlands National Museum of Natural History
NCIP	National Commission on Indigenous Peoples
NGO	Non-Government Organization
NHN	National Herbarium of the Netherlands
NIPAP	National Integrated Protected Areas Programme
NMP	National Museum of the Philippines
NOMARC	Northern Mindanao Agricultural Research Center
NORMISIST	Northern Mindanao State Institute of Science and Technology
NSS	National Support Secretariat
PAMB	Protected Area Management Board
PASu	Protected Area Superintendent
PAWB	Protected Areas and Wildlife Bureau
PCARRD	Philippine Council for Agriculture, Forestry and Natural Resources Research and Development
PIP	Pre-Implementation Phase
PMO	Programme Management Office

PO	People's organization
PRA	Participatory rapid appraisal
PROSEA	Plant Resources of South-East Asia
PWG	Philippine Working Group
QRM	Quarterly Researchers' Integration and Planning Meeting
RAs	Research assistants
R&D	Research and development
RAWOO	Netherlands Development Assistance Research Council
RGA	Research Grant Agreement
SCO	Site Coordinating Office
SEAMEO	Southeast Asian Ministers of Education Organization
SEARCA	Southeast Asian Regional Center for Graduate Study and Research in Agriculture
SEC	Socio-economic and Cultural Master Project
SKPSC	Sultan Kudarat Polytechnic State College
SLO	Support and Liaison Office
SNCAT	Surigao del Norte College of Agriculture and Technology
SPAMAST	Southern Philippines Agribusiness Marine and Aquatic School of Technology
SWOT	Strengths, weaknesses, opportunities and threats
TACDRUP	Technical Assistance Center for the Development of Rural and Urban Poor
TEMP	Terrestrial Ecosystem Master Project
TOR	Terms of Reference
UP	University of the Philippines
UPS	University of the Philippines System
USeP	University of Southeastern Philippines
WUR	Wageningen University and Research Centre

Executive Summary

In 1997, a group of Filipino environmental practitioners together with the Netherlands Development Assistance Research Council (RAWOO), jointly conceived and designed what was now the Philippines-Netherlands Biodiversity Research Programme (BRP) for Development in Mindanao. It was an attempt to evolve an innovative research approach to biodiversity conservation for sustainable development. The design was anchored on the principle of a North-South research partnership that was based on "mutual trust and equal footing where knowledge produced becomes more directly relevant to sustainable development needs in the South" (RAWOO 1998). The programme concept itself was "a product of a participatory and collaborative processes that involved not only Southern and Northern researchers and scientists, but local stakeholders as well" (RAWOO and SEARCA 1999).

Aside from programme management, the BRP was designed to include two essential components: the research programme and the support programme components. The research programme is defined by a set of research themes that link the research questions to real problems and opportunities in the communities

and ecosystems in the research site. These research themes were defined in the BRP as methodology development, knowledge expansion and improvement, and policy-oriented research.

The support programme, on the other hand, is a set of organized activities that provided systematic support for the crosscutting needs of the defined research activities. These activities include human resource development (capability building); community organizing; information, education, and communication (IEC); information management system; and networking. Essentially, the support programme enhanced the relevance of the research programme.

The focus of the BRP was Mt. Malindang in Misamis Occidental and its environs. Specifically, the research site was a geographical wedge approximately defined by the boundaries of Sapang Dalaga town and Murceilagos Bay in the west, Aloran town in the southeast, and the municipality of Don Victoriano in the south (RAWOO and SEARCA 2000).

Mt. Malindang was chosen because its varying ecosystems and landscape as well as their interconnections are fertile grounds for research. The people in the villages nestled in the Mt. Malindang Range, its adjoining hills, foot slopes, and lowland areas are primarily engaged in agriculture, although their crops and agricultural practices largely depend on the elevation, slopes, and water supply. The coastal and marine ecosystems are equally diverse. Fishing and harvesting of marine and mangrove aquatic species are the main or subsistence livelihoods of the dense coastal zone populace (SEAMEO SEARCA 2002).

In order to determine the specific research projects that addressed the Mindanao biodiversity agenda, a pre-implementation phase was conducted in 1999–2000. This phase

1. served to build not just consensus but commitment among the key actors from Mindanao (individuals as well as institutions); and
2. helped define the organizational and management structure that was considered appropriate for a joint Philippine-Netherlands research project

In essence, the PIP was considered the preparatory stage for full research programme implementation. The major activity of the PIP was the participatory rapid appraisal (PRA) which aimed to identify and describe a more specific site or area of the Mt. Malindang Range. This became the focus of the programme as the

needs and opportunities of the communities were identified, priority researchable themes were developed, and participatory research was undertaken. It took into account the Mt. Malindang landscape from the upland (montane forest ecosystem) to the lowland (agro-ecosystems) to the coastal zone (marine coral reef ecosystem). Results of the PRA became the springboard for the implementation of the first phase of the knowledge-development process in the BRP.

The "first generation" research was characterized by benchmark type of studies. In terms of process, the conduct of the "first generation" research was characterized by a series of consultations, meetings, and workshops that ensured that research studies were according to the needs and opportunities in the concerned communities. Moreover, the research projects were anchored on BRP's research priorities that dealt with the identification of knowledge gaps, capacity gaps, and processes for capacity building.

The BRP's second year of implementation witnessed the submission, review, and evaluation of proposals not satisfactorily evaluated during the first round so that additional projects were approved for implementation. Researches proceeded following the acquisition of gratuitous permits that enabled the researchers to collect specimens and samples of plants and animals in their individual research sites.

Midstream into the BRP implementation, a field scanning activity and evaluation was conducted on the on-going research projects: 1) assessment of biodiversity and biodiversity conservation in Malindang; 2) better understanding of the environment landscape; and 3) identification of the benefits derived by various stakeholders from the BRP projects.

The BRP's research agenda shifted in focus during the third year of implementation after the implementers realized that the "first generation" researches failed to fully address the entire landscape of Mt. Malindang, most especially the issue of interconnectivity and interaction within and between ecosystems. It became evident that the researches [being] pursued were fundamentally focused on producing baseline or benchmark data that still needed further study. Not much concern was [being] given to the application of research findings to actual problems in Mt. Malindang, a concern that was actually raised by stakeholders particularly the Local Government Units (LGUs). Being purely descriptive, the researches generated inventory type of data that answered questions like "what are the facts?," "what is out there?" What was needed was research that would

truly reflect the multi-faceted principles of the BRP (that is, location-derived, promoting stakeholder participation, interdisciplinary). Decisions were made to have a set of studies that would be more comprehensive and integrative in nature, collectively labeled as "second generation" researches.

The "second generation" research stage of the BRP revolved around the development and implementation of the master programme which was seen as a proactive approach to address the landscape framework and the close integration of the social and the biophysical aspects of biodiversity. The master programme was borne out of the need to address the integrative, inter- and multi-disciplinary, and demand-driven character of the BRP. Further, it aimed to fill in the gaps in the geophysical landscapes (that is, the coastal, terrestrial, and riverine ecosystems) in terms of the geomorphology, biodiversity, and socioeconomic-political environments.

The master programme consisted of an integrated set of projects and studies that both Filipino and Dutch researchers considered vital in creating a critical mass of knowledge to meet the interrelated objectives and vital in focusing on the complexities of ecosystem interrelatedness and interactions. The key characteristic of the master programme rested in the process by which the research components had been identified, developed, and pursued. Both research and support activities- the essential components of the BRP- were a result of highly participatory events and activities among researchers and partners. These researchers and partners jointly and collaboratively worked together "as equals" and iteratively determined the research questions, the methodologies and approaches to be used in obtaining data and information, and most importantly, the research methods and these should benefit local communities.

Three sets of master projects were developed, approved, and subsequently implemented: 1) the Terrestrial Ecosystem Master Project (TEMP) with sub-studies on the flora, vertebrate, invertebrate fauna, and soil ecology of Mt. Malindang; 2) the Aquatic Ecosystem Master Project (AMP) which identified sub-studies on the riverine/riparian and coastal ecosystems; and 3) the Socio-economic-Cultural Studies (SECS) Master Project with sub-studies on resource utilization, policy analysis, and indigenous knowledge systems (IKS).

Similarly, concept proposals of the action-research type were identified and developed. Labeled as "open researches", these intended to fill in the gaps in understanding the landscape not covered by the master projects. Under this

category were studies on the conservation and utilization of endemic, rare, and economically important plants; and on the biodiversity conservation of arthropods in the upland cabbage-growing area.

The BRP also provided thesis support grants to both undergraduate and graduate students whose research focus was on Mt. Malindang. The students' researches also evolved along the research themes identified by the BRP that supported the master projects.

Additional studies on the database information system and on the headwaters of Layawan River were approved for funding and implementation. The database project provided a more systematic collection, storage, and retrieval of data collected by the researchers of the different study components. The study on the headwaters, on the other hand, characterized the physico-chemical and biological aspects of the Layawan River headwaters and surroundings that will establish linkages between the terrestrial and aquatic ecosystems of Mt. Malindang.

Status and progress of researches were reported during the Quarterly Researchers' Planning and Integration Meetings (QRMs). The QRMs provided a venue for the researchers to discuss their progress and to identify as well as decide on capacity-enhancement activities. Members of the PWG also gave technical support to the researchers during the QRMs.

Since integration was crucial to meeting the objectives of the BRP, a framework for the landscape analysis that would guide the master projects was designed. However, as concern for the integration of research results increased with the progress of researches, a modified "pressure-state-response" model for biodiversity conservation was suggested.

The other key component of the BRP - the support programme for capacity building- played an important role in sustaining the participatory initiatives of the BRP. The programme made substantial investments in activities that continued to develop the capacity of researchers. The enhanced capacity was manifested by educational activities that were based on the key support activities. These activities, in turn, were defined in synchrony with and in response to the need of the researches in terms of 1) human resource development, 2) community organizing, 3) information management system, 4) information, education, and communication, and 5) networking.

Much of the activities in human resource development took on capacity building activities aimed to equip researchers with the necessary knowledge and skills for the different research projects. Human resource development covered activities ranging from proposal development to integration, to methodological refinement, to designing strategic actions. During implementation of the master projects, there was also an influx of support and capacity building activities that were well grounded on the expressed needs of the individual researchers and research teams. These included trainings on data collection, gender sensitivity, plant taxonomy, water quality, statistical design, and the like. There were also exposure tours or cross-farm visits.

Community organizing for BRP aimed to encourage and sustain the participation of the local communities in both research and support activities. (It should be noted that local researchers were also given the opportunity to actively participate in training.) Community organizing activities were seen not only as a venue for getting feedback from the locals, but were also viewed as means for making researchers and local communities work closely together. Community organizing was strategized by 1) involving members of the community (study sites) as counterpart/local researchers, 2) keeping communities informed by engaging them in trainings that enhanced their knowledge and skills, 3) providing a venue for knowledge sharing and exchange through assemblies and fora, and 4) jointly implementing strategies and projects that responded to the needs of the local community.

The BRP believed that the issue of biodiversity conservation is directly linked to the availability, integrity, and coherence of data in order to develop relevant interventions. Therefore, it was imperative for research activities to generate data and information that should be managed efficiently to obtain maximum results from the researches. A data management system was seen as an important contribution to BRP's research.

On the other hand, IEC aimed to raise awareness on biodiversity conservation and sustainable development issues in the Mt. Malindang Range and its environs. Through this component, results of the biodiversity assessment and the current state of resources in the ecosystems were reported to the community stakeholders.

Other audiences – locals, regional, national, and international were likewise informed of the outcomes of researches.

Networking in the BRP aimed to coordinate and dovetail efforts on issues involving conservation, sustainable development, and others with key players and other stakeholders in the Mt. Malindang area. It aimed for knowledge sharing and exchange that stimulated and sustained interaction not only within the scientific and/or academic community but also outside of it involving government organizations (GOs), non-government organizations (NGOs), LGUs, private organizations, as well as the international community.

Networking strategies internal to the BRP researchers included information exchange maintained through the regular QRM, periodic contact through small group discussions and exchange workshops, and information dissemination through the production of IEC materials.

External networking, on the other hand, was maintained through periodic meetings and interactions through conferences/fora with outside institutions especially on relevant, impact-laden issues. These also included attendance by researchers in both local and international conferences.

Halfway through BRP's project life, a review of the project's performance vis-à-vis its stated objectives and activities since its inception in 1997 was deemed necessary. The expected outcome of the process was to draw up lessons and recommendations to further improve the programme for the remaining period of time with a possible eventual continuation or follow up.

Two essential components made up the mid-term evaluation of the BRP, namely, an internal (or self) evaluation and an external evaluation. The internal evaluation was carried out along two parallel tracks: the first one was an evaluation by the researchers on the BRP's vision, mission, and goals; the management at programme and project levels; and the two generations of research projects. The second track consisted of a "reflexive" discussion within the Joint Programme Committee (JPC) which dealt with a number of "questions" formulated during and after a JPC meeting held in March 2004.

The external evaluation, on the other hand, focused on the assessment of the progress of the BRP. Specifically, it involved: 1) assessment of accomplishments; 2) identification of problems, issues, and other concerns (both in the Philippines and in the Netherlands); 3) assessment of stakeholders' contribution and support to the Programme; and 4) assessment of the effectiveness of the strategies adopted in project implementation.

A culminating activity for the research projects in the BRP particularly towards the last stages of programme implementation was the validation of research results in the various communities. In traditional research, members of the community are used to supplying information and providing data to researchers who use these for their own benefit rather than for the benefit of those who provided the information. Worse, communities never hear about research results or the use of their information. As a research for development that espoused participation of both researchers and community, the BRP served the practical purpose of bringing back to the community research findings. This was in the hope that such findings would lead to some action or be used to bring about some changes in the community researched.

As segue to the community validation, a local exit conference was held in Ozamiz City in April 2005. Results of the different studies under each master project (TEMP, AMP, and SEC), of the open researches, and of the database management project were officially presented to local stakeholders in Mindanao.

Much of the data and information contained in this report were based on the construction of the processes that characterized the events and outcomes in the implementation of the BRP. While much effort was made to document events and activities as they happened, nothing can be more adequate and substantially meaningful than actual, on-site observation and documentation. In many instances, documents reviewed provided only a description of what happened or the events that took place, the activities that were undertaken, and the like. They did not provide a complete picture of HOW and WHY things happened or how and why certain decisions and actions were made. Documents provided relatively little information on how things were actually done, sometimes missing out on details (e.g., from the disciplinary composition of training or workshop participants to the more important description of the nature, quality, and dynamics of group interaction). All of these could have been constraining or facilitating factors to decisions and actions and could best explain the outcomes of the event or activity in the BRP.

To complete this report required an iterative process of going back and forth to key informants (mostly the researchers) to validate and piece together details that have been missed out in the documents. However, because retrospective process documentation is based primarily on recall, some researchers have forgotten the processes by which things have been accomplished, or the bases of their decisions. Nevertheless, the researchers generated a variety of rich experiences that reflected and made explicit the context of a learning environment that constituted the BRP.

Introduction

A Shift in the Paradigm of Research

Approach to research, according to Deshler and Selener (1991), is conditioned by the researcher's view of the world, his philosophical and ideological position, and by socio-political context of which the researcher is a part of and in which the research is being carried out. In addition, the choice of the methodology for research is as much determined by these factors as it is by the purpose of the research and of the particular problem it is attempting to address. At the same time, the outcome of the research depends as much on the social context in which it is being carried out as it does on the methodology which is being employed, and on the framework within which it was developed.

Following the Translantic Dialogue Conference at Leeds, England in 1988, researchers from around the world shared their concern about the lack of North-South collaboration in conducting research, particularly research that puts premium on the underlying values being served by [their] research (Deshler and Selener 1991). It was within the

context of such concern that a new philosophical stance towards research without distinction of fields (natural or social science) emerged. That stance towards knowledge generation viewed the focus, the process, and the outcomes of research as the means by which people can take action against the causes of "exploitation" through the research process and through the use of research results.

After almost two decades, a re-assessment of the roles and values that researchers hold paved the way for a new approach to the process of knowledge generation and innovation: 'research for development'. This approach emphasized "the iterative, adaptive nature of innovation in complex ecosystems achieved through systematic enquiry combined with learning based on action." This is in contrast to 'research and development' which is derived from the concept of researchers who were described by Ashby (2001) as:

> *"… those who are in control of a pipeline for producing technological innovations: an idea goes in at the end of the pipeline, research develops a prototype, and then a fully developed product comes out, ready to be released to eager users, at the other end of the pipeline."*

To do research for development is to integrate participatory knowledge sharing with knowledge generation in the whole research process. At the heart of the entire process, therefore, are not only researchers but relevant stakeholders. Research to generate new knowledge and learning to share existing knowledge are both important.

Research for development is an iterative, adaptive nature of innovation in complex ecosystems achieved through systematic enquiry combined with learning based on action.

One of the major challenges of research for development is for researchers to recognize that the results of their enquiry and the impact of their studies depend on their relationship with other stakeholders who may have more power to visualize and realize the desired outcomes of interventions than they. The result is the participation of stakeholders alongside researchers in a jointly-managed process of investigation, participatory problem definition, visioning, and building shared learning based on action.

In 1997, a group of Filipino environmental practitioners, together with the Netherlands Development Assistance Research Council (RAWOO) jointly conceived and designed what is now the Philippines-Netherlands Biodiversity Research Programme (BRP) for Development in Mindanao. It was an attempt to evolve

an innovative research approach to biodiversity conservation for sustainable development anchored on the following important principles (RAWOO 1998):

- Steering biodiversity research through society-driven approach;
- Developing a comprehensive approach that aims to integrate support for collaborative research and for building and strengthening national capacity for biodiversity research; and
- Research cooperation on an equal footing.

Hence, the programme concept itself was "a product of a participatory and collaborative process that involved not only Southern and Northern researchers and scientists, but also local stakeholders" (RAWOO 1998 and SEAMEO SEARCA 2000). Originally envisioned as a ten-year research programme to be implemented in two phases of five years each phase, the BRP was implemented by the SEAMEO SEARCA in 2000 with financial support from the Netherlands Government through the Ministry for Development Cooperation (DGIS).

Rationale for Documenting Process

Documenting process evolved out of the need for programmes and projects to draw learnings from their experiences (Korten 1980). A research in itself, process documentation is anchored on learning processes that take a dynamic view of project implementation and tries to capture, process, and put to use data and information based on experiences in the hope of providing support either to development interventions, or resource control and management, or simply in the improvement of future programme development efforts (Veneracion 1989).

According to Shah (1997), documenting process is especially relevant for projects and programmes that emphasize the importance of participatory processes. When conceived in the context of the BRP, process documentation was designed to draw out learnings. The process specifically covered the different activities and events in the BRP, their sequence in programme implementation, as well as the scope of these activities. Actions, decisions, and modifications that had to be made in programme and project implementation also formed an essential part of the documentation research process.

As BRP embarked on process documentation halfway through its project life, a great amount of the documentation particularly information on context, dynamics, and

programme/project processes, were based on the reconstruction of the processes that characterized the events and outcomes of programme implementation.

A proposal for process documentation was submitted in December 2003, but the actual conduct of the documentation commenced only in February 2004 and was completed during the same year. This was made for purposes of "gathering evidences, data or results without having to wait for the programme assessment" (Plopino 2004). This constituted the first phase of the documentation which covered BRP's first three years of implementation. During these years, the Pre-Implementation Phase (PIP) and the development and implementation of the so-called 'first generation' researches were undertaken.

In August 2004, the second phase of the process documentation covering 2004-2005 was undertaken. This represented the development and implementation of the 'second generation' research as well as the BRP's concluding set of activities that included the community validation and closing conference.

Essentially, all efforts were made to document key events and activities as they happened. In general, the process documentation research in the BRP was done through participant observation, 'unstructured' personal interviews, and focus group discussions.

Scope of the Report

The present report attempts to provide a comprehensive information documentation of the BRP. This document has generated substantial observations and experiences of the BRP that can be subjected to reflection and analysis. Chapter 1 gives the historical context of the BRP, how it evolved from a concern for biodiversity conservation and protection to a North-South partnership. Chapter 2 describes the Pre-Implementation Phase of the BRP and how agenda for research that characterized the BRP research for development were determined through participatory rapid appraisal. Chapter 3 describes the BRP itself, specifically focusing on organization and management, and the relevant stakeholders. Chapters 4 and 5 detail the knowledge development activities and events during the so-called 'first generation' and 'second generation' research phases, respectively. Also included are the community validation and exit conference which reflect the participatory and collaborative nature of the BRP. Chapter 6 documents the capacity enhancement in the BRP that provided systematic support for the cross-cutting needs of the BRP researches. Chapter 7 gives narratives of learning events in the BRP as shared by researchers and local stakeholders.

Historical Overview of the Philippines-Netherlands Biodiversity Research Programme (BRP) for Development in Mindanao

The BRP is a product of a highly participatory and collaborative processes. Prior to its implementation in 2000, the Programme went through a series of stages and phases that were carefully thought out and planned by key partners from both the Philippines and the Netherlands. This part of the process documentation report was heavily taken from the documents entitled "Framework for a Philippine-Dutch Programme of Biodiversity Research for Development"(RAWOO 1998) and "Biodiversity Research Programme for Development in Mindanao: Focus on Mt. Malindang" (RAWOO and SEAMEO SEARCA 2000).

A North-South Research for Development Perspective

It all started with the report of the Netherlands Development Assistance Research Council (RAWOO) on the 'Medium-Term Perspective on Research for Development', which recommended among other things, the establishment of a long-term North-South research partnership in biodiversity and sustainable development. Essentially, the backdrop of the said report was the Convention on Biological Diversity (CBD) which called for scientific and technical cooperation specifically between the North and the South.

The Netherlands Ministry for Development Cooperation (speaking in behalf of the other Ministries such as the Education, Culture and Science; and the Agriculture, Natural Resources and Fisheries) responded positively to RAWOO's recommendation and expressed the government's willingness to support a 'multi-annual' biodiversity research programme for development. This was after the RAWOO has complied with conditions set by the Ministry (RAWOO 1998).

Strategic Action Plan

In 1995, the Netherlands Government published its strategic action plan for the conservation of biodiversity. The document contained a recommendation that knowledge on biodiversity issues should be enhanced and expanded, and that research should be better coordinated through a programmatic approach. The Dutch Government's recommendation was picked up by concerned sectoral councils, one of which was RAWOO. RAWOO prepared a programming study on biodiversity research in, and in cooperation with, developing countries. The study was confirmed during the Dutch government's bi-annual science budget hearing held in 1997.

A committee consisting of RAWOO members, representatives from the Dutch research and academic community, nature organizations, and relevant ministries was created to assist RAWOO during the study implementation.

Biodiversity Research in and with Developing Countries

RAWOO's programmatic study was undertaken based on the objectives of 1) designing a policy and organizational framework of collaborative biodiversity research programme for development; and 2) building consensus and commitment among relevant stakeholders in the biodiversity research environment - both in the North and the South. Essentially, the study was anchored on the following basic principles: 1) steering biodiversity research through a society-driven approach; 2) development of a comprehensive approach aimed at integrating support for collaborative research and support for building and strengthening national capacity for biodiversity research; and 3) ensuring a North-South research cooperation on an equal footing (RAWOO 1998).

Following a Process Approach

Given RAWOO's study objectives and the consultative process that the objectives implied, a work programme was drawn up following a sequence of activities:

- Short listing of possible partner countries
- Appraisal visit/mission
- Establishment of a working group
- Agenda setting
- Programme development

"We know little of what we pretend to preserve"

A short list of possible partner countries, which included the Philippines, Indonesia, and Ethiopia, was established. Of the three countries, it was the Philippines that was first visited by the Dutch Appraisal Mission Team in October 1996. The team aimed to identify possibilities for setting up a long-term biodiversity research partnership as well as to generate relevant information on policies, research infrastructure, organization, funding, and the like including possible stakeholders/actors such as relevant research organizations, government bureaus, and non-government organizations.

The result of the mission study was a document entitled, "We Know Little of What We Pretend to Preserve: Biodiversity and Sustainable Development in the Philippines" (Lammerink 1996). Based on the report, further activities were pursued to set up a biodiversity research programme.

The Philippines was chosen as partner country for several reasons:

- Despite being one of the most important areas in biodiversity, its biological as well as genetic resources is under pressure as a consequence of rapid population growth, economic development, and overexploitation of the natural environment.
- Biodiversity is one of the Philippines' priorities under Agenda 21 which the Philippines has recently adopted.
- The Philippines has a well-developed national research system and a critical mass of highly qualified and competent researchers.
- The country has a very active and capable NGO community.
- The Philippines and the Dutch research communities have well-established cooperative linkages.

Follow up Mission: Creating the Philippine Working Group

A follow-up visit by the Mission Team was made in 1997 to establish the Philippine Working Group (PWG), as well as to identify persons who could be members. Through the initiative, support, and leadership of then SEAMEO SEARCA Director, Dr. Percy E. Sajise, a collegial body of environmental advocates and practitioners was established. The PWG was tasked to guide programme formulation and to decide on the operational policies during the initial phases of the research project. The PWG was described as bringing together a "well-balanced group of committed Filipinos" (RAWOO 1998).

Agenda Setting

The first level consultation was undertaken on 2-4 July 1997 at the SEAMEO SEARCA in Los Baños, Laguna through a national workshop. The workshop aimed, among others, to formulate a conceptual framework for biodiversity research and identify problems and issues concerning biodiversity conservation and protection in the Philippines.

Some 70 people representing government, non-government, academic and regional as well as international organizations working on terrestrial, aquatic, and agro-ecosystems in Luzon, Visayas, and Mindanao (the three major islands in the country) attended the workshop. Discussions resulted in a draft National Biodiversity Research Agenda for the Philippines, the final document of which was endorsed to the Netherlands Government by then Department of Environment and Natural Resources (DENR) Secretary Victor Ramos. In August and September 1997, the PWG and selected regional representatives as well as the majority of the workshop participants again convened for a series of consultation meetings to further refine the Biodiversity Research Agenda.

Based on a four-fold criteria, namely: 1) urgency, 2) policy support/ implications, 3) potential benefits, and 4) strategic in nature, key biodiversity research areas were identified at the national and the regional levels. The general agenda responded to the following cross-cutting concerns:

a) **Researchable Themes** - including validation and standardization of methodologies for biodiversity research and conservation; expansion and improvement of knowledge on biology, methodologies, and socio-economic/culture and policy research; and
b) **Support Programmes** - including human resource development, development/preparation of information, education and communication (IEC) materials; establishment of databases/ directories; and networking.

Developing the North-South research partnership

After some time, researchers and policy makers in the Netherlands were convened in a meeting and were informed of the nature of the RAWOO-initiated collaborative research project. With the National Biodiversity Research Agenda for the Philippines as a major input, a consultative workshop was held in Leidschendam, The Netherlands on 8-9 October 1997, to discuss among the Dutch scientific community, the policy and organizational framework of a collaborative programme on biodiversity.

Following the principle that a biodiversity research programme has to be location-specific, the BRP underwent several iterations until the decision to focus on Mindanao particularly the Mt. Malindang Range and its environs, was finally made. A series of meetings were held in Zamboanga City, Davao City, and Cagayan de Oro in Mindanao as well as in Manila and Los Baños, Laguna in Luzon. These meetings involved the Local Government Units (LGUs) of Misamis Occidental, the DENR, CARE-Agencies Working for Ecological Sustainability of Mt. Malindang's Environs (CARE-AWESOME)-Philippines, the Australian Agency for International Development-Philippines-Australia Local Sustainability (AusAID-PALS), SEARCA, and other relevant stakeholders.

"This workshop is viewed as taking time to understand each other, to learn what both partners want and to find out the differences and similarities between their perspectives, research methods, and cultural backgrounds … to build bridges in research for development between North and South … between the Netherlands and the Philippines … between Luzon and Mindanao."

Paul Smits, RAWOO

The purpose was to share to them the BRP's thrusts and activities as well as to encourage networking for an effective implementation of proposed activities.

Research Programme Development

In August 1998, a workshop among the members of the PWG, Mindanao-based researchers, and Dutch scientists was held in Dapitan, Zamboanga del Norte Province to continue the progressive formulation of a joint Philippines-Netherlands Biodiversity Research Programme. The major aim of the workshop was to further define and design the research programme in a participatory and collaborative manner with the Mindanao researchers as the primary formulators of the programme. Since the initial research programme was [to be] carried out in Mindanao, the Philippines and the Netherlands groups, which were jointly doing the initial programme planning, deemed that the main actors – the researchers in Mindanao – should themselves develop and agree on the initial action plan.

Key inputs during the workshop included programme principles and characteristics, roles and qualities of partners, and a research framework. A pre-implementation phase of the programme was also discussed with the planning for key activities, time table, and resources.

Largely due to its highly participatory and consultative nature, the conduct of the preparatory activities leading to the development of the programme framework took over two years.

The Choice of Mt. Malindang and its Environs

Following the principles of the BRP, a geographical wedge (Figure 1) in the area of Mt. Malindang, located in the province of Misamis Occidental in Mindanao, was selected as research site. It was believed that a biodiversity-rich yet vulnerable area like Mt. Malindang would enable Filipinos and Dutch research partners to produce the relevant knowledge and methods that would be useful to the local communities and their institutions. At the same time, these people and institutions would be supported in capacity building and linking with external resources for their own development.

Table 1. Summary of key events in the development of the Philippines-Netherlands Biodiversity Research Programme for Development in Mindanao: Focus on Mt. Malindang and its Environs

Date	Significant Events
October 1996	The Philippines and Netherlands team organized by RAWOO conducted a state-of-the-art biodiversity research in the Philippines. The study reinforced the selection of the Philippines as partner country of the collaborative research programme with the Netherlands scientific research community.
July 1997 SEARCA, Los Baños, Laguna, Philippines	A National Biodiversity Research Agenda was formulated in a Philippine workshop.
October 1997 Leidschendam, The Netherlands	In a workshop on "Developing a Philippines-Netherlands Biodiversity Research Programme," the Philippine representatives presented to the Dutch research partners the Philippine National Biodiversity Research Agenda and the recommendation for Mindanao to become the priority area for the joint research programme.
January & June 1998 Mindanao and Luzon, Philippines	Meetings were held by the PWG and the Mindanao Biodiversity Steering Committee to finalize a list of potential research sites in Mindanao and draft the call for concept proposals from Mindanao-based research and academic institutions.

Source: RAWOO and SEARCA 2000; Dapitan workshop documents

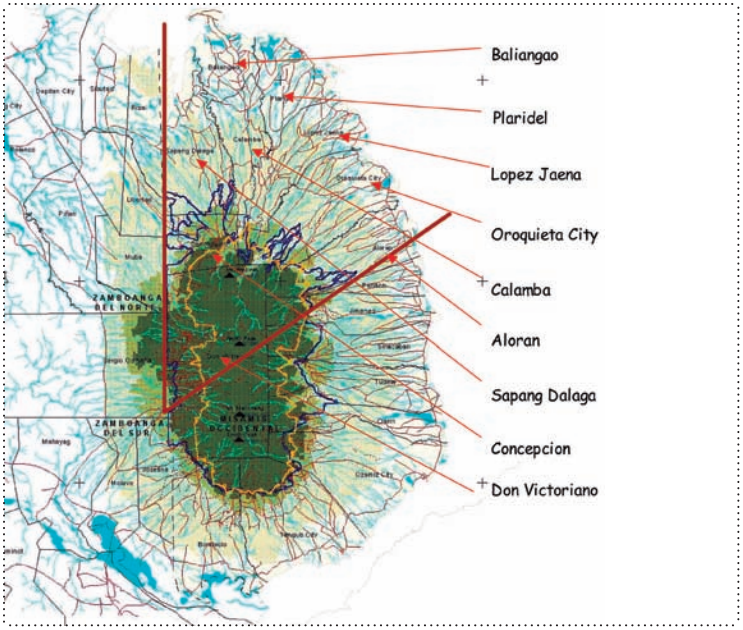


Figure 1. The BRP project site

The Pre-Implementation Phase (PIP)

Objectives of the PIP

In order to determine specific research projects that will address the Mindanao biodiversity agenda, a pre-implementation phase was conducted.

Before research designs could be finalized, a participatory rapid appraisal was conducted. When communities had already been identified, research designs were validated before finally proceeding to implementation.

This phase did the following:

1) served to build not just consensus but commitment among the key actors from Mindanao (individuals as well as institutions); and
2) helped define the organizational and management structure that was considered appropriate for a joint Philippines-Netherlands research project. In essence, the pre-implementation phase was considered the preparatory stage for full research programme implementation.

This phase of the programme, which was conducted from January 1999 to June 2000, had the following specific objectives:

1. to gather primary and secondary information about Mt. Malindang and its environs;
2. to identify the needs of stakeholders in relation to the biodiversity research programme;
3. to identify, form, and train a multi-disciplinary pool of researchers and stakeholders on data analysis, participatory research, and rural appraisal; and
4. to put in place the organizational and management structure for the implementation phase.

The approach employed during the pre-implementation phase was characterized by two distinct elements, namely:

1. interactive and participatory in nature, involving the various stakeholders in the process of identifying problems, setting the research agenda, and implementing the research programme;
2. process-oriented, flexible, adaptive, and focused on searching and mutual learning.

The major activity stages of the PIP (Figure 2) included the following:

1 **Participatory Rural Appraisal (PRA) and Identification of Priority Researchable Areas**. This aimed to identify and describe a more specific site or area of the Mt. Malindang Range where the full research programme was to be undertaken. The needs, opportunities, and priority researchable themes that were identified, taking into account the Mt.

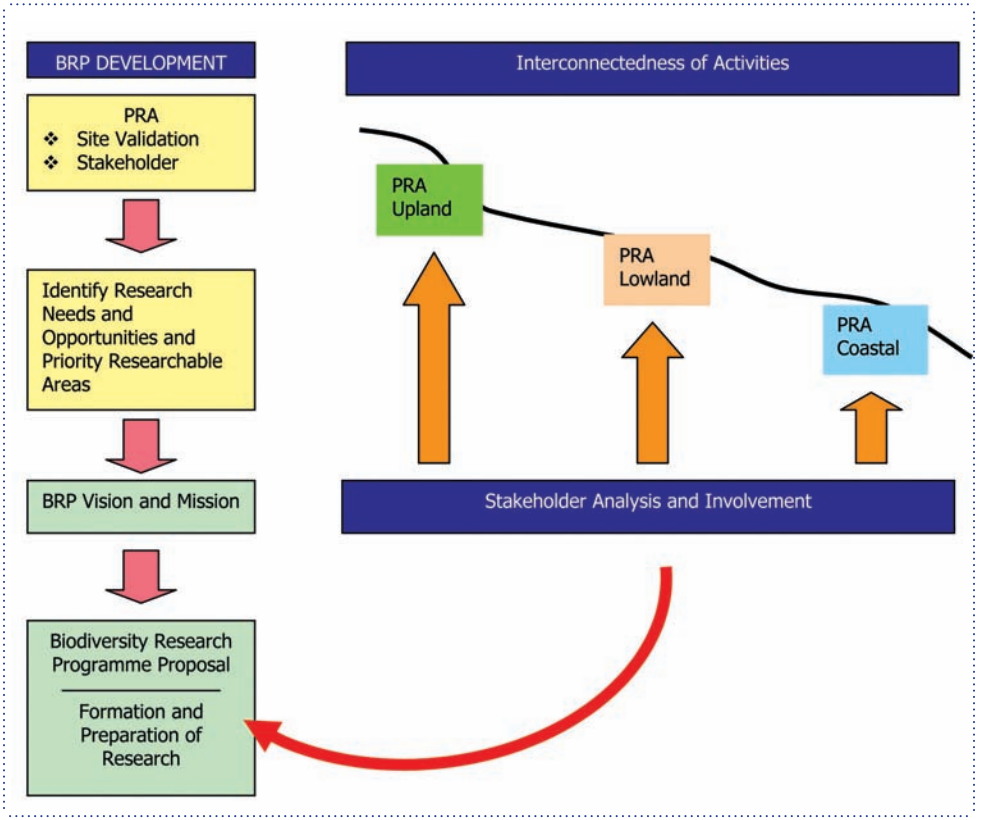
Malindang landscape from the upland (montane forest ecosystem) to the lowland (agro-ecosystems) to the coastal zone (marine coral reef ecosystem), were developed into a full biodiversity research proposal.

(Initial reviews of secondary data and information exchange with people in the Mt. Malindang environs revealed the possibility of working along the northern to eastern wedge of Mt. Malindang Range, from Baliangao to Aloran towns, at the coastal edge, going upland towards Concepcion to Lake Duminagat in Don Victoriano town.)

2 **Vision-Mission-Goal Workshop**. This culminating activity aimed for an agreement on the programme's vision, mission, and goals in order to provide it with direction and strategies.

3 **Programme Development**. This aimed to consolidate the results of the two major activities and to design the full Biodiversity Research Programme through an intensive development 'writeshop'. The programme proposal was [to be] submitted to the DGIS through the facilitation of RAWOO for refinement and funds' commitment.

At this stage, capability-building or preparatory training activities were conducted to help the Mindanao researchers to further hone their skills and orientation towards a truly participatory, multi- and inter-disciplinary, and collaborative research programme.



SOURCE: Pre-Implementation Phase (PIP) documents

Figure 2. Major activity stages in the Pre-Implementation Phase of the BRP

Participatory Rapid Appraisal (PRA)

A training workshop on PRA was held for researchers in February 1999 at the Central Mindanao University (CMU) in Musuan, Bukidnon. Most of the Mindanao-based researchers became involved in the programme when they submitted preliminary research proposals sometime in mid-1998[1]. The PRA was conducted among three ecosystem-based teams for the upland, lowland, and coastal areas.

The PRA activity of the three ecosystems aimed to:

1) describe the biophysical, socio-cultural and economic conditions and status of the ecosystems;
2) assess the biodiversity conditions of the Mt. Malindang Range;
3) identify the stakeholders and their needs;
4) determine the strengths, weaknesses, opportunities, and threats (SWOT) to the communities in relation to biodiversity conservation; and
5) identify researchable areas in the upland ecosystems of Mt. Malindang Range.

The PRA sites for the upland ecosystem team included the municipalities of Conception and Don Victoriano, both located in the Malindang mountain range, which is within the core of the province of Misamis Occidental. To establish interconnectivity with the lowland ecosystem, Barangay Sixto Velez in the municipality of Sapang Dalaga was included.

For the lowland ecosystem, predominantly farming communities that interfaced with the coastal and the upland ecosystems were chosen for the PRA. For the coastal ecosystem group, the PRA was conducted in three selected municipalities, namely: Sapang Dalaga, Baliangao, and Plaridel, all located in Misamis Occidental.

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[1] Concept proposals from Mindanao-based institutions and agencies were called in January 1998. These were submitted to and reviewed by the Mindanao Biodiversity Steering Committee (MBSC) and the PWG in July and August 1998 (Dapitan Workshop Report 1998). From here, 21 proponents were selected to form the core of the Mindanao researchers.

These sites were selected on the basis of the following criteria (RAWOO 1998 and SEAMEO SEARCA 2000):

a. diversity of ecosystem in a landscape
b. important biological resources
c. presence of freshwater ecosystems and resources

Similarly, since biodiversity conservation is a concern believed to cut across or unify the interest of various stakeholders within and around Mt. Malindang, it was deemed necessary to look at these stakeholders. Within the BRP context, they were categorized into 1) those who use biodiversity resources, and 2) those who carry out interventions for biodiversity conservation.

Those belonging to the first category of stakeholders were composed of farmers, fisherfolks, and indigenous (Subanen) people who are primarily

dependent on the biological and geophysical resources of the mountain for their livelihood and sustenance. Those belonging to the second category included non-government organizations as well as private, non-profit, and service-oriented organizations that aimed to provide ecological awareness and training and to organize communities and mobilize them in protecting and rehabilitating their environment. Government agencies also provided the Malindang area technical services, funds, and linkages for environment conservation or related projects, which are part of their mandates (RAWOO and SEARCA 2000).

Table 2. Agencies and institutions working in Mt. Malindang and its environs

Agency	Programme Objective
DENR	To establish a plan and programme for biodiversity conservation and protection of the Mt. Malindang National Park
UP-CIDS	To bring expert technical assistance from various UP units to build LGU capabilities and community-based organizations specifically in Lopez Jaena
CARE-AWESOME	To provide conservation education, capital or credit, and technical/ marketing assistance for alternative income-generating enterprises
AUSAID-PALS	To provide technical assistance and financing for LGU capability building in governance and management

Source: RAWOO and SEARCA 2000

Data Analysis Workshop

To effectively analyze the data generated from the PRA in the selected communities in the research area, a workshop that would serve as a venue for all teams from the three ecosystem areas to present their results as well as to share their experiences was conducted.

Experts and resource persons were invited to share their views, and to suggest ways to refine the data generated for further analysis. An integrative data framework that would guide all the teams in analyzing their data was formulated.

Specifically, the workshop aimed to

1) report and discuss the results of the PRA by each team;
2) formulate an integrative data analysis framework that would guide all teams in analyzing their data;
3) identify gaps in data gathered as well as stop-gap measures; and
4) present some guidelines in writing the final PRA report as well as agree on the format to be used.

Linkages and Networking

Linkages and networking meetings with key stakeholders were also held during the PIP. The Office of the Governor of Misamis Occidental and mayors of the towns covered by the PRA were informed and consulted about the thrusts and area coverage of the BRP. The PRA Team Leaders also informed the Mt. Malindang Range Natural Park Protected Area Management Board (MMRNP-PAMB), a legally-mandated body to oversee and decide on policies related to the Natural Park, the PRA and the BRPs' goals.

Similarly, a series of meetings were held with implementers of major programmes in Mt. Malindang Range Natural Park and Misamis Occidental Province, including the DENR, European Union (EU), CARE-AWESOME-Philippines, and the University of the Philippines System. These groups agreed to continue to share and exchange information, and more importantly, complement each other's work in overlapping geographical or technical areas. These agreements were embodied in a Memorandum of Understanding (MOU) signed between and among the agencies, including the BRP.

Post-PRA workshops among researchers involved in the PRA and key Philippine and Netherlands partners were held to identify biodiversity research problems and opportunities as well as more specific researchable themes. Researchable themes were identified for knowledge generation in the upland, lowland, and coastal ecosystems, along the Malindang landscape, as well as for participatory methodology development and policy studies. Finally, support programmes were listed and described. These support activities were meant to provide training, organization, communication, and other services in tandem with research activities to enhance research methodologies.

Visioning and Priority Setting

A culminating workshop among the Philippines and Netherlands researchers and key partners was held in Tagbilaran, Bohol from 1-6 August 1999 to agree on the programme's vision, mission, goals, and strategies. The Bohol Visioning Workshop also created coherence in the proposed researchable themes by substantiating the landscape level and cross-cutting concerns; and by firmly grounding all researchable themes in the situations and interactions described in the PRA reports.

The Biodiversity Research Programme (BRP) for Development in Mindanao

The BRP as a research for development demonstrates a shift in the paradigm of research which is characterized by a collaborative partnership between and among multi-stakeholder groups. Unique in this type of research undertaking is the "equal footing" status of partners in all aspects of the research effort, as well as the participatory nature of decision making and action. These characteristics of the BRP are reflected in its vision and are operationalized through the research and support programme components.

Why the need for a Biodiversity Research Programme?

A paper (Saguiguit et al. 2003) delivered during the Symposium/Policy Forum on Biodiversity Research and its Contribution to Sustainable Development reiterated the reasons why the Philippines-Netherlands Biodiversity Research Programme was conceived namely:

- **To demonstrate a paradigm shift in the traditional manner of a 'collaborative' research programme** that is conducted between a developed (North) country, which is the donor, and a developing country (South), which is the recipient. An unwritten practice is that control over such collaboration usually rests with the donor country. Donor preference or specifications in research agenda, programme design, and research implementation is the rule of thumb. A recent school of thought that has begun to gain ground in development is that collaborative research programmes must represent a true partnership. This means equal footing status between the North and South partners in management, and in administrative or technical expertise requirements of the research.

- **To test the hypothesis that the success and sustainability of any research for development undertaking is highly dependent on how participatory it is**. The consensus is that a research agenda grounded on the actual needs of stakeholders and target beneficiaries stands a better chance of being accepted and supported locally. The participatory nature of the BRP is highlighted in its processes wherein stakeholders and partner researchers participate in practically all aspects of the programme. This includes all activities from research agenda formulation to pre-implementation planning, and finally to implementation. BRP is a test case to show that the participatory approach can make a difference.

- **To address through research, the problem of biodiversity loss and conservation in a specific site in the Philippines**. Mt. Malindang, conceded to be a good example of the state of biodiversity in the Philippines, was chosen over other sites because of the comparatively few and disjointed conservation and development efforts done there. Mt.

Malindang's biodiversity is still rich but like most areas in the Philippines, it is highly threatened. The island of Mindanao is among the few areas in the Philippines which has stands of old growth forests; it is acknowledged as a biodiversity 'hot spot'. The urgency of the situation also requires an immediate response from research, that is to provide findings and information that will guide purposive and sustained action by local stakeholders in alleviating the destruction of the mountain's natural resources and loss of biodiversity. The far-reaching implication is that if the BRP approach can be documented and refined as a methodology, it may be used in other sites where biodiversity is similarly threatened.

Programme Description

The BRP facilitates the acquisition of critical consciousness or critical awareness on biodiversity conservation. This consciousness is manifested in the qualities of what a research for development should be (Box 1).

BOX 1. Qualities of the Biodiversity Research Programme for Development

Location-derived and development-oriented. The research agenda, priorities and methods are obtained from the needs of the people in the areas where research is being undertaken. People identify problems and potential solutions which are meaningful for their own development. In this way, the relevance and usefulness of research is established from the beginning.

Promotes multi-stakeholder participation. It involves not only the research community but most importantly, the local communities and stakeholders, including LGUs and NGOs. Constant interaction and feedback among the stakeholders make research more responsive to local development needs. Their participation enhances the mechanisms for the research to input into policies, programmes, and day-to-day practice that will conserve biodiversity resources.

Systems-oriented and interdisciplinary. The conceptual framework of the research is based on a comprehensive understanding of the interconnectivity and interaction between and among the different components of the biodiversity system. Natural and social science disciplines converge to a common goal of establishing approaches, methods, and models of biodiversity research.

Uses an integrated ecosystems and landscape approach. Interactions of elements within an ecosystem are fundamental to studying biodiversity. However, the interactions among the elements of contiguous ecosystems are equally important to provide holistic and integrated effects on these. A landscape approach can use methods of analysis associated with watershed or catchment areas that span the uplands, lowlands, and coastal/marine ecosystems. Political-administrative units cover landscapes so that they, in particular, will benefit from this broader and integrated analytical approach for making better decisions.

These concepts were embodied in the BRP's vision, mission and goals (Boxes 2 and 3) and have well been reiterated in the various stages and levels of BRP implementation.

BOX 2. BRP's vision and mission

VISION

Economically and culturally prosperous communities living harmoniously in a sustainable environment, where biodiversity conservation is founded on an integrative and participatory research model.

MISSION

The Biodiversity Research Programme for Development in Mindanao is committed to undertake and promote collaborative, participatory, and interdisciplinary research that will promote sustainable use of biological resources, and effective decision-making on biodiversity conservation to improve livelihood and cultural opportunities.

BOX 3. BRP's goals

Specifically, the BRP's goals are four-fold:

1) To generate research results that provide fundamental understanding of biodiversity and its interaction with human systems;

2) To generate and disseminate biodiversity research results and processes;

3) To strengthen the capacity of both human and institutional resources for planning, conducting, and managing biodiversity research at all levels;

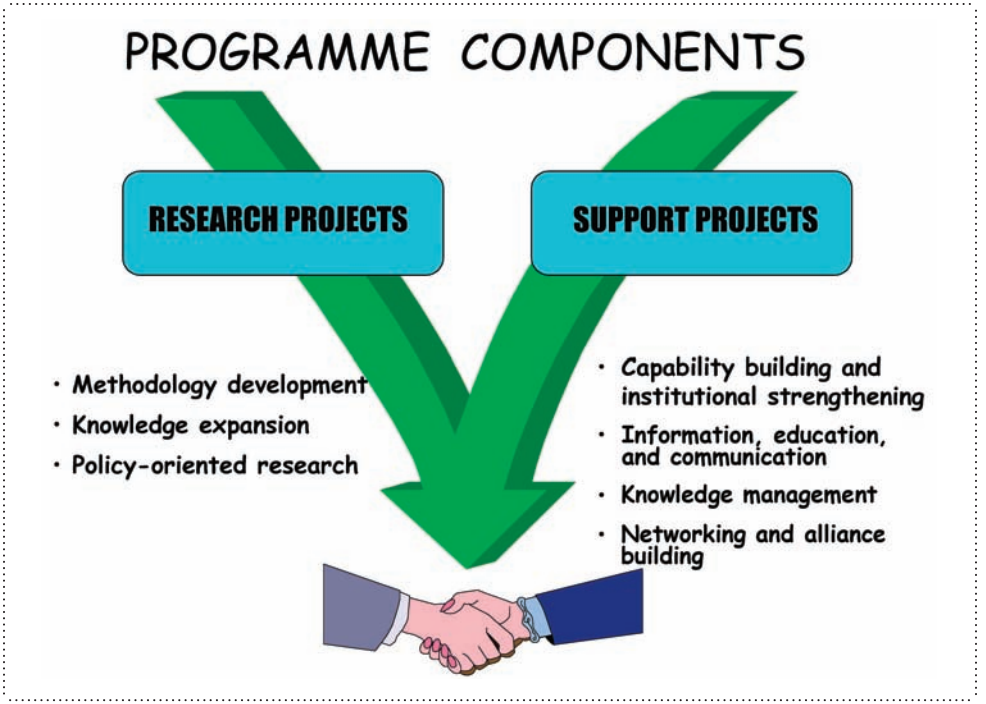
4) To promote balanced and genuine partnership for biodiversity research among Filipino and Dutch researchers and local communities.

Such a participatory process, though relinquishing the more classical and traditional notion of ordinary research, is supported by systematic research development and capacity enhancement activities that enable learner-researchers to recover their experiences so that they can reflect upon, understand, and improve these experiences.

Component Activities of the Programme

According to Kirshner and associates (1997), what researchers need are learning experiences composed of a knowledge component and a task performance or skills development component. In the BRP, these are represented by the research programme and the support programme components (Figure 3). The research projects are defined by a set of research themes that link the research questions to real problems and opportunities in the communities and ecosystems in the research site, that is, Mt. Malindang.

The support programme, on the other hand, is a set of organized activities that provides systematic support for the cross-cutting needs of the defined research activities. Essentially, the support programme boosts the relevance of the research programme.



SOURCE: Saguiguit et al. 2003

Figure 3. Program components of the BRP

Programme Partners

Local Partners

During the initial stages of the BRP, eight Mindanao academic and research institutions were identified as partners.

The number of partner institutions from Mindanao increased to 14 (Box 4) during the 'second generation' research phase, after the programme issued an invitation for other institutions to participate (BRP Annual Report Year 2002-2003).

BOX 4. Mindanao-based institutions involved in the BRP

1. Mindanao State University (MSU) - Marawi
2. Mindanao State University (MSU) - Iligan Institute of Technology
3. Mindanao State University (MSU) - Naawan
4. Central Mindanao University (CMU)
5. Mindanao Polytechnic State College (MPSC)
6. Davao Oriental State College of Science and Technology (DOSCST)
7. Southern Philippines Agribusiness Marine and Aquatic School of Technology (SPAMAST)
8. Research Institute for Mindanao Culture (RIMCU)
9. Bukidnon State College (BSC)
10. Sultan Kudarat Polytechnic State College (SKPSC)
11. Northern Mindanao State Institute of Science and Technology (NORMISIST)
12. Misamis University (MU)
13. University of Southeastern Philippines (USP)
14. University of the Philippines (UP) - Mindanao

The Dutch Partners

Realizing the need and agreeing to collaborate and link was the initial step to genuine collaborative research undertaking between the Dutch and Filipino researchers. However, putting into action the partnership or collaboration was another matter.

In a Memorandum of Agreement signed between the SEAMEO SEARCA and ETC Eco-culture, an independent private organization which was the base of the Support and Liaison Office (SLO), the following key characteristics were identified for the Philippines-Netherlands collaboration and partnership (MOA No. 030-02):

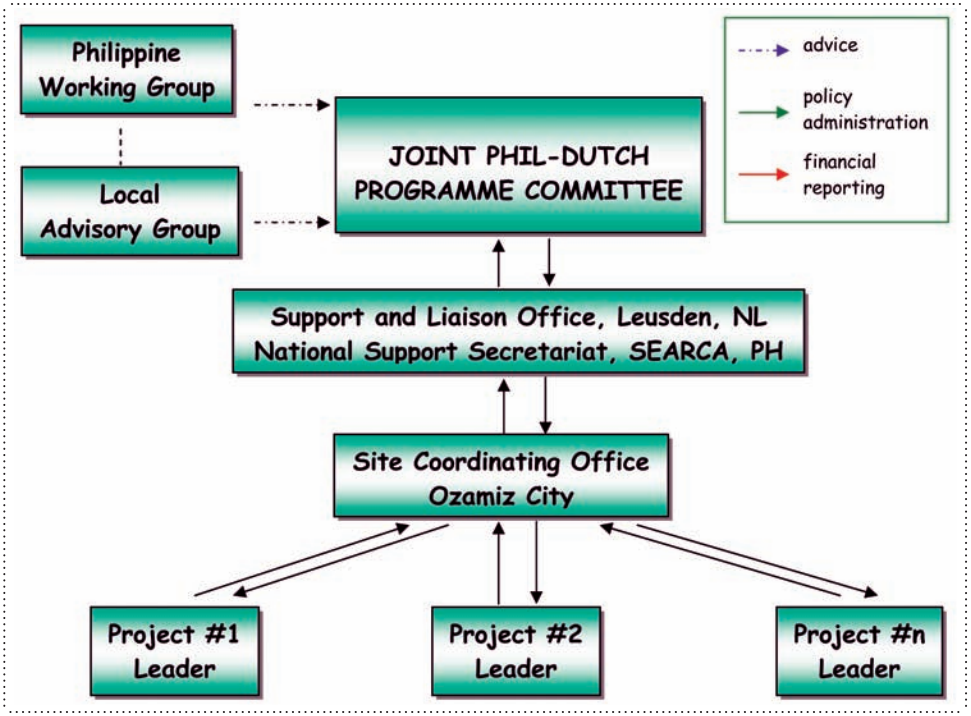
- Developing countries draw up their own national research agenda following priorities in the selected policy area. In the Philippines, this is biodiversity conservation;
- Dutch research capacity is mobilized based on concrete needs;
- Research activities are accompanied by support activities in human resource development, networking and institutional development; and
- All key partners in programme management are actively involved.

The Dutch partners of the BRP included:

1. International Institute for Infrastructural Hydraulic and Environmental Engineering (IHE-Delft)
2. Wageningen University and Research Centre (WURC)
3. ALTERRA-Greenworld Research Institute
4. Netherlands National Museum of Natural History (NATURALIS)
5. National Herbarium of the Netherlands (NHN)-Leiden Branch
6. Centre of Environmental Science-Leiden University
7. FMD Consultants
8. ETC Foundation

Management Structure

The BRP's management set-up lends itself well to partnership and participation as shown in Figure 4.



Source: RAWOO and SEARCA 2000

Figure 4. BRP's organizational chart

The Joint Programme Committee (JPC)

The highest policy and decision-making body was the Joint Programme Committee (JPC) which formulated and approved general policies and guidelines for the BRP. It also reviewed and approved proposals submitted by the researchers for funding under the BRP, ensuring that the proposals are along the programme's goals, strategies, themes, and needs (RAWOO and SEARCA 2000).

The JPC served as a collegial body where decision-making was a shared responsibility among representatives from the Philippines and the Netherlands, although in practice, much weight was given to the views of the Philippine members because of their familiarity with the local context and issues.

The Local Advisory Group

The JPC was of the opinion that research for development needs the active involvement of local stakeholders and policy implementers. Thus, the Local Advisory Group (LAG) was formed to provide linkages with the LGUs, institutions and other stakeholders. Likewise, it served as the advisory body to the JPC on how the BRP can operate more effectively with strong participation from and clear coordination with local stakeholders. The LAG was composed of representatives from the LGUs of the eight municipalities and one city covering the Mt. Malindang range.

On 21 August 2003, the LAG was formally organized to serve as BRP's direct link to the local stakeholders. It was to ensure that the BRP's focus and outputs were well connected to local policy. The LAG was expected to 1) provide the direct entry points to local policy making bodies in agriculture, environment, and other concerns in the Mt. Malindang environs; 2) provide the lead in defining the needs of the stakeholders and how these needs can be addressed through research activities; 3) assess the problems and needs of the local stakeholders and translate these into priority areas for research; and 4) identify support activities that will further make research results relevant to the lives of the local stakeholders.

The municipal mayor of Lopez Jaena, Misamis Occidental, who was also the president of the League of Municipal Mayors of the province, was designated Chair of the LAG, with the Director of CARE-AWESOME representing all other NGOs and project implementers in Mt. Malindang as Vice-Chair. Other members included the Protected Area Superintendent of the DENR-Region X, who also serves as permanent secretary of PAMB (which is composed of government line agencies and other stakeholders in the MMRNP), and the Administrative Officer of the National Commission on Indigenous People (NCIP) representing the Subanen indigenous peoples.

The Philippine Working Group (PWG)

The formation of the PWG was initiated by then SEARCA Director, Dr. Percy E. Sajise, as a result of the follow-up visit of the mission team way back in 1997. The PWG was tasked to guide programme formulation and decide on the operational policies during the initial phases of the BRP. In 2003, the PWG was revitalized in a meeting held in Tomas Morato in Quezon City, Philippines where members

were reoriented on their roles and updated on the status and progress of the BRP. Suggestions to support activities of the different research projects were also solicited from members.

In a meeting held in 30 January 2004, the PWG's role to serve as advisory body to the JPC was emphasized. As advisory body, the PWG was expected to contribute to strengthening the national perspective, and the larger role of the BRP in biodiversity conservation programmes. The PWG also provided resource persons for technical assistance to BRP researchers. Further, they served as facilitators in BRP workshops and other activities.

The Netherlands-Based Support and Liaison Office (SLO)

The SLO hosted by ETC-Ecoculture Foundation based in Leusden, the Netherlands provided logistical support particularly to researchers and institutions based in the Netherlands. The SLO worked closely with the National Support Secretariat (NSS) in the Philippines for information exchange and coordination to facilitate cooperation between the researchers and the institutions of the two countries.

The SLO was the response to a recommendation to establish and operationalize a Netherlands-based BRP office. The SLO was believed to be better equipped and oriented in the procedural aspects involving Dutch partner researchers and institutions such as in identifying and obtaining release time, and in negotiating compensation packages.

In a MOA signed between the SEAMEO SEARCA and the ETC-Ecoculture Foundation, the following activities of the SLO were specifically identified:

- Support the members of the JPC, particularly the Dutch members with their work in communication, planning, and logistics;
- Organize meetings in the Netherlands for the JPC;
- Provide information to Dutch researchers and institutions about the partnership program, its mission, scope, methodology, strategy and activities; and to provide the Southern participants information about Dutch research programs, researchers, and research institutions;
- Support participants in creating and sustaining contacts and networks with Dutch researchers and institutions;
- Support the NSS, if and when requested, in implementing their tasks.

Under such agreement, the SLO and SEARCA agreed that the former would manage the Dutch activities and subsequent finances in the Netherlands. The SLO took over the role previously played by the RAWOO during the PIP.

The National Support Secretariat (NSS)

The NSS served as support to the JPC in putting into operational terms the policies and general directions made, and provided secretariat support for meetings of the committee (RAWOO and SEARCA 2000).

The role of the NSS was national in scope. It served as 1) clearinghouse and liaison office for tapping and directing national and other regional experts for the BRP; and 2) it linked with and disseminated relevant information to programmes and agencies in other areas in the Philippines.

The NSS was headed by the then RDD Manager (BRP was a project under SEARCA RDD), who has meanwhile moved up as the Deputy Director for Administration. The NSS head was designated by the SEARCA Director as his permanent alternate to represent SEARCA in the JPC as executing agency.

The RDD Projects Coordinator assisted in the financial management of the BRP. An M&E Specialist served as the Mindanao Liaison while the Programme Management Office (PMO) was being established and other BRP staff were being mobilized. Later in 2002, the M&E Specialist served as the NSS Coordinator, when the PMO was reorganized into the Site Coordinating Office (SCO).

The Site Coordinating Office (SCO)

The SCO (formerly called the Programme Management Office or PMO) served as the on-site implementing office of the BRP. It had a Coordinator who was expected to perform the roles of networking and alliance building, particularly with LGUs, within the jurisdiction of the research site, to ensure their active participation in programme activities.

A programme manager on site was appointed effective February 2001. An administrative specialist and an information specialist were subsequently hired for the PMO on site.

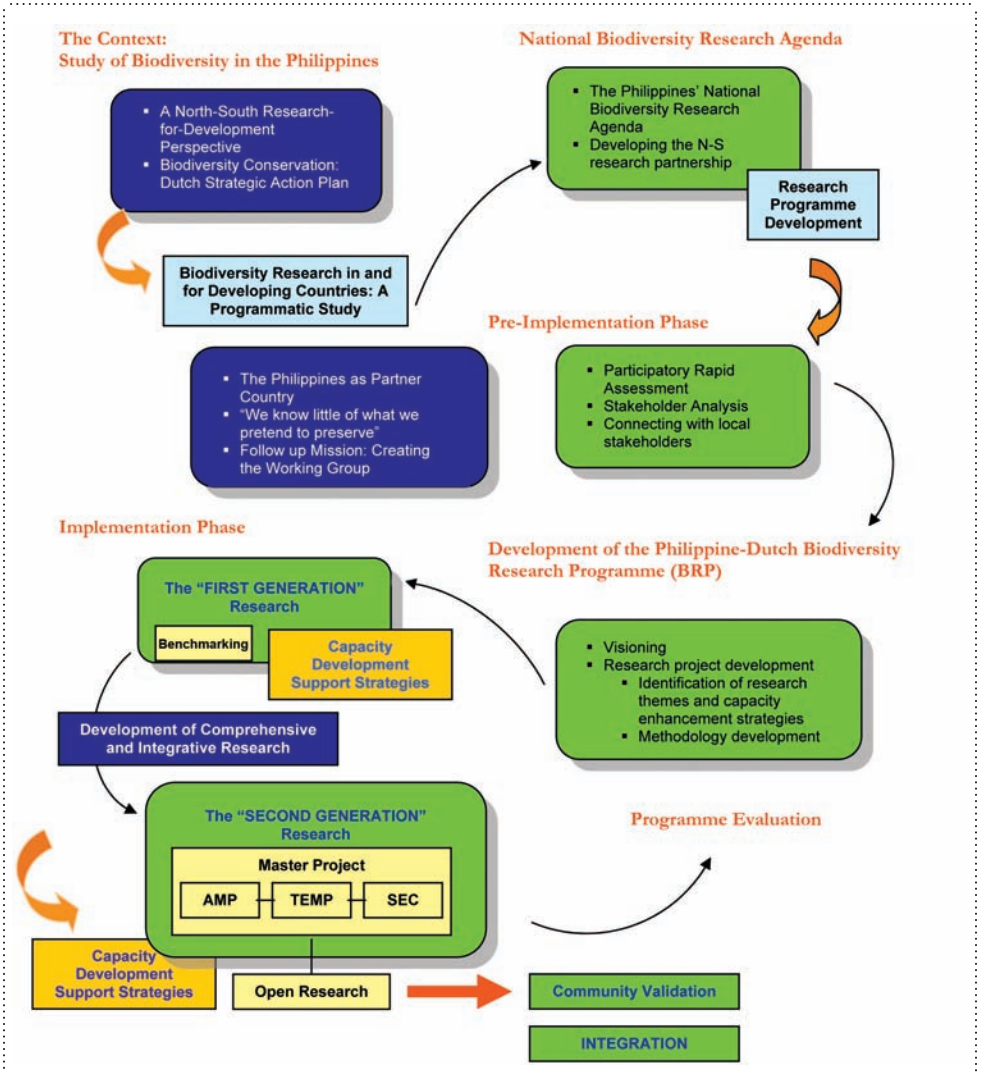


Figure 5. The processual sequence of events in the BRP[2]

[2] Designed by Calalo, FC (2004) based on the sequence of events and activities in the BRP

Knowledge Development: the 'First Generation' Research

Call for Project Proposals

Formal invitation to participate in the conceptualization of a proposal for the BRP were sent out to academic institutions in Mindanao during the first year of implementation. The invitation packet included a) suggested format for preparing the proposal; b) guidelines for applying for research project grants; and c) general guidelines for preparing detailed project cost. The academic institutions were advised to submit proposals that would conform with the BRP's goals and objectives as well as research themes.

Earlier, on 19-24 June 2000, the First Joint Programme Committee (JPC) meeting was held at the Dusit Hotel in Makati City, back–to–back with the conduct of the Programme Management Design Consultative Workshop. The Dusit workshop was attended by Mindanao-based researchers and heads of the different institutions, including a representative from the LGU, specifically the President of the Mayors' League of Misamis Occidental who had been involved in the BRP since its inception. A major output of the twin event was the agreement among the participants concerning the submission of project proposals. These included:

In terms of process, the conduct of the 'first generation' research (so-called because of their basic nature of benchmarking) was characterized by a series of consultations, meetings, and workshops to ensure that research studies are according to the needs and opportunities in the communities where the studies were [to be] conducted. Moreover, the research projects were anchored on BRP's research priorities that dealt with the identification of knowledge gaps, capacity gaps, and processes for capacity building (BRP Progress Report 2001).

1. The identification of research priorities for years 1 and 2 shall include knowledge gaps, capacity gaps, and processes for capacity building.
2. The criteria for selection/approval of research proposals shall include:
    a. institutional capacity to conduct the proposal research in terms of expertise available;
    b. innovativeness of the proposed research methodology;
    c. contribution of the proposed research activity to a better understanding of the landscape or research area;
    d. responsiveness to urgency or felt community need (related to biodiversity conservation) for policy or action; and
    e. built-in strategy or methodology for building acceptance and trust by the community of the project and the researchers.
3. The format of research proposals shall follow more or less the standard format of the DOST, to include a rationale explaining how the proposed activity fits in the BRP strategic and operational criteria.
4. The provision of a minimal planning grant shall be provided for the preparation of a full-blown proposal if accepted after the first screening.

5. The general guidelines (for administrative, technical, and financial aspects) shall be identified for programme implementation to be included in the BRP Operations/Procedural Manual.

Proposal Development

In mid-August 2000, the NSS received a total of 46 capsule proposals from the different Mindanao–based institutions. These proposals were reviewed and evaluated by an external group of experts. The results, however, revealed the following comments:

1. The proposals did not reflect the community's needs;
2. The methodologies did not include the innovative and participatory nature of the research activity;
3. The proposals needed improvement in their conceptualization;
4. The proposals needed to reduce the budgetary requirements;
5. The lead proponent for each proposal needed to be identified; and
6. There was a need for researchers to remember the BRP's uniqueness in terms of the landscape approach, knowledge generation, policy orientation, participatory approach, and innovativeness.

Based on the assessments, the proponents were invited to a capability-building workshop from 17-19 November 2000 at the Oakwood Premier Ayala Center in Makati City. The objectives of the workshop were as follows:

1. To integrate overlapping concept proposals and fit them into the overall BRP research framework;
2. To finalize the integrated proposals into full-blown roposals with their corresponding indicative budget, as well as the identified lead proponents; and
3. To prepare the researchers for social entry into the community.

Refinement of Proposals

Researcher-proponents were given until 31 December 2000 to submit their research proposals including budgetary requirements. Likewise, it was agreed that full–blown proposals were to be submitted by 31 January 2001. As agreed, all proponents were granted a minimum allocation of USD400 (PhP20,000.00) to cover all expenses they incurred in community validation and other activities required in the development of the proposals.

By the end of January 2001, the NSS received 11 integrated proposals from 10 lead researchers from six academic institutions.[3] On 26 February 2001, a preliminary review by an external group of experts was held at SEARCA to endorse the proposals to the JPC for final approval.

Review and Final Actions on the Proposals

The meeting and review workshop held on 19–23 March 2001 at the Tatong's Beach Resort in Oroquieta City was the JPC's first meeting for the year. The purpose of the meeting was to review the comments and suggestions of the External Review Committee on the research proposals, and at the same time to give the proponents an opportunity to defend their proposals before the final action of the JPC.

Of the 11 proposals reviewed, two proposals did not satisfy the research criteria and were rejected. Two were outrightly approved for implementation effective June 2001, namely:

1. **Participatory Biodiversity Assessment in the Coastal Areas of Northern Mt. Malindang**
   Proponent: Dr. Della Grace Bacaltos of SPAMAST
2. **Comprehensive Assessment of Policies Affecting Biodiversity in Mt. Malindang and Its Environs**
   Proponent: Dr. Olivia Canencia of MPSC

[3] These included MSU–Marawi, MSU–Iligan Institute of Technology, CMU, SPAMAST, DOSCST, and MPSC. These institutions eventually became BRP's pioneer partner institutions.

The other proposals were returned to the proponents for revision and resubmission. Three revised proposals were approved and implemented in 2001, namely:

3. **Biodiversity Assessment of Arthropods in Upland Vegetable Growing Areas in Mt. Malindang**
   Proponent: Dr. Emma Sabado, MSU-Marawi
4. **Development of Participatory Methodologies for Inventory and Assessment of Floral Resources and Their Characterization in the Montane Forest of Mt. Malindang**
   Proponent: Dr. Jose Arances, CMU
5. **Development of Delivery Systems for Biodiversity Conservation and Research in Mt. Malindang**
   Proponent: Dr. Emmanuel Lariosa, CMU

Contracting/Signing of Research Grant Agreements

Although their researches were already approved for implementation, the lead researchers were still required to address certain comments and suggestions by the JPC members, foremost of which concerned the involvement of Dutch scientists and researchers. This was to ensure the BRP's goal of promoting balanced and genuine partnership among the Filipino and Dutch scientists in biodiversity research. Thereafter, a research grant agreement (RGA) was prepared for each of the research teams highlighting the terms and conditions for conducting research under the BRP as well as the responsibilities of each team. However, the RGAs were not signed until after July 2001.

Towards the end of 2001, two more proposals were reviewed and subsequently approved for implementation, namely:

1. **Participatory Biodiversity Inventory and Assessment of Lake Duminagat**
   Proponent: Dr. Carmelita Hansel, MSU-Marawi
2. **Community-based Inventory and Assessment of Riverine and Riparian Ecosystems in the Northern Part of Mt. Malindang**
   Proponent: Dr. Proserpina Gomez, MSU-Naawan

As a result of the participation and involvement of Dr. Gomez of MSU–Naawan, and her co–researcher, Dr. Linda Burton, Director of the Research Institute for Mindanao Culture (RIMCU) in the riverine/riparian study, an addendum Memorandum of Understanding was formally signed on 22 January 2002.

Entry Protocols

Observing protocols as well as organizing and holding meetings/consultations in the project sites were among the activities that were conducted by all research teams during the start-up of the research. These initial activities involving different stakeholders were underpinned by the fundamental principles of the BRP, that is, participatory, multi-sectoral, development-oriented and needs-based.

Specifically, the protocols were meant to bring together key actors in order that local researchers may be identified, data obtained from the PRA initiated in 1999 may be reviewed and expanded, and issues and development concerns may be forwarded and subsequently addressed. It was also meant to mobilize multi−level political support and to obtain commitment to pursue the programme's vision.

In general terms, the research teams observed protocols and conducted meetings to:

- inform the different stakeholders about the biodiversity research projects, including goals, strategies and procedures;
- demonstrate and formalize an effective participatory mechanism which allows stakeholders and the BRP to collectively assess the community's needs, set priorities, and conduct research to improve and develop biodiversity conservation.

Community Validation

In preparation for actual field implementation of the research and to ensure that objective data were gathered or reported through the PRA, almost all research teams checked out the data through validation workshops with the community residents and key informants as well as representatives/officials of the LGU, NGOs, POs and indigenous people. Community validation in the form of workshops was held in as participatory a manner as possible. The workshops served as venues for the research team and the community to identify issues and problems that needed to be addressed and to suggest potential areas for research and development.

In other research sites, community validation became an opportune occasion for participatory decision-making in selection of research site; identification of possible or feasible indigenous approach to research based on the local people's knowledge of the landscape; and identification or selection of local researchers. In another research site, three validation workshops were staged. The first level of validation was done to present the assessment output to the community. The second level was conducted to make important stakeholders like the mayors and municipal-based research allies knowledgeable about the issues and problems of the program. The third level was done with the Sangguniang Panlalawigan,

the Executive Office, and the province-based research allies. This validation was organized to consult multi-sectors and to network with local agencies that can be potential partners in the BRP in the future.

Meetings/Assemblies Conducted

To mobilize the various stakeholders for participatory biodiversity research program, the research teams, on various instances, met with the LGU officials and other relevant stakeholders. Meetings were held either for orientation about the BRP, assessment of existing policies affecting biodiversity in Mt. Malindang, nomination and selection of research participants (local researchers), securing of free and prior informed consent (FPIC) from indigenous people (NCIP), identification of the most appropriate procedure to inform the community about the project, and validation of data or promotion of awareness among communities about their biodiversity status.

Consistent with the principle of participatory development, the researchers tried their best to involve and let local researchers take charge of the meetings. As one report puts it: "The meeting was designed such that the local researchers who were invited to the workshop would do the presentation and facilitate

the open forum". The whole team was at the background ready to support the local researchers and to provide further explanations, if necessary. During the presentation, the local researchers emphasized some issues that arose from the findings and led the community to resolve these issues and to come up with doable suggestions and recommendations towards the conservation of biodiversity in the Langaran River. Agreements related to preserving the river and the riparian were verbally forged by the members of the community.

Training Local Researchers

The lead researchers were aware that the local researchers had no knowledge and skills in handling or conducting the type of research they were asked to participate in. Thus, they developed training modules/packages for the local researchers. The contents of these training packages varied for different research sites depending on the skills required of the local partners and the research methods to be employed by the team. The educational background and experience of the local researchers were taken into account in the choice of the trainings conducted. Invariably, in all research teams, the specific topics for training activities were all 'how-to's such as participatory resource assessment techniques, questionnaire construction, interviewing, conduct of surveys, limnological research techniques, and focus group discussion, among others.

Implementation of Research Projects

During the second year of the BRP, the research projects approved for implementation were vigorously pursued. As indicated elsewhere in this report, research projects in various sites began in different months in 2001 depending on when a particular project was approved. More than half of the research teams have completed field data collection by the end of June 2002. However, only one team was able to submit a draft final report to the NSS for external review.

Of the total seven 'first generation' research projects, three research projects were supposed to end in June 2002, one in August 2002, one in September 2002, and two in December 2002. However, all research projects became 'hold-over projects' for the third year of BRP implementation owing to some tasks that still needed to be carried out. Subsequently, all lead researchers requested for project extension which the JPC approved. Hence, at the project level, the first and second quarters of the third year were devoted to either the continuation or the accomplishment of unfinished activities for each research project.

Field Monitoring and Evaluation

Mindanao-based researchers regularly consulted with either the NSS or the members of the PWG who served as resource person/s. On 16-20 February 2001, immediately after the field scanning activity, a midstream evaluation workshop participated in by the Mindanao-based researchers was held in Oroquieta City. The PWG served as resource persons while the JPC facilitated the activity. The objective of the workshop was to develop future plans of all research projects in terms of identifying gaps for future research and potential NGO partners and students who could pursue research/thesis along the themes of BRP.

During the workshop, all lead researchers reported on the progress of their individual team's research. These reports included the study's initial results, the problems/issues encountered in the conduct of the research, and the gaps that have to be filled up to understand the landscape and to answer the BRP framework.

Each team was asked to identify gaps – within their own individual projects and across the different projects within the landscape – that can be pursued either 1) as a project expansion (one that includes gaps that have been identified); 2) as a project extension (one that finishes what has been started); or 3) as a new project (one that is based on 'second generation' research themes identified from field scanning and on-going projects).

Participants agreed that the following concerns at both programme and project levels of implementation have to be addressed:

a) Support needs to complete and/or complement each activity;
b) Focus on good science and robust results;
c) Additional manpower and expertise;
d) Benefits that the community stakeholders will derive from the research activities;
e) Involvement of other institutions such as research institutions, LGUs, NGOs, etc.; and
f) Improvement of the participatory aspect of the research.

Status of Research Projects at End of Project Term

When project extension concluded, the research team on floral resources was able to submit its final report, which was approved and accepted by the JPC. It was decided that the report shall be published as part of the BRP monograph series. Also, as a final output, the research team would produce a catalogue of economically important plant species found in Mt. Malindang for wider circulation among the different stakeholders.

When the final report of the project on the assessment of coastal resources was submitted, its co-author was requested to write a more analytical technical report as a supplement to the final project report. The research team was also advised to publish the sections on community validation and research process, including the technical aspects on corals. The studies on mangrove and seaweed or seagrass had to be improved.

The report of the research team on selected arthropods in cabbage-growing areas, on the other hand, was approved and accepted by the JPC. Further, it was found amenable for publication under the BRP monograph series.

Three subject matter specialists (in anthropology, sociology, and aquatic biology) were commissioned to review the draft report of the research on Lake Duminagat. Owing to its large scope, seven subject matter specialists—two aquatic biologists, a soil science expert, a botanist, an anthropologist and a wildlife specialist—were asked to review the draft technical report on the riverine and riparian ecosystems. When the final technical report was revised based on the specialists' comments and submitted to the JPC, the research teams were advised to present an executive summary as an integrating section.

Two research projects were not able to deliver what was expected of them: the policy research for failing to meet the criteria of the JPC for scientific quality; and the development of delivery systems which lagged behind its implementation schedule. The report of the former was not accepted; the latter project was terminated effective end of October 2002.

Knowledge Development: the 'Second Generation' Research

The major process element in this stage of the BRP was the adoption of the master projects which were seen as a proactive move to ensure that the landscape approach and the close integration of the social and the biophysical aspects of biodiversity were fully addressed.

The Need for Integration

It was during the Third Joint Programme Committee (JPC) meeting held in 16-23 April 2002 in Wageningen, The Netherlands, that the need for a set of studies that would be more comprehensive and integrative in nature was discussed. It was recognized then that the 'first generation' researches have not been able to fully address the biodiversity issues and concerns in the selected research sites

[4] During the meeting of the LAG held on 24 March 2004 at Oroquieta City, the issue on the integration process was presented. The primary concern of the LAG was the rate at which research results were supposed to be disseminated to the partner communities and other relevant stakeholders. The concern was aggravated by the fact that, according to the LAG, research results take time before they are translated into tangible actions for biodiversity conservation, hence the danger that communities may lose interest to pursue such efforts. The LAG believed that the local communities must be informed immediately of significant results from the studies being made if BRP wanted to be truly responsive to the needs of the communities. Other concerns discussed during the meeting were on obtaining the Free and Prior Informed Consent (FPIC) which was believed to be a long process.

along the Mt. Malindang landscape, particularly the issue of interconnectivity and interaction within and between ecosystems. It was evident then that the researches [being] pursued were fundamentally focused on producing baseline or benchmark data that would still need further study. It was further observed that not much concern was [being] given to the application of research findings to actual problems in Mt. Malindang, a concern that was actually raised by stakeholders particularly the LGUs.[4] Being purely descriptive, the researches generated inventory type of data that answered questions like "what are the facts?" and "what is out there?" Research that would truly reflect the multi-faceted principles of the BRP (that is, location-derived, promotes stakeholder participation, interdisciplinary) were wanting. These types of researches were to be collectively labeled later on as 'second generation' researches.

Call for proposals

The master programme was designed to ensure the application of the landscape approach that aimed to explain human-diversity interactions and their impact to biodiversity. In March 2002, the NSS called for concept proposals that would be considered as master projects. The master projects were intended to fill in the gaps in the geophysical landscapes (coastal, terrestrial, and riverine ecosystem) in terms of geomorphology (soils at the landscape level), biodiversity (plants, animals, soil organisms) and the socio-economic environment. These master projects looked at aspects of institutional analysis, participatory methodologies, and gender issues and concerns.

The key characteristic of the master programme was the way its research components have been identified and developed. Instead of each research study or support activity being developed in isolation its proponent/s, each had been the result of highly participatory sets of workshops among potential researchers and partners, working together, and iteratively comparing identified research questions and proposed methodologies. The purpose of this participatory process was two-fold (BRP Progress Report 2003):

- To assure complementation of the timing and location of study and sampling sites so that research results can easily be integrated to create inter-ecosystem or landscape understanding;
- To facilitate integration of disciplines particularly on cross-cutting concerns in the social-economic, cultural, and policy fields.

The master programme was also expected to promote participation from stakeholders.

Forming the Mindanao Research Consortium

Between July and August 2002, three consecutive workshop-meetings were held and facilitated by a Filipino member of the JPC. The first workshop meeting was held at CMU on 21-24 July 2002 to initially give the Mindanao-based researchers updates on the status and progress of the BRP researches. Most importantly,

the first workshop was a venue to present the concept of the master projects and thereby encourage the reseachers to develop studies that would exhibit the landscape characterization that the BRP wanted. The call was received with much enthusiasm by the researchers. The relevant output of the said workshop was the researchers' identification of gaps in the coastal, terrestrial, and riparian/riverine studies (Figure 6).

These gaps formed the bases for identifying potential research areas that would address the 'landscape' concern that would characterize the master projects. Results of the brainstorming session were reported during the plenary, after which an *Ad Hoc* team, with members selected based on certain criteria agreed upon by the researchers themselves, was created to conceptualize the study proposals. At the end of the workshop-meeting, initial outputs already contained a draft rationale, objectives, and methodology.

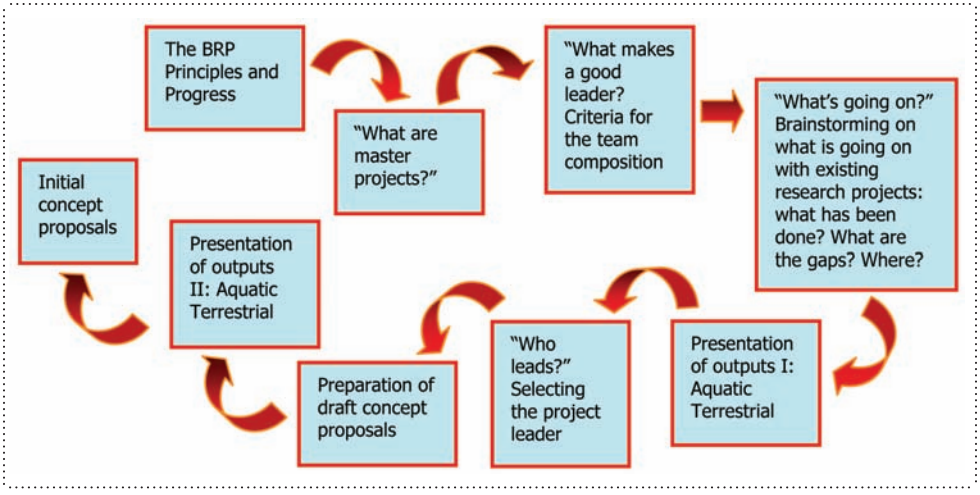


Figure 6. Process flow in the identification of researchable themes in the master programmes

One of the aspects discussed at length was the criteria for the selection of a project leader. The researchers felt that the success of a research project [would] greatly depend on a leader who would have the necessary work experience and technical capability, as well as the time, proper attitude, commitment, a sense of maturity, and managerial skills.

Likewise, it was agreed that research activities that would make up the master projects were to be developed following certain terms of reference (Box 5).

BOX 5. Terms of reference that guided the development of concept proposals

1) Spatial heterogeneity of the coastal and terrestrial ecosystems with respect to geomorphology, sediments, and vegetation.
2) Species richness of the coastal and terrestrial ecosystems with respect to flora, fauna, and soil organisms.
3) Sustainable livelihood alternatives already in the area, based on coastal/ terrestrial resources, characterized by the physical, economic, social, and political aspects.
4) Characterization of the flows of information, people, and materials across the Mt. Malindang landscape.

In the second workshop-meeting held at the MPSC on 11-13 August 2002, the concept proposals were developed into a more organized set of documents with the formulation of more defined rationale, objectives, and methodology. Small groups discussed and formulated the plan of action, including the budgetary estimates (Figure 7).

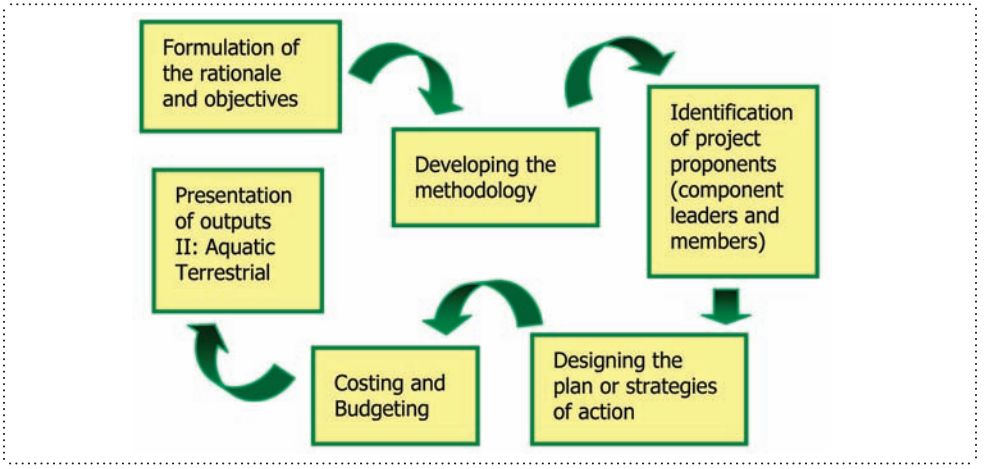


Figure 7. Process flow in the refinement of the concept proposals

In the third workshop-meeting held again at the CMU on 22-25August 2002, the major output was the final draft of proposals integrating the different components of the aquatic and terrestrial ecosystems. The proposals were later on reviewed by external experts and subsequently, approved/rejected by the JPC (Figure 8).

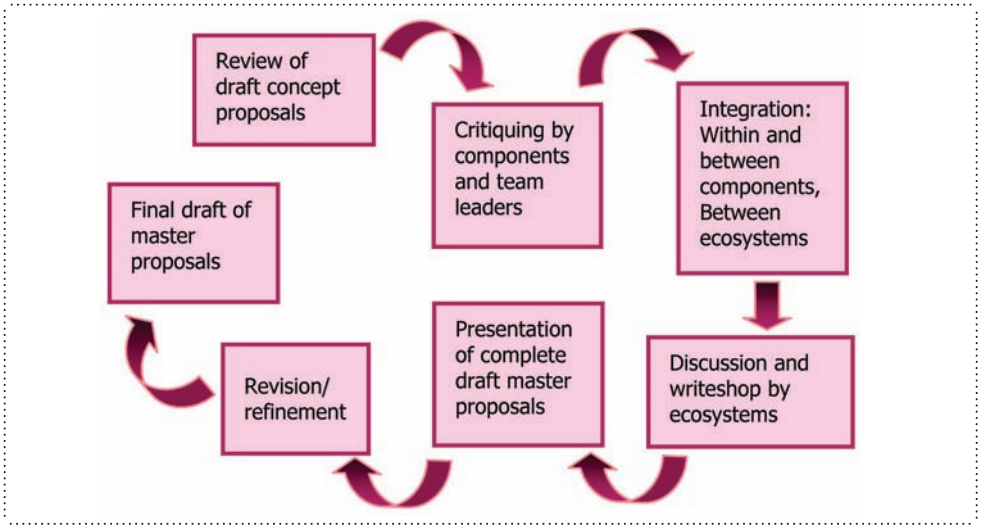


Figure 8. Process flow in the finalization of the concept proposals

At this stage, it was emphasized that the socio-economic and cultural aspects of research on biodiversity conservation was [to be] integrated into the development of the master projects. Therefore, both the terrestrial and aquatic master project proposals contained socio-economic and cultural issues and concerns that research teams needed to address as significantly as the other more technical aspects.

Invitation to Participate

The Letters of Intent (LOI)

The NSS Coordinator visited 11 Mindanao academic institutions[5] in December 2002 to invite faculty and researchers who may have an interest in participatory biodiversity research. To better appreciate the context of the master projects, the faculty and researchers were first orientated about the BRP, specifically its

[5] USeP, UP Mindanao, SPAMAST, DOSCST, Misamis University, MSU-Naawan, MSU-IIT, SNCAT, NORMISIST, BSC, and CMU

objectives, programme components, research activities, management structure, and other unique features. After the orientation, the concept of the master projects was introduced including the mechanics for participating in the research activity, the criteria for selecting partner researchers and institutions, and the timeline for the implementing the proposed master projects.

Through Letters of Intent (LOI), researchers from 14 of academic institutions around Mindanao signified their interest to participate in the implementation of the master research projects. Researchers were selected based on their expertise/specialization, availability, equity or institutional balance, implications of the official University designation to actual research implementation, field experience, ability to work in an inter-multidisciplinary team, and willingness to work in a participatory way.

Under the master project, potential partners (Filipino and Dutch) were also identified and invited to be part of the team. These potential partners also earlier signified their intent to participate in any one of the studies and sub-studies identified.

Expertise Matching

A committee composed of five Mindanao-based researchers[6] selected by the researchers themselves and confirmed by the JPC was tasked to review the LOIs submitted by researchers from all over Mindanao to match the expertise available with what was required for the implementation of the research projects and support activities. The review was done during two meetings held in Iligan City: one in late December 2002 and the other in early January 2003. Subsequent exchanges ensued among the members through electronic mail.

From Concepts to Integrated Master Projects

Finalizing the Integrated Master Projects

The process of arriving at the master projects that represented the major agro-ecological zones/areas of research of the Mt. Malindang landscape was, in itself, a complex process. It required scientists from different disciplines to work across traditional boundaries and interests to develop a mutually acceptable perspective

[6] Dr. J.B. Arances (CMU), Dr. P. Roxas (MSU-Naawan), Dr. O. Nuñeza (MSU-IIT), Dr. C. Hansel (MSU-Marawi), and Ms. A.L. Gomez (UP Mindanao)

of a research agenda that appropriately addresses biodiversity issues and problems of the research area (BRP Annual Progress Report 2003).

Prior to the approval of the concept proposals by the JPC, a follow-up workshop was held in November 2002 at the SEARCA Headquarters in Los Baños, Laguna to finalize the studies into an integrated master project. The workshop brought together Filipino and Dutch researchers, with the JPC serving as facilitators and resource persons. The researchers were guided by a defined methodology (Box 6) in the development of the master projects.

BOX 6. Process of methodology development for the master projects

1) Review of the BRP as a "research for development" process.
2) Characterization and analysis of the physical, biological, socio-cultural, and economic landscape including an assessment of the boundaries of the landscape.
3) Identification and analysis of priority issues and urgent needs of local stakeholders in relation to development–cum-conservation objectives of the BRP in the selected Mt. Malindang landscape.
4) Identification and analysis of research questions that would address the priority issues and urgent needs in the community. (These became the bases for identifying the set of potential studies that would be relevant for the landscape. This process assured that studies identified were relevant to the local stakeholders rather than to the researchers.)
5) Identification/Selection of priority studies and their development into full proposals. (The proposals were categorized into two: a) terrestrial including montane forests, upland farms and the lowlands, b) aquatic to include the Langaran and Layawan Rivers as well as the coastal ecosystems. Complementation between studies was assured by getting the terrestrial and the aquatic groups to iteratively compare methodologies as these were developed.)
6) Treatment of the social, economic, cultural, and policy aspects as cross-cutting concerns. (These were later to be integrated into the terrestrial and aquatic aspects.)
7) Coming together of both Filipino and Dutch researchers to build a master programme.

Data and information in identifying priority issues and needs of the local stakeholders came from several sources: results from the 'first generation' research; analysis of satellite imageries and GIS maps; information from the PASu, and CARE-AWESOME.

Likewise, knowledge identified in answering the "how" questions established the set of potential and relevant landscape studies.

Finally, three concept proposals were drafted by the participating consortium researchers and submitted to the JPC:

- **Biodiversity Assessment Towards Comprehensive Characterization of the Aquatic Ecosystems in the Northeastern Mt. Malindang Through a Participatory Approach**,
  submitted by the Aquatic Group
  led by Dr. Proserpina Roxas of MSU-Naawan
- **Interactions and Interconnections of Biodiversity Resources Across Terrestrial Ecosystems in Mt. Malindang and Its Environs**,
  submitted by the Terrestrial Group
  led by Dr. Jose B. Arances of CMU
- **Socio-economic and Cultural Studies for the Aquatic and Terrestrial Environments in Mt. Malindang**,
  submitted by the Socio-Economic and Cultural Studies Group
  led by Dr. Alita T. Roxas of MSU-IIT

Operationalizing the Master Projects

In mid-February 2003, the BRP initiated an Operational Planning Workshop in Oroquieta City which was participated in by the Mindanao-based researchers; local stakeholders including representatives from the LGU, NGOs, and other government agencies; and members of the JPC and the PWG.

The first day of the workshop was devoted to the lecture on biodiversity research for development delivered by the Chair of the JPC who, in his lecture, emphasized the importance of the master projects. The second and third day were devoted to site visitations. The visits aimed to familiarize 'new' researchers to the project sites of the 'first generation' research, as well as to introduce the 'old' ones to possible sites that could be sampled for the 'second generation' research activities. The aquatic group visited coastal communities in Calamba, Plaridel, Lopez Jaena, and Oroquieta City, all in Misamis Occidental, while the terrestrial group visited three upland areas, namely, Mansawan, Gandawan, and Lake Duminagat.

The last day of the workshop was devoted to a 'writeshop' where the researchers worked on the refinement of the proposed research methodologies, including the identification of methodological gaps specifically on the manner by which to carry out entry protocols. Statistical sampling and design, data analysis, sampling site identification, and other matters pertaining to the statistical design of the research projects were likewise discussed.

A major output of the workshop was the identification of relevant support activities that would be pursued alongside the research activities. These included a methodology refinement workshop; training-workshops on statistical design and analysis, design and development of IEC materials, and GIS enhancement; workshop on how to prepare research reports; and guided visits/study tours, etc.

The workshop in Oroquieta City, henceforth, produced an initial revision of the proposed activities for the research teams. A decision was made to hold a follow-up workshop where the 'second generation' research activities would be finalized into an integrated master project.

Methodological Improvements

As agreed, a workshop to refine and improve the methodology of the master projects was conducted towards the end of March 2003. The workshop aimed to validate the appropriateness of the proposed statistical design and methodologies that will be used in the research activities; integrate the identified support activities into specific research methodologies that were developed; and identify specific project descriptions for actual implementation such as timetable for activities and budgetary estimates.

A major output of the workshop was the identification of a set of studies for each master project. The concept proposals drafted by the researchers included studies on 1) biodiversity assessment towards comprehensive characterization of the aquatic ecosystems in Northeastern Mt. Malindang through the participatory approach, and 2) interactions and interconnections of biodiversity resources across terrestrial ecosystems.

At this stage, a third study on the socio-economics, (socio-economic and cultural studies for the aquatic and terrestrial ecosystems) was considered a master project on its own.

Components of the Master Projects

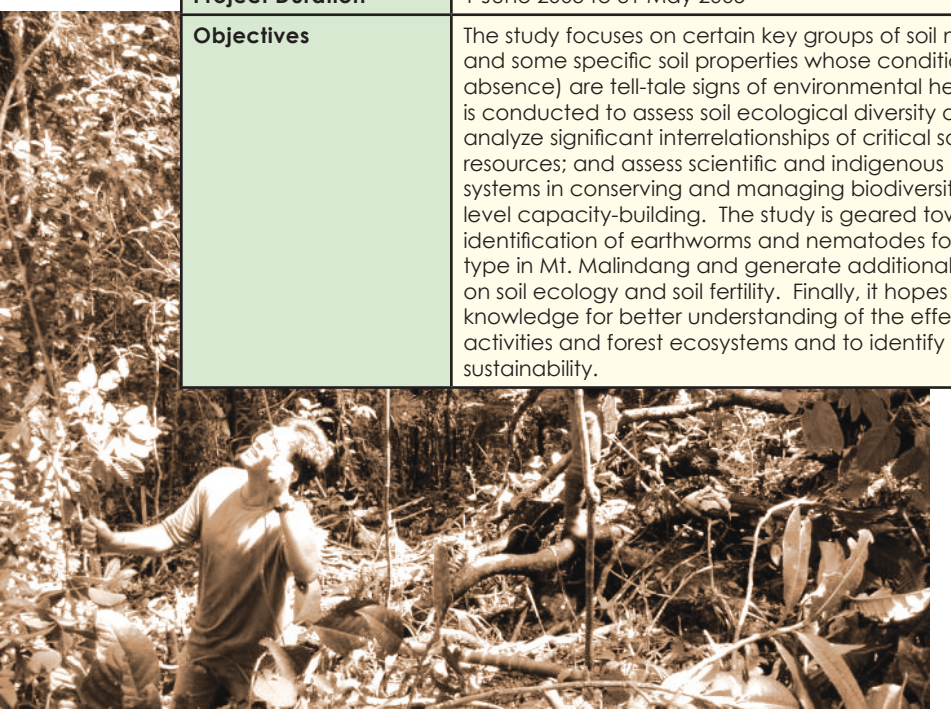
Essentially, the master project had three components, namely: the Terrestrial Ecosystem Master Project (TEMP), the Aquatic Ecosystem Master Project (AMP), and the Socio-economic and Cultural Studies (SEC) Master Project.

Under the terrestrial component were studies on flora, vertebrate, and invertebrate faunal, and soil ecological diversity and relevant interrelationships of critical resources in Mt. Malindang (Box 7).

The aquatic component, on the other hand, consisted of two sub-projects: one for the riverine/riparian ecosystem and the other for the coastal ecosystem (Box 8). The socio-economic component consisted of studies on policy, resource utilization, and indigenous knowledge (Box 9).

BOX 7. Terrestrial Ecosystem Master Project (TEMP)	
Project Title	Flora Diversity and Relevant Interrelationships of Critical Resources in Mt. Malindang
Lead Proponents	
Project Leader	Dr. J.B. ARANCES (CMU), For. E.C. ARANICO (MSU-IIT)
Study Leader	Dr. V.B. AMOROSO (CMU)
Project Cost (in USD)	64,413.00
Project Duration	1 June 2003 to 31 May 2005
Objectives	The study aims to come up with a more comprehensive information and knowledge of the flora landscape of Mt. Malindang, specifically its diversity. It aims to establish relevant interrelationships between the socio-economic-policy-cultural factors inherent in the research site and the existing plant species in the area. The study further hopes to generate sound, operational, acceptable and sustainable recommendations for monitoring, conservation, management and utilization of the critical flora resources in Mt. Malindang. Relevant and effective IEC materials that would enhance awareness, understanding and involvement of the local communities and other stakeholders shall be produced. The study hopes to organize committed network of stakeholders for a stronger and concerted effort of flora diversity conservation, management, and sustainable utilization.
Project Title	Vertebrate Faunal Diversity and Relevant Interrelationships of Critical Resources in Mt. Malindang
Lead Proponents	
Project Leader	Dr. J.B. ARANCES (CMU), For. E.C. ARANICO (MSU-IIT)
Study Leader	Dr. O.M. NUÑEZA (MSU-IIT)
Project Cost (in USD)	60,802.00
Project Duration	1 June 2003 to 31 May 2005
Objectives	The study is geared towards knowledge generation on vertebrate faunal resources in Mt. Malindang through a participatory approach so that better understanding of faunal resources diversity in the area can lead to a shared and better management of these resources. These faunal resources include the endemic, economically important, threatened, and abundant faunal species. The interactions of the different factors that affect and influence the faunal resources in Mt. Malindang will also be analyzed. The knowledge gained from these actions is hoped to enhance the local communities' efforts in biodiversity conservation, with those of other stakeholders.

BOX 7. Terrestrial Ecosystem Master Project (TEMP)	
Project Title	Invertebrate Faunal Diversity and Relevant Interrelationships of Critical Resources in Mt. Malindang
Lead Proponents	
Project Leader	Dr. J.B. ARANCES (CMU), For. E.C. ARANICO (MSU-IIT)
Study Leader	Dr. M.G. BALLENTES (CMU)
Project Cost (in USD)	25,087.00
Project Duration	1 June 2003 to 31 May 2005
Objectives	The study aims to assess the invertebrate faunal resource diversity and distribution in the area for better understanding of the landscape and appropriate management of critical resources. It further aims to analyze significant interrelationships of invertebrate fauna with other critical resources within the research area. Finally, it aims to formulate recommendations and strategies for increasing awareness on conservation and management of biological diversity.
Project Title	Soil Ecological Diversity and Relevant Interrelationships of Critical Resources in Mt. Malindang
Lead Proponents	
Project Leader	Dr. J.B. ARANCES (CMU), For. E.C. ARANICO (MSU-IIT)
Study Leader	Dr. R.D. BONIAO (MSU-Naawan)
Project Cost (in USD)	43,715.00
Project Duration	1 June 2003 to 31 May 2005
Objectives	The study focuses on certain key groups of soil microorganisms and some specific soil properties whose conditions (presence or absence) are tell-tale signs of environmental health. The study is conducted to assess soil ecological diversity and availability; analyze significant interrelationships of critical soil ecological resources; and assess scientific and indigenous knowledge systems in conserving and managing biodiversity for community-level capacity-building. The study is geared towards the identification of earthworms and nematodes for each land use type in Mt. Malindang and generate additional information on soil ecology and soil fertility. Finally, it hopes to generate knowledge for better understanding of the effects of human activities and forest ecosystems and to identify indicators for sustainability.



BOX 8. Aquatic Ecosystem Master Project (AMP)	
Project Title	Comparative Assessment of the Langaran and Layawan Rivers
Lead Proponents	
Project Leader	Dr. P.G. ROXAS (MSU-Naawan), Dr. D.G.G. BACALTOS (SPAMAST)
Study Leader	Ms. A.M. GOROSPE (MSU-Marawi)
Project Cost (in USD)	55,438.00
Project Duration	1 June 2003 to 31 May 2005
Objectives	The two rivers will be compared in terms of the general categories: biological, physico-chemical and socio-economic. The water quality and quantity will be assessed in order to establish benchmarks and generate information that will be useful for the development or protocols for basic monitoring systems and environmental management. It also aims to relate the prevalent land use patterns to water quality. Further, it will assess the state of biodiversity, and the livelihood activities in the area that would be useful in developing policies for regulatory measures.
Project Title	Comprehensive Analysis of the Ecological Factors for the Development of Strategies to Sustain Coastal Biodiversity and to Improve Fish Stock Management
Lead Proponents	
Project Leader	Dr. P.G. ROXAS (MSU-Naawan), Dr. D.G.G. BACALTOS (SPAMAST)
Study Leader	Dr. W.H. UY (MSU-Naawan)
Project Cost (in USD)	41,154.00
Project Duration	1 June 2003 to 31 May 2005
Objectives	The study aims to assess the prevailing biological, physical, and chemical parameters that potentially cause the poor state of the fish stock and relate these to existing water quality standards; recommend regulatory measures and provide information in the development of protocols for basic monitoring systems; and relate the prevailing socio-economic and policy factors with the state of coastal resources to help set policy directions that will reduce pressure on the coastal ecosystem.

BOX 9. Socio-Economic and Cultural Master Project (SEC)	
Project Title	Resource Utilization Patterns in the Aquatic and Terrestrial Ecosystems of Mt. Malindang and Its Environs
Lead Proponents	
Project Leader	Dr. A.T. ROXAS (MSU-IIT)
Study Leader	Dr. T.O. POBLETE (MSU-Marawi)
Project Cost (in USD)	41,516.00
Project Duration	1 June 2003 to 31 May 31 2005
Objectives	Knowledge about resource utilization patterns over time as they relate to livelihood and environment is seen to have important implications for policy formulation, both at the national and local levels. Resources or assets used, controlled or accessed are widely accepted springboards for programs and policies that are oriented to poverty alleviation and long-term livelihood security.
Project Title	IKS and Modern Technology-Based Approaches: Opportunities for Biodiversity Management and Conservation in Mt. Malindang and its Immediate Environs
Lead Proponents	
Project Leader	Dr. A.T. ROXAS (MSU-IIT)
Study Leader	Dr. L.S. CASTRO (MSU-IIT)
Project Cost (in USD)	26,772.00
Project Duration	1 June 2003 to 31 May 2005
Objectives	This study recognizes that the indigenous people possess an immense knowledge of their environments based on centuries of living close to nature with the richness and variety of complex ecosystems. It also discerns the gender differentiation to biodiversity resource use, management, and conservation of floral and faunal resources.

BOX 9. Socio-Economic and Cultural Master Project (SEC)	
Project Title	Policy Analysis for Biodiversity Management and Conservation in Mt. Malindang and Its Environs
Lead Proponents	
Project Leader	Dr. A.T. ROXAS (MSU-IIT)
Study Leader	Dr. L.V. GOMEZ (UP-MIN)
Project Cost (in USD)	34,982.00
Project Duration	1 June 2003 to 31 May 2005
Objectives	This study addresses the policy-related concerns of the biophysico-chemical studies and other socio-economic and cultural studies under the aquatic and terrestrial components of the master project. The study aims to evaluate policies, laws, and ordinances that are relevant to biodiversity management and conservation, with particular reference to livelihood security and environmental sustainability and with implications to gender, ethnicity, and culture. Results of the other studies will be used as inputs to this study, particularly in recommending policy formulations, as well as policy advocacy for livelihood security and environmental sustainability.

The sets of researches under the master projects differed considerably from the 'first generation' researches with respect to the following:

- the guiding principle of integrative and landscape approach with expanding or new projects from upstream to coastal ecosystem, as they relate to Mt. Malindang as a whole;
- the addition of socio-economic and cultural studies and policy analysis regarding land rights and resource use;
- methodological strengthening of research for development;
- capacity building of the young generation of Mindanao researchers.

Further Knowledge Development Processes in the BRP

The Open Researches

Similarly, concept proposals for open research were also called and subsequently approved by the JPC in September 2002 for full proposal development. These research projects were intended to fill in gaps in understanding the landscape not covered by the master project. These proposals were evaluated by the JPC based on the following criteria (BRP Annual Progress Report 2003):

- location-derived and needs-oriented
- promotes stakeholder participation
- systems oriented and interdisciplinary
- with links to master proposals
- potential of the proponent to be developed as a researcher in Mindanao

Following international standards, only those with a master's or doctoral degrees were qualified to serve as project leaders. Researchers who were not able to submit even draft final reports of their projects under the 'first generation' research were no longer eligible to participate in the research activity.

Under the open research category were studies on the conservation and utilization of endemic, rare, and economically important plants in three barangays of Don Victoriano, and on the biodiversity conservation of arthropods in an upland cabbage-growing area of Mt. Malindang through the participatory IPM research and training (Box 10).

The Students' Researches

One of the priorities of the BRP was to extend research for development to graduate and undergraduate students. Academic and research institutions participating in the BRP were asked to identify students deserving of a thesis grant from the BRP. The qualified theses and dissertations were selected based on their relevance and relation to the BRP's research themes that were identified during the scanning activities in the aquatic and terrestrial ecosystems in

BOX 10. Open researches	
Project Title	Conservation and Utilization of Endemic, Rare, and Economically Important Plants in Three Barangays of Don Victoriano, Misamis Occidental
Lead Proponents	
Project Leader	Dr. C.B. AMOROSO (CMU)
Study Leader	Mr. E.P. LEAÑO (CMU)
Project Cost (in USD)	31,691.00
Project Duration	1 June 2003 to 31 May 2005
Objectives	The research project aims to select, identify, evaluate, and mass propagate the endemic, rare, and economically important plants by establishing a Community Economic Garden and Barangay Nursery involving the local community. The establishment of the garden and nursery are seen as livelihood projects and an *ex situ* strategy in conserving the remaining biodiversity in the forest.
Project Title	Biodiversity Conservation of Arthropods in an Upland Cabbage-Growing Area of Mt. Malindang through IPM
Lead Proponents	
Project Leader	Dr. E.M. SABADO (MSU-Marawi)
Study Leader	Ms. L.B. LEDRES (CMU)
Project Cost (in USD)	27,365.00
Project Duration	1 June 2003 to 31 May 2005
Objectives	This study aims to conserve the biodiversity of beneficial arthropods through the implementation of participatory IPM research and training in the uplands of Mt. Malindang. It also aims to assess the effect of IPM versus the conventional method of pest control on the diversity of arthropods in cabbage grown in the uplands of Mt. Malindang.

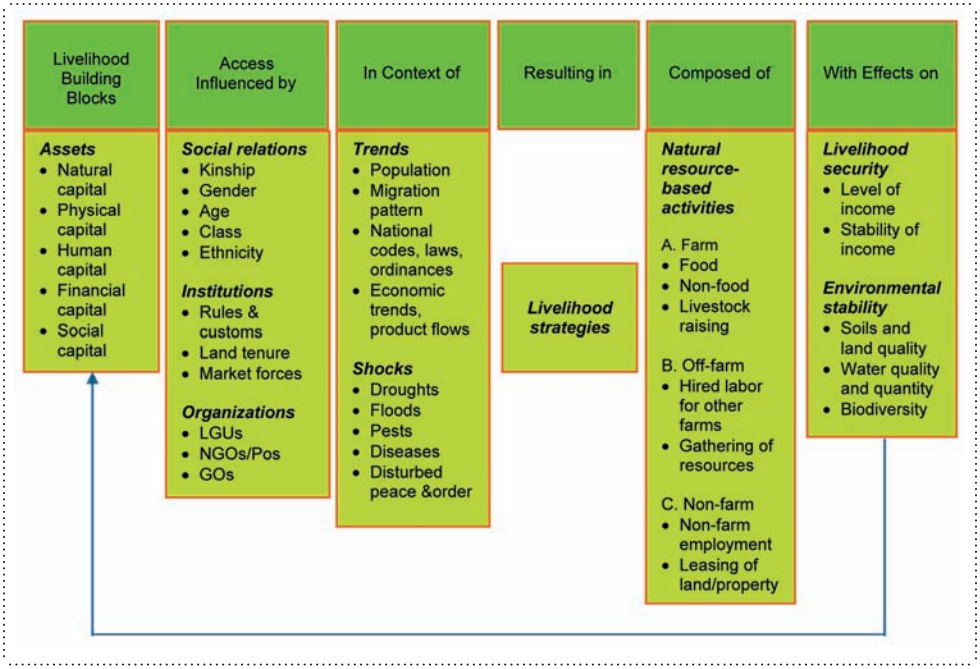
Mt. Malindang. Priority was given to studies that provided knowledge for formulating strategies and policy recommendations pertaining to biodiversity management and conservation, habitat restoration, and livelihood development (BRP Progress Report 2003). The students' researches (Table 3) were likewise supportive of the master projects that were developed during the 'second generation' phase of research.

Table 3. Students awarded research grants by the BRP

Research Topic	Student Researcher	Start of Grant
1. The Taxonomy and Distribution of Earthworms in Mt. Malindang	Nonillo Aspe MS Biology, MSU-Marawi	April 2003
2. The Volant Mammals of Mt. Malindang, Misamis Occidental	Sherry Paul MS Biology, MSU-IIT	May 2003
3. Species Diversity and Abundance of Land Snails in Mt. Malindang	Honey Jane Calumba MS Environmental Science, MSU-IIT	November 2003
4. Diversity of Trees Along Altitudinal Gradient: From Layawan River Going up to North Park in Mt. Malindang Natural Park, Misamis Occidental	Harold C. Perez BS Environmental Science, MSU-Marawi	November 2003
5. Lichen Flora in Mt. Kalatungan, Bukidnon and Mt. Malindang, Misamis Occidental	Lynette A. Ejem PhD Biology, CMU	November 2003
6. Bryophyte Flora of Mt. Malindang, Misamis Occidental	Andrea G. Azuelo PhD Biology, CMU	November 2003
7. Composition and Abundance of Zooplankton in the Coastal Waters of Misamis Occidental	Elani A. Requieron MS Environmental Science, MSU-IIT	November 2003
8. Phtyoplankton Biodiversity in the Coastal Waters of Mt. Malindang	Ray Vincent E. Araña MS Environmental Science, MSU-IIT	November 2003
9. Adaptation and Vulnerability of the Subanen Community to the Adverse Environmental Condition in Mt. Malindang National Park, Philippines	Romeo G. Bornales, Jr. PhD Environmental Science, SESAM-UP Los Baños	April 2003
10. Plant Diversity in a Subanen Community in Mt. Malindang National Park	Gideon D. Binobo MS Environmental Science SESAM-UP Los Baños	May 2003
11. Inventory and Assessment of Pteridophytes in Barangay Lake Duminagat, Malindang Range, Don Victoriano, Misamis Occidental	Eleanor Narval BS Biology, CMU	July 2002
12. Diversity Studies of Lichens in Brgy. Lake Duminagat, Malindang Range, Don Victoriano, Misamis Occidental	Fe Mahilum BS Biology, CMU	July 2002
13. Diversity of Bryophytes in Brgy. Lake Duminagat, Malindang Range, Don Victoriano, Misamis Occidental	Vanessa Grace Figueroa BS Biology, CMU	July 2002

Landscape Approach: A Framework for Analysis

Since integration is crucial to meeting the objectives of the BRP, a framework for the landscape analysis that would guide the master projects was designed as shown in Figure 9.



SOURCE: Document on the Development of the Master Programme, undated

Figure 9. Framework for the landscape analysis of Mt. Malindang and its environs

Such framework was described in the document entitled 'Master Programme for the Biodiversity Research for Development in Mindanao: Focus on Mt. Malindang.'

The framework starts with an assessment of assets that households own, control, claim or access. Referred to as livelihood building blocks, the assets are the stocks of capital, that is, natural, physical, human, financial, and social assets, that households can use to produce, engage in labor markets, and exchange with other households or markets.

The translation of assets into livelihood strategies is mediated by endogenous (such as social relations, institutions, and organizations) and exogenous (such as trends and policies, as well as shocks) factors. Social relations refer to the social positioning of households within the community taking into consideration kinship ties, gender, age, class (as indicated by ownership of assets), and ethnicity. Institutions are the formal and informal rules, laws, land tenure arrangements or property rights, and market forces. Organizations are the groups formed to achieve common goals. In the Mt. Malindang context, these are the LGUs and other government organizations, people's organizations (POs), and NGOs. Social relations, institutions, and organizations are mediating processes that facilitate or constrain the use of assets by households.

Trends in population growth rates, population density, migration patterns, technological innovations (e.g., irrigation facilities, high yielding varieties), market trends (such as increasing exportation of high-value fruits), and regulatory laws and codes (such as the Fisheries Code), as well as shocks – or those unforeseen events that disturb livelihoods (floods and drought, for instance) – are referred to by authors as the 'vulnerability context' owing to their capacity to reduce or destroy assets.

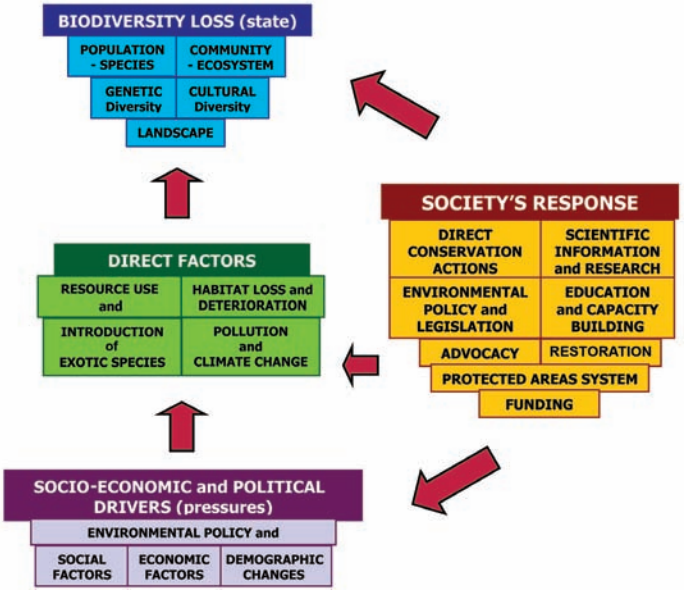
The livelihood strategies that result from the assets and mediating processes may be natural resource-based or non-natural resource based. The former leads to different land uses and can be classified as either farm, off-farm or non-farm activities. On the other hand, the latter pertains to such activities as self-employment or employment in the manufacturing, commercial or services sectors. Employment in any of these sectors outside the municipality provides remittances to those who are left in the rural communities. The focus of the study, however, was on livelihood activities that were natural resource-based, thus the omission of non-natural resource based activities in the diagram.

The last column shows the outcome of livelihood strategies, classified into livelihood security and environmental sustainability. Livelihood security relates to attaining a level of income and keeping it stable, reduction of risks that affect assets, and so on. The livelihood choices that households make determine whether they become less vulnerable or more vulnerable in handling unfavorable trends or in coping with shocks.

The livelihood activities as mediated by factors earlier described, may result in environmental destruction or rehabilitation. An assessment of these livelihood activities will point to alternative ways by which households and communities increase their welfare while ensuring environmental sustainability. The end result of going through the framework as guide for analysis consists of indicators and protocols of biodiversity monitoring systems, inputs to regulatory measures and policies, and community-based plans to improve the environment.

The Biodiversity Conservation Framework

In a meeting of the PWG, issues and concerns on results analysis were raised, foremost of which was the integration of results using the landscape approach. To address this concern, a modified 'pressure-state-response' model for biodiversity conservation was suggested. Such framework (Figure 10) was subsequently proposed to the researchers and adopted through an integrative workshop. Through the process, integration and interdisciplinary work would be assured.



Source: Ong, P.S. 2005

Figure 10. A framework for biodiversity conservation: a modified'pressure-state-response' model

Securing the Necessary Permits

There are Philippine laws to protect plants and animals in the country and prescribed conditions under which they may be collected, kept, sold, exported, and used for other purposes. Thus, a permit shall be secured allowing the holder to collect specimens of plants and animals for scientific or educational purposes. Endorsement or gratuitous or collection permits, which were valid for one year from date of issue, were acquired from the Mt. Malindang Range Natural Protected Area Management Board (MMRNP–PAMB), PAWB-DENR, and Bureau of Fisheries and Aquatic Resources-Department of Agriculture (BFAR-DA). Despite some difficulties of securing them, these permits or endorsements established the legitimacy of the BRP to conduct researches in various sites. During the 'first generation' research phase, the following permits were issued to the BRP upon request of the programme:

- **No. 102**: Gratuitous permit to collect floral, lichens and fungi specimens for taxonomic purposes for the project entitled "Development of Participatory Methodology for Inventory and Assessment of Floral Resources and their Characterization in the Montane Forest of Mt. Malindang" (Dr. Jose B. Arances, Project Leader) dated 19 October 2001.
- **No. 105**: Gratuitous permit to collect wild floral and faunal specimens including planktons and benthos for taxonomic purposes for the project entitled, "Community-based Inventory and Assessment of Riverine Ecosystems in the Northeastern part of Mt. Malindang" (Dr. Proserpina Gomez-Roxas, Project Leader) dated 22 April 2002.
- **No. 106**: Gratuitous permit to collect wild floral and faunal specimens including planktons and benthos for taxonomic purposes for the project entitled, "Participatory Biodiversity Inventory and Assessment of Lake Duminagat, Mt. Malindang Natural Park" (Dr. Carmelita Hansel, Project Leader) dated 22 April 2002.
- **FBP15-2002**: Gratuitous permit to collect aquatic organisms for scientific/research purposes in Mt. Malindang and its environs for the coastal project entitled, "Participatory Biodiversity Assessment in the Coastal Areas of Northern Mt. Malindang" (Dr. Delia Grace G. Bacaltos, Project Leader) dated 22 March 2002.

The Programme Manager on site facilitated the acquisition of these permits from the PAWB-DENR and BFAR. However, in the implementation of research projects, the Programme Manager expressed his concern over the permittees' non-compliance to certain stipulations in the gratuitous permits. According to the Programme Manager, the researchers have violated either one or any of the following:

- Non-deposition of a complete set of specimens collected, properly labeled, and preserved at the National Museum of the Philippines (NMP) or DENR within the specified date;
- Non-securement of transport permits for specimens collected by the researchers;
- Non-indication of specific return date of specimens sent to institutions abroad where collected specimens are deposited for study; and
- Non-submission of either collection report, progress report, or terminal report within the specified date.

The Programme Manager expressed that such violations of the stipulations [would] have big implications on the renewal of said permits for the 'second generation' research. He also expressed concern regarding the application for the FPIC and Certification of Pre-condition, a problem that considerably hampered the start of the research activities that was set for June 2003. Some communities required the researchers to present the FPIC first before they can proceed with their research in the area.

In a separate documentation of securing permits, the FPIC and the Certificate of Pre-condition, the following caused the delay in processing the acquisition of the necessary permits (Ticsay 2004):

- ***Nobody seemed to know how to go about the whole process***. When the SCO initiated the process of securing the permit in the provincial level, the SCO thought that permits from the LGUs would be sufficient enough for conducting the researches. There were no FPIC certificate on file in the NCIP Provincial Office that was used during the 'first generation' researches. The NCIP Provincial Office also seemed to be at a loss on how to go about the process. During the time that they were with the study teams, there was tacit understanding that their presence was more than enough to constitute the community entry protocol.

- ***Some of the activities outlined in the FPIC were time-bound***. An activity cannot be undertaken unless a specific time period has lapsed. For instance, the preliminary consultative meetings cannot be conducted until a 15-day period has lapsed after the posting of notices. If a meeting fell on a day when there were other institutional priorities for the NCIP, SCO or LGUs, then the meeting had to be moved to another date.
- ***Certain institutional limitations hinder efficiency in field operations***. A case was the memorandum to prepare the FPIC budget. Such a memorandum was issued on 11 December 2003 but was received only on 12 January 2004. Another is the inability of the NCIP staff to travel in the absence of a travel order that has yet to be issued from the regional NCIP office.
- ***Postponements in the preliminary consultative meetings confused some participants***. There was confusion when the decision to increase the number of participants from three to five did not filter down to the communities. Because of the absences, on-site specific activities like the consultative meetings/consensus buildings in Barangays Peniel, Toliyok, and Marugang/Bagong Nayon had to be conducted.

The BRP researches were conducted as the MOA was eventually signed by the IP leaders and programme proponents. It turned out that securing the FPIC was a first experience for both institutions. In her process documentation report, Dr. Ticsay, NSS Programme Coordinator, wrote: "Securing the FPIC has been a learning experience both for the NCIP and the BRP."

Programme Evaluation: Mid-Term Assessments of the BRP

The BRP received a grant of five years. Halfway through the program, it was deemed necessary to review the programme's performance vis-à-vis its stated objectives and activities since its inception in 2000. The expected outcome of the process were lessons and recommendations to further improve the programme for the remaining period of time with a possible eventual continuation or follow-up.

Two essential components made up the mid-term evaluation of the BRP, namely,

an internal (or self) evaluation and an external evaluation. The former was carried out along two parallel tracks: the first one being an evaluation by the researchers on the BRP's vision, mission, and goals; the management at programme and project levels; and the two generations of research projects, the instrument of which was designed/developed by the BRP in consultation with a statistician from SEARCA. The second track consisted of a 'reflexive' discussion within the JPC which dealt with a number of 'questions' formulated during and after the 7th JPC Business Meeting held on March 2004. Significantly, two major clusters of questions emanated, namely:

1. **Where has the BRP been innovative?**

    - The South is the driver of the programme, in the choice of the project site (Mindanao, Mt. Malindang), and in administrative and financial matters.
    - Mindanao research institutions are, in many ways, the "South within

the South." This has its consequences for the research process.

- Community participation has been taken seriously (entry protocols, barangay meetings, and workshops for knowledge sharing, LGU involvement, etc.).
- Stakeholder participation in the research was evident from the involvement of local researchers, para-taxonomists, and field assistants.
- There were a variety of outputs: research reports, flyers, and catalogue, but too little scientific publications for a variety of audiences: local politicians and administrators, communities NGOs, universities, etc.
- There was institutional innovation by capacity building of senior and junior staff in Mindanao institutions, initiation of inter-institutional cooperation, and increased demand for research activities (reduction of teaching load).
- Cooperation was interdisciplinary between natural scientists and between natural and social scientists.
- Research was demand-driven which Dutch researchers followed.
- The landscape approach is another integrative modeling.

2. **What are the strengths and weaknesses of the BRP approach and organization, and how can these be improved in view of a second programme phase? (The outcomes of the discussions were used as inputs to the external evaluation.)**

- Contribution of BRP to RAWOO agenda of North-South research for development
- Organization of demand-driven research from the South to Northern partners
- Composition and function of the JPC
- Relationship between PIP objectives and BRP proposal selection; selection procedure of first and second generation proposals
- Evaluation of project formulation, selection, and implementation: procedure and process

- Collaboration with Dutch partners; do we have the right type of Dutch partner institutions? Do we need institutions or individuals?
- Organizational structure: position and functioning of PWG
- Funding by the DGIS
- Landscape approach: integration of natural and social science approaches
- Capacity building: paradox that researchers want more scientific education and technical training as a condition for better participatory research.

Specifically, the internal or self-evaluation aimed to:

- review the progress made with the objectives of the BRP;
- review the progress made regarding the planned outputs and desired impacts of the BRP after three years;
- review the effectiveness of the strategies and methods applied by the BRP partners at various levels of implementation;
- to prepare for the external evaluation: clarify what is being evaluated to pave a common vision for future collaboration, and to stimulate internal motivation in the programme;
- review the quality of the research undertaken under BRP in terms of academic standard and development relevance;
- review the functioning of the BRP management: the JPC, NSS, SCO, SLO, PWG, and LAG and the adequacy of the institutional and financial arrangements;
- review the main information and communication channels between the BRP partners and between the BRP and the main target groups of BRP;
- make a provisional assessment of the need for a next phase of the BRP or other follow-up activities.

The major players in the internal evaluation consisted of the NSS, SCO, SLO, JPC, PWG, and the LAG. Also included were the Filipino and Dutch researchers.

The external evaluation, on the other hand, was designed to follow a participatory and formative process. However, the assessment of outputs and impacts, though seen as being part of the process, was not seen as a central objective. It was expected that the results of the evaluation will be useful inputs to further enhance the relevance, effectiveness, and efficiency of the BRP. The evaluation would also serve as a "reflection" on the longer term process and support needs after the termination of the present phase of the BRP.

Specifically, the external evaluation aimed to:

- review the progress made regarding the planned outputs and desired impacts of the BRP as well as the strategies and methods applied by the BRP partners at the various levels of implementation;
- review the functioning of the BRP management, that is, the JPC, NSS, SCO, and SLO structures; their coordination; and the adequacy of the present institutional and financial arrangements; and to identify opportunities for improvement;
- review the main information and communication channels among the BRP partners and its major target groups; and to advise on changes needed;
- make a provisional assessment of the need for a next phase of the BRP or other follow-up activities and to present recommendations regarding the conceptualization (objectives, main strategies), and institutional framework of the eventual second phase or other follow-up activities.

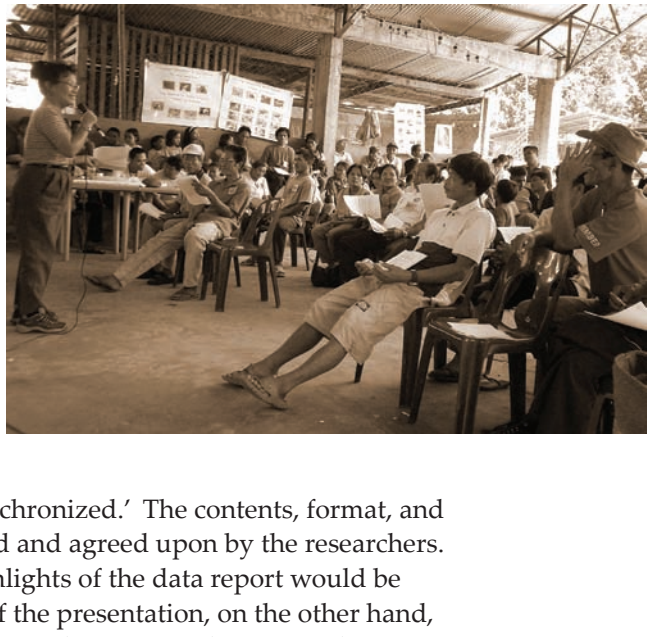
The external evaluation was conducted in August and September 2004 with Filipino and one non-Filipino composing the team.

The Community Validation

During the 9th QRM held from 4-6 February 2005 at the MSU-IIT, project leaders and study leaders convened as an executive committee and discussed plans for the community validation of research results as well as strategies for programme exit. The researchers leveled off with the agenda which included differentiating between 'community validation' and 'exit conference' as well as identifying and

agreeing on the validation strategies and timetable. The researchers agreed among themselves that 'community validation' would mean presenting back to the communities results of their research so as to determine the correctness and truthfulness of the data.

Discussions ensued on whether or not other stakeholders should be invited during the community validation. Some researchers felt that they too, should be involved during the presentation of research results to the community. Following the label 'community validation,' the researchers agreed that results will be presented only to members of the community to be led by the local leaders and local researchers. The researchers also agreed on the objective/s of the community validation which would entail not only a presentation of results but also a provision of a venue for the community to share their insights as well as forward their recommendations.



As for the strategy, the researchers agreed that a 'cross-checking' of data will be made among the different study groups to ensure that data were 'synchronized.' The contents, format, and manner of presentation were also discussed and agreed upon by the researchers. In contents, it was suggested that only highlights of the data report would be presented to the community. The format of the presentation, on the other hand, was proposed to be simple, 'reader-friendly,' and written in the vernacular. Given the limited time that they had to complete the validation, the researchers agreed to hold a simultaneous presentation in the communities which they also grouped into clusters. The idea was to treat each cluster of contiguous barangays

into one validation site to save time and other resources.

From 26 February to 10 March 2005, community validation meetings were conducted in the different study areas. These included Mansawan and Lake Duminagat in Don Victoriano town; Toliyok, Tabuc Sur and Tabuc Norte, and Villaflor, all in Oroquieta City; Mamalad in Calamba; Kauswagan and Tipolo in Plaridel; Peniel and Danlungan in Lopez Jaena; and Small Potongan in Concepcion.

The process of validating results to the community or ascertaining the truthfulness of the research results by the members of the community was made by a presentation of the historical context and programme background of the BRP. This was followed by the presentation of the results of the study as well as recommendations for the community, the stakeholders, and the study itself. An open forum ensued after the presentation where participants, who were mostly members of the community including their local barangay officials and local researchers, expressed their own view about how the research was conducted in their community, and how the results made them aware and conscious of what was happening specifically in areas that were their sources of livelihood.

The community members said they recognized the problems and issues put forward by the BRP researchers. The community did not only validate the results of the BRP study, but they also affirmed that poverty challenges their ability to promote and practice this so-called biodiversity conservation and protection.

The Closing Conference

The closing conference was held on 19 April 2005 at Ozamiz City. No less than the Honorable Governor of Misamis Occidental, Loreto Leo Ocampos, attended the event and delivered an inspirational message to the participants. Dr. Marc Lammerink, Vice-Chair of the BRP Joint Programme Committee and Dr. Gil C. Saguiguit, Jr., Deputy Director for Administration of SEARCA and Head of the BRP National Support Secretariat, also gave their own remarks.

The presentation of the results of the different master projects (TEMP, AMP, and SEC) including the open researches (IPM and Nursery) as well as the database management system highlighted the event. The culminating activity of the conference was a small workshop which aimed to generate the stakeholders' insights from the research results as reported by the BRP researchers. Specifically, the workshop aimed to:

1. determine the extent by which BRP results have been valuable to the different stakeholders and identify possible gaps in the research results;
2. generate from the stakeholders their comments and/or impressions of the recommendations formulated from the BRP studies;
3. identify possible impacts of the research results to the local community as well as to the stakeholders/agency/organization or unit;

4. identify specific concerns and issues; and
5. draw possible plans of action that can be taken by the stakeholders/ agency/organization or unit.

The following guide questions were used to guide the discussion during the small group workshop:

1. To what extent are the results valuable to your institutions/areas? Are there gaps in the results?
2. What are your comments/impressions on the recommendations presented?
3. What are the possible impacts of the programme to a) the institution/ agency/organization?, and b) the local community? What are the lessons/ learnings that can be derived from the results of the studies?
4. Are there any specific concerns that need to be addressed and issues that have to be clarified?
5. What are the possible plans of action resulting from the research information that can be taken as relevant to your institution/agency/ organization?

One of the major outputs of the conference was the identification of the following issues and concerns based on the recommendations formulated by the BRP researchers:

- Emphasize that even disturbed or regenerative forests still maintain high biodiversity and high endemism compared to the montane and mossy forests. It should also be emphasized that the 'original' lowland forests have maintained their diversity making it critical for long-term biodiversity conservation and management.
- Recommending a "zoning" of the region of Mt. Malindang specifying, among others, areas that can be used for intensive agricultural production, agro-forestry, etc.
- There is already an existing management zone for Mt. Malindang. Data from the different studies could be 'superimposed' on the zone map. Mt. Malindang's management zone could have been used as framework to analyze data from the various master studies.

- Lowland forests are located within either the buffer zone or the multiple use zone. This actually limits the management options for protecting the lowland forests. How to deal with the issue should be considered.
- A strict protection policy of lowland forests has to be put in place. This is important considering that lowland forests have most of the threatened species associated with them.
- Agricultural areas are located within supposedly protected areas. How to deal with zoning in the areas that are supposedly protected especially the upper elevation should also be addressed.
- Include data available related to zoning vis-a-vis potential areas for agricultural production, afforestation, etc.
- Identify potential areas for ecotourism.

Capacity Enhancement in the BRP

In the context of the BRP, support activities were designed to provide systematic support for the cross-cutting needs of the research activities. The support activities were intended to complement and promote the relevance of the support component of the BRP especially according to the relevant stakeholders. Human resource development, IEC, networking, alliance building, and database management were among the key support activities that were pursued during the implementation of the BRP.

The Components of Capacity Enhancement in the BRP

According to Kirshner and associates (1997), what researchers need are learning experiences composed of a knowledge component and a task performance or skills development component. In the BRP, these are represented by the research and the support components, respectively. The research component was defined by the BRP as a set of research themes that linked the research questions to real problems and opportunities in the communities and ecosystems in the research site, that is, Mt. Malindang. In essence, this was knowledge development that was embodied in the so-called 'first' and 'second' generations of researches that the BRP has undertaken.

On the other hand, the support component was a set of organized activities that provided systematic support for the cross-cutting needs of the defined research activities. Essentially, the support activities boosted the relevance of the research activities.

Throughout its project years, the BRP made substantial investments in activities that ensured the development of the capacity of the Mindanao-based researchers. These were based on the key support activities that have been defined in synchrony with and in response to, the need of the research activities which included:

- human resource development or capability building
- community organizing
- information management system
- information, education, and communication
- networking

Human Resource Development/ Capability-Building

In a paper delivered during RAWOO's 25th Anniversary Conference held in the Netherlands last 15 November 2002, former BRP-JPC Chair, Dr. Delfin J. Ganapin Jr., emphasized capacity building as an integral and the most important

component of the BRP occurring at various levels and stages of the BRP. This capacity building, according to Dr. Ganapin, is not just of a technical nature but also of values formation. In the BRP, there is the inherent realization that genuine partnerships is not based on the recognition of the weaknesses of the resource-poor, but on the latent strengths that two partners can draw upon to solve problems. Valuing in the BRP also means taking on the role of effective researchers "by making them better communicators" – not just information takers but information givers and development facilitators.

Dr. Ganapin, however, realizes that these capacity building objectives are not met from classroom type activities and workshops; these are developed through an iterative process of learning and reflection.

In the BRP, much of the capability building activities aimed to equip the researchers with the necessary knowledge and skills required of the different study projects. The following were cited:

- **Mini-Workshop for the Policy Team**

The assessment of policies affecting biodiversity was perceived as needing some revision and improvements in research methodology. To address this concern, a mini workshop was held sometime in December 2001 and which was made possible through the assistance of the Department of Social Science and Philosophy, UP Diliman. An offshoot of the two-day workshop was a revised research proposal with the corresponding changes in the work plan.

- **Field Scanning Activity and Midstream Evaluation Workshop**

Considered as a capability enhancement activity, the four-day field scanning activity held from 9-15 February 2002 was actually an initiative meant to assess the progress of the on-going research projects in terms of

1. gaining understanding of the biodiversity and biodiversity conservation in Mt. Malindang;
2. gaining a better understanding of the landscape in general;
3. identifying the benefits that various stakeholders can derive from the BRP projects;
4. strengthening community participation in the BRP research projects; and
5. describing and analyzing the policy context.

The field scanning activity was also organized to (a) identify gaps for future research; (b) identify potential NGO partners in future project implementation, and (c) involve graduate students in BRP research. The researchers accompanied the Dutch experts to the research sites – the coastal sites, the lowlands, and upland sites.

After the scanning activity, a midstream evaluation workshop was conducted from 16-20 February 2005 to develop future plans for all research projects. These plans included identifying gaps for future research, and potential NGO partners and students who could pursue research/thesis along the themes of BRP

- **International Course on Pest Management**

A lead researcher from MSU-Marawi was granted a fellowship award to attend the training program on Integrated Pest Management (IPM) held at the International Agricultural Center (IAC) in Wageningen, the Netherlands from 22 April to 28 June 2002.

- **Development of an IEC Strategic Plan**

The research team, which worked on the development of delivery systems for biodiversity conservation sought the assistance of an IEC specialist from UP Los Baños. The agreement was to help the research team design and develop a comprehensive IEC plan and advocacy strategy based on the data collected by the team (Highlights of the JPC, 10 June 2002).

- **Training Course on Desktop Mapping (GIS)**

This was held in MSU-IIT from 19-21 May 2003 under the supervision of a collaborating research partner from ALTERRA Green World Research. The training used a 'hands-on' (actual) approach, which equipped participants with skills in making maps through computer software. The course was attended by selected Mindanao-based researchers with a BRP research collaborator from the USeP providing assistance to his Dutch counterpart.

- **Introductory Training Course in Policy Analysis**

Three researchers from the policy team as well as the NSS staff attended this course held in Los Baños, Laguna from 7-9 May 2003. The course aimed to introduce general policy concepts as well as provide insights and lessons to better understand and appreciate policy analysis. This was organized by SEARCA's Policy Studies Project and Policy Action Group of the Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD).

- **Training on primary data collection for Research Assistants (RAs) and local researchers**

A two-part capability building training on field data collection for biodiversity research for the flora, fauna, soil ecology, and socio-economic-cultural studies was organized by the Terrestrial Ecosystem Master Project (TEMP) and Socio-Economic-Cultural Studies (SECS) research teams on 15-16 August 2003 and 22-23 August 2003 in Barangay Toliyok, Oroquieta City and Elena Tower Inn, Iligan City, respectively. It was participated in by researchers and research staff from the two projects, local researchers from Oroquieta City, Calamba, and Don Victoriano, Misamis Occidental, and staff of the Site Coordinating Office (SCO).

The training was conducted to operationalize and harmonize the participatory-multidisciplinary principles in the implementation of the studies within and across the projects.

It aimed to:

1. orient the researchers, research staff, and local researchers with the basic skills in gathering relevant data for the different studies;
2. equip the researchers with the skills necessary to generate data and information that are comparable across research sites to simplify evaluation and analysis; and
3. enhance awareness on the need to exchange ideas and information among BRP researchers throughout field operations.

The conduct of the training consisted of two parts: the first part was facilitated by the TEMP research team led by its project leader while the second part focused on the socio-economic methods of doing participatory research.

- **Gender Sensitivity Training**

On 7-8 November 2003, a gender sensitivity training was conducted for both researchers and community members, to train them on how to make research gender-sensitive, participatory, and women friendly. The learning module was designed in such a way that participants were expected to do the following:

- Differentiate sex and gender
- Integrate both men and women's activities, roles, thoughts, and behavior into their research work
- Use gender-fair language in writing reports
- Make use of gender framework in their work
- Demonstrate gender sensitivity in looking into social problems and in writing reports.

The training involved lecture-discussions, games, and exercises to emphasize the application of gender concepts and practices in research.

- **Training workshop on plant taxonomy, taxonomic research methods, herbarium processing, and management**

Twenty-four participants composed mostly of researchers, research staff and local research partners took active part in this nine-day activity held from 8-16 March 2004 at the Central Mindanao University.

The objectives of the activity were to: 1) update the participants on the status of the terrestrial and aquatic ecosystems studies; 2) update the participants on the principles and concepts on taxonomy and taxonomic research methods; 3) equip the participants with skills on the actual identification, classification, nomenclature, and databasing of plant collections; 4) train participants on proper collection, processing and cataloguing of specimens from fieldwork; and 5) assist the participants in analyzing data to derive an integrated floral taxonomic research report and action plan.

A research partner from the National Herbarium of the Netherlands (NHN) who also served as research collaborator of the TEMP flora study, was invited as resource person. He shared his expertise on plant systematics, principles of plant sample identification, proper collection of plant samples, and databasing label information of herbarium specimens using the Botanical Research and Label Information of Herbarium Management Systems (BRAHMS) developed by Dr. Denis Filer from the Oxford University.

- **Training on water quality using macroinvertebrates as bioindicators**

Water quality condition was usually monitored through chemical analysis which is quite costly and oftentimes, tedious. As a consequence, changes in water quality are detected only when they have reached very critical levels. One way to monitor water quality is by using macroinvertebrates as [bio] indicators.

Realizing this, a training was conducted on 16-18 March 2004 among researchers of the aquatic and terrestrial ecosystems studies, including the arthropod studies.

Dutch counterparts from the Netherlands Museum of Natural History (Naturalis), facilitated the training. Topics included ecosystems dynamics, aquatic ecology, theory on biomonitoring, and sampling methodologies for macroinvertebrates collection. The participants were provided with hands-on exercise in the collection, identification, preservation, and labeling of sample macroinvertebrates. Participants were also guided in data analysis and interpretation. The knowledge and skills they gained were to be used for monitoring water quality of the Layawan and Langaran Rivers.

Community Organizing

Community organizing in BRP aimed to encourage and sustain the participation of the local communities in both the research and support programme activities. This support activity was viewed as a valuable venue not only to get feedback from community stakeholders, but also for both researchers and locals to work together for a common cause. Several strategies for achieving these in the BRP included:

- involving the local members in the community or project site as counterpart researchers (local researchers as they were referred to);
- keeping the communities informed by conducting training activities that enhanced their knowledge and research skills;
- providing a venue for knowledge sharing and exchange through assemblies and multi-sectoral fora; and
- jointly implementing strategies and projects that respond to the needs of

the local community that would maintain their interest in biodiversity conservation. There is a proposal to establish a Biodiversity Monitoring and Evaluation System (BIOMES).

The Community as Local Researchers

As mentioned earlier, there was a realization among the lead researchers that the local researchers or community members whose help was sought by the BRP to assist the project researchers, had no knowledge and skill in handling or conducting the type of research that they were asked to participate in. Consequently, the research team developed capability-building activities that would develop the local researchers' abilities to do their tasks as researchers.

Enhancing Skills in the Community

Exposure Tour/ Cross-Farm Visits

Eight local partners and the arthropod/IPM research team went on a tour visit from 7-11 October 2003 to a number of significant sites in Mindanao to look at farming technologies implemented by different agencies and organizations as well as to interact with farmer-practitioners to better understand and appreciate other farming systems. The site and institutions visited included the following:

- Mindanao Baptist Rural Life Center in Bansalan, Davao
- Regional Crop Protection Center in Malaybalay, Bukidnon
- Northern Mindanao Agricultural Research Center in Dalwanga, Malaybalay City
- Mountain View College in Valencia, Bukidnon
- Mr. Henry Binahon's vegetable farm in Lantapan, Bukidnon
- Other farms in Lantapan, Bukidnon

IPM Training for Vegetable Farmers

Results of the study made by the arthropods/IPM team revealed that many indigenous farmers have abandoned cabbage production in the uplands of Mt. Malindang despite the potential of this vegetable as a cash crop. This was due to the high cost of input to curb the diamondback moth (DBM), a major insect pest in cabbage, hence the introduction of IPM in the locality.

To present the initial results of the study team, a field day was held on 30 November 2004 in Gandawan, Don Victoriano for locals in Mansawan, Gandawan, and Lake Duminagat. The field day highlighted the following:

- the role of natural enemies such as parasites and predators in regulating pest population;
- the proper recognition of the different stages in the life of insect pests that destroy cabbage;
- the importance of regular monitoring to assess the pest population and their natural enemies as basis for control;
- the effect of the use of chicken dung on soil fertility and plant growth; and
- the effect of bagging cabbage seedlings using banana leaves.

Further results of the study showed that cabbage plots using IPM produced considerably satisfactory yield and net returns attributed to the lower cost of biopesticides used.

The field day was also highlighted by a visit to the experimental site where locals were given hands-on exercise in the preparation of growth media for growing cabbage, and a demonstration technique of bagging cabbage seedlings, and rearing DBM parasitoids.

Training on Biodiversity Monitoring and Evaluation System (BIOMES)

One of the objectives of the TEMP is to improve the skills of the local community in managing and monitoring the biological resources in their area. To achieve this, TEMP researchers particularly the flora study group conducted training on Biodiversity Monitoring and Evaluation System or BIOMES[7] in Mansawan, Don Victoriano town on 18-23 December 2004.

[7] The Biodiversity Monitoring System (BMS) was developed by the DENR-PAWB and was also adopted by the Foundation of Philippine Environment in project sites funded by the Foundation.

Specifically, the activity aimed to:

1. orient the community on the use of biodiversity monitoring tools that seek to determine changes in the biophysical, economic, and socio-cultural environments that impact biodiversity;
2. provide understanding on the socio-cultural dimensions of biodiversity and its conservation;
3. install the biodiversity monitoring tools by identifying sites and routes through participatory modes;
4. provide skills on the use and care of monitoring equipment; and
5. provide basic skills in data collection, analysis and interpretation.

The training was designed to include lecture-discussions and field activities. A leveling off activity that specified the roles, responsibilities, and functions of the participants served as springboard for the activity. Lectures on the concept of biodiversity and its importance as well as skills training on keeping a field diary, photo documentation, doing transect walks, and conducting FGDs were part of the training.

Field activities included a trip to potential BIOMES sites like New Liboron, a two-hour walk from Mansawan, and to Lake Duminagat.

A BIOMES Action Plan to be submitted to the PAMB was drafted as a result of this training activity. To the flora study team, the activity was a strategy to sustain the gains of the BRP in making the community responsible for their own environment protection and conservation.

Sustaining the Interest of the Community

Launching of the Nursery and Greenhouse

On 15 October 2004, a nursery and greenhouse located in Mansawan, Don Victoriano town, were inaugurated with members of the provincial, municipal, and barangay levels attending the occasion. This project was a response to the call of the community to develop a strategy that would conserve the remaining biodiversity

in the Mt. Malindang area. Earlier results of a study of the nursery group on the inventory and assessment of plant resources in Barangays Mansawan, Gandawan, and Lake Duminagat, revealed a number of endangered, endemic, rare, and economically important species[8], which can be tapped as food, medicine, raw materials, ornamentals, etc.

A very important outcome resulting from this study was the decision of the local government through the Association of Barangay Captains (ABC) to create a Community Management Team that will continue to monitor biodiversity resources in the four barangays of Don Victoriano (Mansawan, Gandawan, Lake Duminagat, and New Liboron). This was in recognition of the BRP's effort to address problems and issues concerning biodiversity protection and conservation in the areas mentioned, through research and several other component activities.

Both the LGU and the ABC recognized the usefulness of the BRP research findings on the status of the different plant resources in the communities, and strongly supported the need to sustain the forest nursery activities in the areas in order to mitigate, if not to totally eradicate threats to biodiversity, hence the adoption of a BIOMES. A proposal entitled 'Sustainability of the Biodiversity Monitoring and Evaluation System (BIOMES) and Environmental Rehabilitation within Mt. Malindang' was prepared by the ABC in collaboration with the nursery study team.

Apart from the creation of a management team, it was suggested that tree-planting activities should be done every June to coincide with the celebration of the environmental month, and that segregation and reforestation areas should be established.

Back-to-back with the launching of the nursery and greenhouse was the training on silviculture, horticultural practices, and nursery operation held from 15-17 October 2005 organized by the nursery project team. The training covered topics on nursery site selection and planning including care and maintenance; seeds selection and sowing including care, protection, and maintenance; wildling collection and nursery handling; vegetative propagation; preparation of seedbed and potting media; and other horticultural practices.

[7] See study by Amoroso et al.

It should be emphasized, however, that from the many support activities designed by the master projects team to actively involve the members of the community in the learning process, many of the short training courses that the project researchers underwent in the course of implementing the BRP have also involved the local community a lot. An example was the training-workshop on taxonomic methods, water quality monitoring, and field data collection.

Database Management System

The BRP believed that the issue of biodiversity conservation is directly linked to the availability, integrity, and coherence of data in order to develop relevant interventions. Therefore, it was imperative that research activities generate data and information that should be managed efficiently to obtain maximum results from the researches.

With the integrative and collaborative nature of the BRP, a database management system was designed and developed that hoped to integrate the diverse data sets; improve analysis of data; facilitate the efficient and timely access to information by the different key players, that is, involving researchers, collaborators, the community, and other stakeholders; enhance collaborative efforts; and eventually assist in the formulation of policies for biodiversity conservation.

Unlike the master projects, the database management system cuts across all other projects, addressing many of the integration issues of the Programme. Specifically, the database management system aimed to:

1. review and collate various data/information collected by the project researchers and design a system that will enable these data/information to be stored in an electronic format;
2. design and implement a database management program that would facilitate data retrieval, storage, access, and allow data integration for a more in-depth analysis;
3. strengthen the capacity of researchers and other stakeholders in data management, retrieval, and analysis.

ALTERRA, in collaboration with the database management team, designed and developed a geoconference and classification procedure for LandSat images using GIS, for the researchers who needed reliable and up-to-date land use maps.

Information, Education and Communication (IEC) for Public Awareness

In the BRP, the design and development of an IEC plan and advocacy strategy aimed to:

- promote project-based biodiversity conservation internally and externally to BRP;
- increase national, provincial, and local public awareness of the programme;
- provide media support/coordination to BRP projects;
- build the capability of the BRP to tap and access communication media and media support groups; and
- produce and disseminate IEC materials.

Production of IEC materials

The Samu't–Sari Newsletter

The official newsletter of the BRP, Samu't–Sari, meaning 'variety' in the Filipino language, was produced quarterly. The newsletter highlighted people, places, and events in BRP research and featured results of research projects and lessons learned in the field.

Monograph Series

The following reports on the PRA activity conducted during the PIP and results of the 'first generation' researches have been produced and disseminated to academic institutions, LGUs, local stakeholders, and private individuals:

Amoroso, V.B., A.T. Roxas, E.A. Lariosa, R.V.B. Estoista, O.P. Canencia, D.C. Mero, G.R. Arreza, R.G. Bornales, Jr., and T.L. Cambel. 2004. **Participatory Rural Appraisal in the Lowland Ecosystem of Mt. Malindang, Misamis Occidental, Philippines.** BRP Monograph Series No. 1. Biodiversity Research Programme for Development in Mindanao: Focus on Mt. Malindang and Environs. College, Laguna: SEAMEO SEARCA.

Arances, J.B., V.B. Amoroso, W.Sm. Gruezo, C. Ridsdale, L. Visser, B.C. Tan, L.V. Rufila, J.B. Galvezo, G.S. Opiso, R. Comilap, C. Lumaray, C. Comilap, N. Pacut, B. Montimar, and S. Sacal. 2004. **Development of a Participatory Methodology for Inventory and Assessment of Floral Resources and their Characterization in the Montane Forests of Mt. Malindang.** BRP Monograph Series No. 4. Biodiversity Research Programme for Development in Mindanao: Focus on Mt. Malindang and Environs. College, Laguna: SEAMEO SEARCA.

Cali, C.A., J.B. Arances, E.G. Tobias, E.M. Sabado, A.A. Alicante, L.B. Ledres, O.M. Nuñeza, and D.S. Ramirez. 2004. **Participatory Rural Appraisal in the Upland Ecosystem of Mt. Malindang, Misamis Occidental, Philippines.** BRP Monograph Series No. 2. Biodiversity Research Programme for Development in Mindanao: Focus on Mt. Malindang and Environs. College, Laguna: SEAMEO SEARCA.

Gomez-Roxas, P., R.D. Boniao, E.M. Burton, A. Gorospe-Villarino, and S.S. Nacua. 2005. **Community-Based Inventory and Assessment of Riverine and Riparian Ecosystems in the Northeastern Part of Mt. Malindang, Misamis Occidental, Philippines.** BRP Monograph Series No. 7. Biodiversity Research Programme for Development in Mindanao: Focus on Mt. Malindang and Environs. College, Laguna: SEAMEO SEARCA.

Hansel, C.G., T.O. Poblete, V.T. Quimpang, R.A.C. Lumactud, D. Ganob, E. Lumimas, M. Lumimas, L. Pacut, and R. Panchito. 2004. **Participatory Biodiversity Inventory and Assessment of Lake Duminagat, Mt. Malindang Natural Park, Misamis Occidental.** BRP Monograph Series No. 6. Biodiversity Research Programme for Development in Mindanao: Focus on Mt. Malindang and Environs. College, Laguna: SEAMEO SEARCA.

Metillo, E.B., L.C. Sevidal Castro, N.A. Bedoya, L.A. Jimenez, V.T. Quimpang, M.J. Segumpan, M.S. Mahinay, and D.G.G. Bacaltos. 2004. **Participatory Rural Appraisal in the Coastal Ecosystem of Mt. Malindang, Misamis Occidental, Philippines.** BRP Monograph Series No. 3. Biodiversity Research Programme for Development in Mindanao: Focus on Mt. Malindang and Environs. College, Laguna: SEAMEO SEARCA.

Sabado, E.M., S.G. Reyes, and E.T. Padogdog, Jr. 2004. **Assessing the Diversity of Selected Arthropods in the Cabbage-Growing Areas in Mt. Malindang, Misamis Occidental.** BRP Monograph Series No. 5. Biodiversity Research Programme for Development in Mindanao: Focus on Mt. Malindang and Environs. College, Laguna: SEAMEO SEARCA.

Similarly, other IEC materials were produced based on the outputs of the different study teams:

Posters

- Posters on common insect pests in cabbage, the life cycle of the diamond back moth, "Economically Important Mollusks of Misamis Occidental, Philippines," and endemic and rare species of butterflies and weevils.
- Some butterflies in Mt. Malindang
- Some endemic weevils in Mt. Malindang
- Land snails in Mt. Malindang

- Some endemic birds in Mt. Malindang
- Common hard corals along the coastal areas of Misamis Occidental
- Common seaweeds along the coastal waters of Misamis Occidental
- Locally used mollusks of Misamis Occidental
- Fish and shellfish catalogue

Flyers

- Fauna flyer - This included threatened and endemic species (volant, non-volant, birds, amphibians, reptiles)
- Flora flyer - This included endemic, endangered, and economically important plants, rare and ornamental bryophytes, and new records of Philippine mosses
- Flyer on insect pests of cabbage (English and Visayas versions)

Handook

- Handbook on Wildling Propagation Protocol for Conservation (English and Visayas version)

Video/film showing

Video-showing featuring material relevant to biodiversity conservation was organized in selected barangays in the Mt. Malindang area. This activity aimed to raise public awareness on the importance of environmental and biodiversity conservation and at the same time impart to the community the relevance of the research activities being conducted by the BRP. The open forum following every film showing was considered a good venue to generate feedback about the Programme and other conservation concerns.

Mass media coverage

An article about the 7th QRM was published in a local newspaper ("Goldstar Daily" 3 September 2004 issue) as well as an overview of the BRP was published in 'Malindang,' the official newsletter of the Malindang Range Natural Park. The media was also invited during the launching of the BRP Nursery and Greenhouse in Mansawan, Don Victoriano, Misamis Occidental on 15 October 2004. Interviews were made of the BRP Site Coordinator which was aired over DXDD Radyo Kampana.

Networking and Linkages

As designed, networking in the BRP aimed to coordinate and dovetail efforts with key players and other stakeholders in the Mt. Malindang area, on issues involving conservation, sustainable development, etc. At the broader level, networking aimed to stimulate and sustain interaction among scientific groups and/or academic institutions, not only in the Philippines but also in other Southeast Asian countries and international communities as well (RAWOO and SEARCA 2000). Throughout its project life, the BRP through the NSS had continuously developed and maintained linkages with various agencies such as the International Plant Genetic Resources Institute (IPGRI), the Asean Regional Centre for Biodiversity Conservation (ARCBC), and the Plant Resources of South-East Asia (PROSEA). These organizations were likewise viewed as potential sources of supplemental funding. They had encouraged the BRP to submit research or project proposals that were consistent with their institutional thrust of biodiversity conservation.

At the local level, networking that aimed to coordinate and exchange knowledge, lessons learned, current results, and effective participatory methods were similarly pursued with various non-government as well as government agencies which were considered stakeholders in the Mt. Malindang area. These included UP Center for Integrative and Development Studies (UP-CIDS), CARE-AWESOME, Birdlife/HARIBON Foundation, AusAID-PALS, and DENR-NIPAP, among others.

Provincial and municipal government officials were visited to ensure the active participation of LGUs in BRP activities. These visits and courtesy calls to LGU

offices were occasions to make known the status of BRP research projects, the peace and order situation in their respective areas, as well as the establishment of the local advisory group for BRP.

One key problem expressed during the visits was the peace and order situation in Mindanao. When this was raised, the local government officials expressed optimism about the maintenance of peace and order situation in their areas. Since they support the goals and objectives of the BRP, they ensured the safety of the researchers.

The QRM as a Networking Strategy

A quarterly researchers' planning and integration meeting better known in the BRP community of researchers as QRM also served as a networking strategy internal to the BRP researchers. The QRM provided the researchers a venue to discuss progress in their research as well on capacity building activities. The quarterly meetings were also an opportunity for the BRP to bring in technical support to the researchers through the PWG and to get feedback from local stakeholders.

External networking, on the other hand, was maintained through periodic meetings and interactions (e.g., conferences/fora) with outside institutions especially on relevant, impact-laden issues. These also included attendance of researchers in both local and international conferences.

Table 4. Summary of process outcomes of the quarterly researchers' meetings

Date and Venue	Process Outcomes
2003	
1st QRM 30 April Iligan City	• Conduct of small group discussion among the terrestrial, aquatic and socio-economic master projects to finalize the schedule of activities for the duration of the QRM • Discussion of support activities required by each master project; agreed to hold 1) the policy analysis training, 2) GIS training, and 3) policy forum, among others • Presentation of defined activities by each master project • Review of protocols to observe
2nd QRM 19 July Ozamiz City	• Discussions on the appropriate conduct for BRP researchers guided by Dr. Marc Lammerink's paper on the 'Code of Conduct for Researchers' • Information dissemination on BRP's system of monitoring including requirements for reporting • Observation of proper protocol/s when addressing issues and concerns regarding project implementation • Delineation of roles and responsibilities between the NSS and the SCO • Planning for the capacity building activity of the TEMP and SEC • Acceptability and positive outcomes of the activity evaluation which makes possible immediate feedback of the activity
3rd QRM 26-27 September Cagayan de Oro City	• Presentation of activities undertaken by each study team • Synchronization of planned field activities • Discussion on the strategy for integrating the different studies • Presentation of research methodologies to be used by each team • Planning for the gender sensitivity training • Update on the status of the database management team • Small group discussions on project operations and other administrative concerns • Planning for preparations for project presentation during the JPC meeting
4th QRM 28-29 November Cagayan de Oro City	• Presentation of study reports by the different study areas • Presentation of the M&E Framework in relation to the Joint Programme Monitoring and Evaluation (JPM&E) Project commissioned by the RAWOO and planned for a roundtable discussion concerning the design and development of the M&E instrument • Discussion on the status of study permits such as the FPIC • Proposal for an emergency response mechanism resulting from experiences shared as regards the Lake Duminagat incident • Inter- and intra-project discussions on project implementation

Date and Venue	Process Outcomes
2004	
5th QRM 20-21 February Cagayan de Oro City	• Presentation of the proposed biodiversity framework with focus on the interrelated aspects of biodiversity loss and relevant conservation actions as guide to the implementation of the BRP • Presentation and discussion on the assessment reports of the different study teams • Identification of programme gaps, issues and deliverables such as maps for the database management, administrative paperwork, etc. • Suggestions for the improvement and expansion of the arthropod project to include agroforestry and spider ecology • Review and finalization of the participatory programme monitoring scheme instrument

6th QRM
28-29 May
Cagayan de Oro City
	• Presentation of research activities undertaken and research results obtained by each team, including preliminary analysis towards integration in the landscape level using the biodiversity conservation framework
	• Call for proposals for new action research on the following:
	  • Sibucal headwaters
	  • Research on abaca production in Mt. Malindang
	• Programme updates which include the following:
	  • Mid-term programme review
	  • Paper presentations in the Seventh ICOPHIL
	  • IEC activities for Mt. Malindang Week celebration
	• Updates on the PPMS

7th QRM 27-29 August Cagayan de Oro City	• Presentation of significant findings of each study group highlighting, among other things, influencing factors, effects, and additional requirements of the respective study • Discussions on how significant findings of each study group influence each other • Discussions on the interactions between and among the different ecosystems (aquatic, terrestrial, and coastal) and the socio-cultural-political characteristics across landscapes • Agreement among the different study groups on the identification of facilitating and constraining factors from across disciplines/ ecosystems/landscapes that may have influenced their findings
8th QRM 12-14 November Iligan City	• Discussion meetings with members of the PWG and other research collaborators particularly in the integration of the different study areas • Writeshop for most of the study groups incorporating comments/ suggestions of the PWG/collaborators • Discussion meeting with statistical experts to incorporate statistical analysis in their research findings • Scheduling of other capacity building activities such as the statistical work/writeshop

Date and Venue	Process Outcomes
9th QRM 4-6 February Iligan City	• Presentation of tasks to be accomplished until 30 June 2005, the end of the project, emphasizing the need for submitting the integrated study group reports by 30 March 2005 • Discussion meeting on the conduct of the community validation as well as plans for project closure such as the exit conference • Scheduling of other activities such as the database workshop and another roundtable discussion to validate the proposed JPM&E instrument
10th QRM April 16-18 Ozamiz City	• Review of the mission, objectives, and principles of the BRP including timeline for the completion of the master projects • Preparation/development of presentation materials for the closing conference • Presentation and critiquing of materials by the JPC and the PWG • Revision of presentation materials based on comments and suggestions by the JPC and the PWG • Final presentation by the three master projects teams

Mt. Malindang Implementors' Summit

Held on 17 September 2002, this summit provided a venue for generating information on various programs, projects, and activities that were [being] implemented by the different cities and municipalities in Misamis Occidental. It was also during the summit that gaps, overlaps, and/or problem areas among the identified activities were identified. Further, the event encouraged the preparation of concept proposals to address the gaps that would be funded by the BRP to be undertaken by the LGUs.

The summit was participated in by 35 representatives of various sectors headed by no less than the Provincial Governor himself.

Mt. Malindang Week

By virtue of Executive Order No. 03-2002 passed by the Provincial Government of Misamis Occidental and the DENR, the first week of June was declared as Mt. Malindang Week. In coordination with the Protected Area Management Board (PAMB), the BRP hosted two major activities: a symposium and an exhibit.

Attended by representatives of LGUs, organizations, and agencies engaged in development projects and research, the one-day symposium, which touched

on the role of biodiversity on the well-being of the people, aimed to enhance the awareness of the different stakeholders of Mt. Malindang about the nature, status and importance of biodiversity. Project objectives and activities of agencies involved in biodiversity in Mt. Malindang shed light on how such activities can contribute to the on-going conservation efforts of Mt. Malindang.

Policy Forum on Biodiversity Research

A policy forum on biodiversity was co-sponsored by the BRP on 19 September 2004 in Quezon City. The forum aimed to 1) provide a venue for discussing the critical issues and efforts in conserving biodiversity in the country and how these relate to efforts worldwide; 2) discuss the various programs and statutes related to preserving the country's biodiversity; and 3) discuss the policy implications of current research efforts on biodiversity.

The forum was highlighted by intellectual debates on issues confronting the presence and enforcement of existing laws/principles/ policies concerning assessment, conservation, and utilization of biodiversity. Substantial time was also devoted in discussing current efforts on biodiversity research being made by various agencies and how these contribute to sustainable development, one of which was the BRP.

Mayor Melquiadez Azcuna of Lopez Jaena town presented his reaction to the BRP as a research project. His presentation recognized the additional knowledge on the status of biodiversity in Mt. Malindang; the limitations of the BRP particularly in terms of directly addressing [low] agricultural production and productivity resulting to exploitation and 'illegal utilization' of biological and geophysical resources; the reconciliation and clarification on existing regulatory acts that touch on the rights and responsibilities of managing ecological resources; and the active involvement of the local government and the community as relevant stakeholders particularly in the sustainability of the BRP as a research for development programme. The mayor also proposed areas of concerns that "need attention for research and development."

Attendance to ICOPHIL

BRP researchers and staff took part in the 7th International Conference on Philippine Studies (ICOPHIL) held on 16-19 June 2004 at Leiden, The Netherlands. The theme of the conference, "Changing Landscapes, Humanscapes and Mindscapes in a Globalizing World," aimed to provide a forum for scholars from around the world engaged in research about Philippine society, culture, economy, and environment; and to promote scholarship that would contribute to policy making for sustainable development and not just be confined within the academe.

Researchers presented papers highlighting preliminary results of their studies:

- Participatory Biodiversity Assessment in Malindang Range, Philippines
- Participatory Biodiversity Assessment in the Coastal Areas of Northern Mt. Malindang
- Participatory Biodiversity Inventory and Assessment of Lake Duminagat, Mt. Malindang Natural Park
- Resource Utilization Patterns in the Terrestrial Ecosystem in Mt. Malindang and Its Environs
- Impact of Selected Policies on the Biodiversity Management and Conservation in Mt. Malindang and its Environs

Documenting Learning: Researchers' Narratives

There is a consensus in literature that competence in conducting research can only be attained by experiencing the entire research process as a problem-solving event. When research is viewed as a human activity, the need to understand the experiences of those engaged in it becomes very important. Researchers are in a unique position to 'narrate' on their learning experiences and to provide, in a more personalized way, an insider's view of the research event. They are the ones who could provide insights into how these experiences appear to them on their own personal understanding and perspective.

However, the subjective, more personalized processes which accompany the research event and the learning and growing which researchers have experienced, have largely been ignored. Very little attempt is made to track the changes that have taken or are taking place when researchers engage in research activities. This is so, despite the fact that many researchers are aware that engaging in research includes elements that are not reflected in reports or in any form of publications.

Telling stories

Part of the retrospective documentation of the BRP entails taking stock of the processes involved in knowledge development and capacity enhancement, considered as the critical elements of the BRP. Written reports and/or proceedings can provide a description of the nature of the event or the activity and its underlying objectives. However, the more important results in terms of new perspectives or attitudes or the more "subjective and personal" accounts of the individual, are not revealed.

In many occasions (QRMs, roundtable discussions, specialized meetings), the "lack of documentation on the experiences" among the researchers had always surfaced. Researchers claim that documentation was mostly done on how the research activities were conducted or what were the outcomes of the trainings. As a response, personal interviews and FGDs were done on the researchers to allow them to "narrate" their experiences. Some researchers decided to "write" their stories and sent them through the e-mail. These "stories" ranged from their conception of what "participatory" research is all about and how they relate this type of research to the kind of research they have been oriented with; their experiences in the field which included their conception of the community; their perception of the local researchers (LRs) as co-workers; and the knowledge gained and changes in attitude and skills, etc.

The following narratives, translated into English, are authentic accounts of these experiences:

What is 'participatory research'?

"Since this is my first time to be involved in this kind of research, especially focusing on the participation of local stakeholders, this was greatly knowledge-enriching for me. When I first made my research proposal for the 'first generation' projects, I included in my title the term "participatory" because it seemed to be the "in" word without fully understanding what it means. As a consequence, it did not get approved. However, I was made to improve on the proposal, also with the input and participation of a social science person, which broadened my understanding, and led to the approval and implementation of the research project. When I submitted my draft final report, one of the reviewers was a social scientist whose comments and my resulting literature search increased my

knowledge further. I gained appreciation of the concept and spirit of community participation. Sometimes, it may be easier to just pay lip service to it because it may be too idealistic and too difficult to aim for community empowerment."

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"Participatory process is difficult and lengthy. You need to present to the community for validation whatever problem you have identified; then you define the methodology which is still anchored on the principles of science. Then you collect the data. I have been used to doing research in my field the traditional way- defining a problem, formulating a hypothesis, conducting the experiment, etc. No one else collects the data but you alone. In a participatory research, you must engage a number of people in the process."

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"My research orientation is very much reductionist. Thus, I could not imagine what a multi-stakeholder is in terms of research ownership. But I have learned to appreciate that concept, even if I may not for now be able to completely engage in this kind of research. At least, I have learned to appreciate it."

Managing initial resistance

"There was some degree of resistance and negative reactions from members of the community. They would make remarks that would make you feel you want to give up. But we had this firm belief that the community should know the objectives of this project. So, that was what we did – inform them that the BRP is a research for development. When we came back to conduct the survey, we hired as local researchers those who had violent reactions towards the project. It was only then that they started to appreciate it."

Encountering real threats to biodiversity

"There are those who catch birds along the boundaries of Toliyok and Mialen. There are those who cut down trees along the boundaries of Mialen and Sibucal. During one of our field works, we saw four people bringing logs down the river. I recognized them as those from one of the communities where I collect data. I warned them about their activity. I told them that it was not just illegal but it was a harmful to the environment. They said there were influential people behind the illegal logging, financing the activity."

Making them understand what BRD research is all about

"We try to explain to the community what our research project is all about; that we would like to assess the environment like the forest where illegal logging is rampant, thus causing flooding. We tell them that we have to take care of the forest because it is our source of water. You have to tell the community because many of its members are not keen to ask."

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"Sometimes, despite our efforts done to explain to the community about the research project, other members who tend to expect too much from the project still don't seem to understand what we are doing. One time, during an assembly, an assistant of a tribal leader remarked that the project was about to finish but they were still not certain how the community benefited from the project. This implied that the community was not fully aware and did not understand completely the objective of a research for development like the BRP."

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"After every sampling is completed, we try to convene people in the community so that we can immediately share with them what we have collected in the field. We use this as a venue to explain to them the purpose and objectives of the project. We are glad that every time we collect samples, there is always a community assembly. We take advantage of the assemblies to inform people the reason why we are in their community."

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"When doing some measurements of water quality down the river, people would usually gather around asking questions about what we are doing. One time, I was asked by an elderly woman if we were looking for gold. She said that previously there were strangers in the area looking for gold. Because of previous experiences, many members of the community have become suspicious of what outsiders were collecting in the area. We always make it a point to take all the opportunities we can to explain to them the real intent of the project."

Choosing local researchers

"The lead researcher asked about their willingness to become local researchers. It is on this basis that we selected the local researchers."

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"During the 'second generation' research, we first oriented those who had signified their interest to become local researchers about the nature of the work

to be done. Some locals who had worked with the project before, with previous experience and exposure to the field, were selected."

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"While we based the selection of local researchers on certain criteria, we also had to ask the assistance of the barangay captain because we felt that more than anybody else in the community, the barangay captain would have more familiarity with his constituents."

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"We really used a set of criteria in the selection process, and not just asked anybody to select for us."

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"Pior to our data collection in Mialen, we had informed the community that we were coming for data collection through one of the councilors. This was because the barangay captain was not available then. Unfortunately, when the barangay captain found out, he threatened to suspend our data collection. It became apparent to us that he had a group of locals that he wanted to be hired as researchers in the community. We realized that despite being ready with criteria for selecting local researchers, the reality is that politicking within the community cannot be avoided especially in the selection of local researchers. Even barangay officials have already identified people whom they feel should be taken in as local researchers."

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"We only needed eight local researchers, but 16 applied for the job. The barangay captain did not want to have a hand in the selection process so we screened and interviewed the applicants."

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"The selection of local researchers has been tainted with politics. Sometimes tribal leaders themselves also want to have a stake in deciding who would be chosen as as local researchers. In Toliyok, we could not proceed with data collection because the tribal leader said we have not yet hired somebody from the tribe as a local researcher."

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"There were some who would like to be hired not as local researchers but as project researchers like us. We told them that there was no such position. Some were persistent but eventually we were able to proceed."

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"There is also the sense of territoriality when it comes to the selection of local researchers. Once we brought local researchers from Lake Duminagat to collect

specimens in Sibucal. We almost did not proceed with the fieldwork because the residents of Sibucal would not allow local researchers from Lake Duminagat to collect data. They felt that we should have taken local researchers from Sibucal to work with us instead."

Compensating local researchers

"We try to encourage local researchers to work not for the financial reward but more on the benefits that they will get in the long-term by helping preserve the environment. Local researchers are encouraged because of the knowledge that they will generate from the project."

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"You need to orient the local researchers on the intent and purpose of the project. Then we give them a background on the nature of the job to be done and how they will be compensated. It is a reality that people would really ask how much they will get paid by doing such work."

Empowering the community

"There are locals especially in Mialen, Toliyok, and Bunga who are genuinely concerned with the environment. You can trust that they will be able to do their share. Some are a little concerned but are affected by their need for a livelihood."

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"Apart from learning to deal with people, we also get to share with them the reasons why we are in the community. We do not just do sampling but we try to explain to them the outcomes of what people are doing with the environment, and how our programme can help address the problem in the long-term. I am proud that after all those times that I have been with the community, they claim that they have learned so much from us, from our project, from what we were doing – from identifying birds to earthworms, soils types, etc."

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"Many of the locals claim that much of their knowledge about species, and conservation came from the BRP research projects. In so doing, they begin to appreciate more the benefit of conserving and protecting the natural resources."

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"It is normal for people to expect that when you enter the community, you have something for them. At the end of the project, there are benefits that can be generated. In our case, we provided the community with knowledge on how

they can effectively conserve and protect their environment. Some understood our purpose but were constrained by their need for livelihood. Some actually did understand and learned by what the BRP as research for development was doing. They recognized the harm of cutting down trees, exploiting species that are already endangered, and trapping birds. We tried to warn them about possible outcomes of their practices. They were thankful that it was only during the conduct of the BRP research that they realized the need to protect and conserve their environment. In a sense, the BRP has become a venue to educate people in the community. Their involvement has become a learning experience for most of them."

Field researchers as frontliners

"We are assigned more in the field. We are the frontliners. We are like CAFGUs."

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"There are times when data collection would be divided among the team. The project leader goes to a certain barangay, the study leader is assigned to another barangay, and the same goes for research assistants."

"The researchers are actually the frontliners. There is already a certain amount of trust given to them by the project/study leaders that they can do fieldwork."

Field experiences

"Going to the field is very hard. You walk for long hours, along trails and rivers, and slippery rocks. There were dangers; I didn't even know how to swim! I felt as if it was my last day on earth. But I prayed hard. When there is a strong belief that you will be able to accomplish something, then you will surely go for it and not mind the difficulties. Once you have overcome the obstacles, you feel relieved and proud that you have accomplished something."

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"We have learned to deal with people of different personalities during the field immersion. We have developed among ourselves together with the members of the community a sense of camaraderie. "All for one and one for all" has become our motto."

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"What I understand with "dealing with people" is that you "take off your shoes" when in the community. You learn to be a different person. Because once you are with the people, you have to deal with different attitudes and personalities. You need to adapt yourself to their cultural backgrounds. At the same time, you take on the responsibility of sharing with them the knowledge that you have obtained so that at the end of the project life, they gain basic information to start with, particularly when planning for their own development."

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"When I first entered Sibucal, I changed my slippers to a cheaper one. My concept of "community" is that you learn to deal with them appropriately to earn their trust. You also have to learn to use their own language."

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"People in the community will learn to trust you when they see and feel that you have made yourself one of them – sharing their rituals (even some drinks), food, and everyday life, and jelling into the social fabric of the community."

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"One thing that one needs to remember when in the field is not to promise anything that you may not be able to deliver. Because of their experiences in the past, researchers doing fieldwork during the 'second generation' research had initial difficulty dealing with people in the field. Apparently, during the 'first generation' research, they were promised things that did not materialize."

It's about coordination

"Sometimes the lack of coordination in the field among the research teams can put the lives of the researchers/research assistants in jeopardy. One time, after completing data collection in Bunga, another group of BRP researchers belonging to another master project arrived for their own data collection. The locals did not recognize the group because they brought along with them local researchers who were not from the barangay. The residents in Bunga were used to seeing their own community members work with BRP researchers. Unfortunately, the group was held for some time in the community until we arrived in the evening of the same day. It was only then that I confirmed with the locals in Bunga that the group was with the BRP project just like us."

Preparations outside the QRM

"Usually when we get back from the field, the research team meets to discuss issues, concerns, and problems encountered. This is a good venue for us to share our experiences outside the regular QRM because we get to settle matters first among ourselves rather than discuss these with a big audience. Unfortunately, regular meetings outside of the QRM do not happen. This should be the practice so that we get to discuss problems and how to address them. This way, we will be able to correct a wrong approach or share with others a positive one. Sometimes we concentrate too much on the technical aspects like physico-chemical and sediments. We tend to neglect the other aspects that also have implications on how we manage our programme."

From theories to practice

"This was my first experience with what they call scientific research. My joining the BRP was actually for exposure only, but later, when I was already immersed in the community and doing actual fieldwork, I began to appreciate the practical side of doing research. During college, we did not have much practice, but only theories. In the BRP, I also learned to feel good about my degree course because I was able to practice theories which I did not have the opportunity to apply before."

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"For me, there was something new to learn everyday particularly with the BRP. It was during the 'first generation' research that I learned so much about my

field– marine biology. I am now more thankful because I am more knowledgeable about my field both in theory and practice than before."

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"It was with the BRP that I got to apply the theories I learned in college. I might be knowledgeable technically but it was through my experience in the field that I learned to identify bird species, sample fish abundance and macroinvertebrates, determine age of seagrasses, etc. Once, in Sibucal, I was overwhelmed to learn that flora species in the upland were different from those in the lowland."

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"I am still in the process of learning how to process and make sense of the data that we have collected in the field."

Commitment

"Because of our commitment to the project, we took on the responsibility of finishing the reports for the 'first generation' research even when our contract as researchers have already expired."

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"There was a time when the contract has expired but there were still a lot of work to do. So even without the benefit of a contract with the BRP, we continued to support the research team by helping them finish the reports."

Methodological processes

"It's not like just patching things and you're done. Processes in the BRP research encompasses a lot of things. You need to do a lot and gather more data so you have something to process."

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"I saw how the concept of a holistic approach was employed. I began to understand and appreciate the interconnectedness of things. It's different when you do a study that connects the coastal with the other ecological zones."

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"In the BRP, there are more skills required, more hands-on experience. You appreciate your involvement more because you actually apply what you have learned."

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"It was characterized by chaos at the start since everybody wanted to protect their own turfs. Violent reactions prevailed but emotions subsequently mellowed down. Now everybody thinks as a team. I had a feeling of being alienated but

later I developed a feeling of being a part of a team and that no matter how small my contribution is, it is still an important element of the team's decision."

• • •

"I learned that scientific research could be approached through interdisciplinary and multi-stakeholder participation. Each field of discipline complements with one another. Learning with the different disciplines gives more meaning to the research. Such problem could be seen and addressed at different points of view to consequently arrive at the best solution and results."

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"It took time to harmonize divergent ideas but ultimately a unified methodology was achieved through a series of intellectual discourses. I developed the value of being sensitive and cognizant of everybody's weaknesses and capitalized on everybody's strengths in maintaining a strong teamwork."

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"Methods sensitive to local culture were developed and honed. I became sensitive to the culture of the local people, giving due respect to their way of life and oftentimes consulting them if such method was applicable. I made sure that they approved the method before it was implemented."

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"I learned how to account and explain the interrelationship among the natural and social disciplines through systems thinking. I appreciated more that integrative process of linking biophysical and social research findings."

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"At the proposal level, there was already enough adjustments and readjustments done to accommodate one's discipline into the proposal of another. This was something different and new but also challenging. The approach may be relatively new to me but I think it was rewarding."

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"Natural discipline greatly enhances social disciplines and vice-versa; data could be best explained by the integration of these disciplines. I learned to appreciate other disciplines and realized that what the natural science researcher should aim for would be for the benefit/improvement of human life."

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"I realized that when minds are open to discussion, this would facilitate the convergence of concepts and approaches from various disciplines."

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"For a start, we collected samples on the same plots and considered interrelating observations from many disciplines to another: soil properties to flora and

fauna, and the role of socio-economic-cultural factors on these resources in any ecosystem."

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"This is probably the element that is missing in other biodiversity studies which spells the difference between effective, workable, and sustainable studies over those which are not."

Synergy between traditional and modern

"People in the community have their own stock of knowledge. They also have their explanation of why things are what they are. Sometimes their traditional knowledge matches our technical knowledge."

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"Even in the proposal, we already indicated that we would try to find out how the local community does its own sampling. We recognized two types of knowledge: ours and that of the locals. We would like to see these combined to come up with the best method of looking at things."

Professional transformation

"I do not have previous experience especially in sampling. While I could identify certain plant species in the forest, I did not know how to conduct quadrant sampling, much so identify macroinvertebrates. But when I was already doing fieldwork, I realized how interesting it was to do the sampling, and discovered it was not difficult at all."

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"I have learned how to write with confidence. When I was not yet a study leader, I depended so much on our study leader to write the reports. When I assumed the role of study leader, I was exposed to so much writing that I learned how to write and feel more confident that I can do the job."

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"I have become more technically knowledgeable during the BRP. I was forced to really learn the technical aspects of analyzing data because my study leader, at one period, became indisposed. But the experience paid off well."

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"I was given the chance by my study leader to write a portion of the report. I was also asked to present preliminary findings during the Zonal R&D Review. I was very nervous and scared knowing that I will be presenting in front of

professionals and experts in the field. But I was more than happy to have made it."

Leaving something behind

"You leave them a sense of friendship both of you will never forget. When you go back, they will still recognize you as the one who have once worked with them and shared with them."

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"A native chicken for a sumptuous meal would be waiting for me when I go back."

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SAMU'T SARI:

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Volume 2 (2) April-June 2003
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PROCESS	PROCESS DESCRIPTION	ACTIVITY		ACTIVITY OBJECTIVES	OUTCOME OF THE PROCESS
		LEVEL	COMPONENT		
YEAR 1: Agenda Setting	Development of the National Biodiversity Research Agenda which provided the directions and general content of the BRP based on research needs and questions that are important to biodiversity conservation efforts in the Philippines	Programme Level: National Workshop on Agenda Setting for Biodiversity Research 2-4 July 1997 Los Baños, Laguna		• To produce a biodiversity research agenda for the Philippines through a consultative process • To make recommendations for a management structure and implementation mechanism for the BRP	• Decision to develop a joint programme on biodiversity research on the basis of the directions set out in the Philippine documents • Development of a conceptual framework for biodiversity research • Inventory of relevant problems and issues • Listing of biodiversity conservation sites • Identification of priority research questions and topics for Luzon, Visayas and Mindanao
Research Programme Development	Development of a joint biodiversity research programme between the Philippines and the Netherlands anchored on the national and regional priorities in biodiversity research in the Philippines	Programme Level: Workshop on Developing a Philippines-Netherlands Biodiversity Research Programme 8-9 October 1997 Leidschendam, The Netherlands		• To discuss the policy and organizational frameworks of a collaborative programme of biodiversity research between the Philippines and the Netherlands	• Development of a policy framework that articulated and specified the research needs and priorities in Mindanao, and the geographical focus of the joint research initiative • Development of model/approach for designing an integrated, and comprehensive biodiversity research programme • Development of the organizational and management structure grounded on the principles of equal N-S partnership
		• Consultation Meetings in Mindanao: 1. 27 January 1998 Zamboanga City 2. 16 June 1998 Davao City		• To discuss with representatives of Mindanao-based institutions possible research areas and ensure the commitment of the institutions to the undertaking	• List of potential research sites in Mindanao • Agreement on the selected research site • Development of a procedure for concept proposals
Pre-Implementation	A research, training, preparation, and planning phase prior to actual or full programme implementation				

Programme Level Activities refer to activities undertaken in relation to the overall management and coordination of programme resources; **Project Level Activities** refer to activities undertaken in relation to the planning, budgeting, monitoring, and evaluation of individual research projects (BRP 2001 Progress Report).
Research Programme Component - set of research themes that link the research questions to real problems and opportunities in the communities and ecosystems in the research site; includes 1) Methodology Development, 2) Knowledge Expansion/Improvement, and 3) Policy-Oriented Research; **Support Programme Component** – set of organized activities which provides systematic support for cross-cutting needs of research activities; includes 1) Human Resource Development, 2) Community Organizing, 3) IEC Development, 4) Information Management, and 5) Networking (SEAMEO SEARCA 2000).

PROCESS	PROCESS DESCRIPTION	ACTIVITY		ACTIVITY OBJECTIVES	OUTCOME OF THE PROCESS
		LEVEL	COMPONENT		
• Participatory Rapid Appraisal (PRA)	A process aimed at describing the identified research site that would merge the observations of external data gatherers with the experiences and perceptions of the participants of the research: the people in the communities of Mt. Malindang and its environs	• PRA Training Course for the Pre-Implementation Phase (PIP) of the BRP 11 February 1999 CMU, Musuan, Bukidnon		• To orient researchers on methods involving participatory research assessments • To form research teams that will cover the upland, lowland, and coastal ecosystems of Mt. Malindang as research site • To discuss procedures in identifying and analyzing relevant stakeholders	• Development of a cadre of researchers able to conduct PRA and stakeholder analysis • Formation of different cluster groups by ecosystem types: upland, lowland, and coastal
		• PRA Fieldwork March-June 1999 Mt. Malindang communities		• To describe the identified research site in terms of the researchers' observations and the experiences and perceptions of the local community	Description of project sites in terms of: • Ecosystem, biodiversity and resources • Socio-economic characteristics • Cultural characteristics
		PRA Data Analysis and Writeshop 10-14 June 1999 Los Baños, Laguna		• To develop a common framework of analysis • To analyze data based on the SWOT analysis model • To recommend specific areas/sites for research • To recommend cross-cutting support programmes	• Development of a common framework for analyzing data • Processed data using SWOT • List of areas/sites for the conduct of research • Cross-cutting support programme
• Stakeholder Analysis	A process to comprehend the characteristics, interests, and influence of stakeholders; assessing their interests and the ways by which those interests affect project viability	Programme Level		• To identify individuals or groups who may have influenced or be influenced by implementation of the research project	• Identification of the characteristics, interests, needs, and influence of relevant stakeholders • Assessment of how interests and influence of stakeholders may affect project viability
• Collaborating with stakeholders	Establishing direct links with individuals, groups, and institutions to ensure that research outputs will eventually address the needs of the local communities	Programme Level		• To inform and share with stakeholders about the programme goals and objectives, thrusts and area coverage	• Shared information between and among the BRP and the stakeholders about the former's goals and objectives as well as research thrusts • Stakeholders' commitment to engage in information exchange and knowledge sharing that will complement each others' work in overlapping geographical or technical areas • Agreements were embodied in a Memorandum of Understanding (MOU)

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• Visioning	An exercise for creating the programme's vision and mission or what it expects to achieve in the future	Programme Level: • Visioning Workshop for the BRP 12 August 1999 Tagbilaran City, Bohol		• To agree on the programme's vision, mission, goals and strategies • To identify landscape-level and cross-cutting themes to create coherence between and among the researchable areas	• BRP vision, mission, goals and strategies • Research themes to organize and link potential research foci in: 1. methodology 2. knowledge (upland, lowland, coastal, and landscape ecosystems) 3. policy-oriented research • Management mechanism and structure
• Research project development	Development of researches that produce information, inventories, and assessments needed as baseline or initial data for further research	Programme Level: • Programme Management Design Consultative Workshop June 2000		• To agree on the set of criteria for evaluating research proposals • To develop a set of guidelines in relation to project implementation to be adhered to by researchers • To agree on a common format for research proposal writing	• Set of criteria for evaluating research proposals (research priorities, significance or possible contribution to the landscape approach, methodology, innovativeness, available expertise, format) • Set of general guidelines (administrative, technical, and financial) to be included in the BRP Operations/Procedural Manual
		• Capacity-Building Workshop 17-19 November 2000 Oakwood Premier Ayala Center, Makati City		• To integrate overlapping concept proposals and fit them into the overall BRP research framework • To finalize the list of capsule or outlines of integrated proposals with their corresponding indicative budget and lead proponents to be considered for full proposal development • To orient or prepare the researchers for entry into the community	• Revision of research proposals • Approval of a minimum amount of P20,000 (USD400) provided each proponent to be used for community validation and other activities required for the development of full-blown proposals • Guidelines for community protocol
		• Technical Review of Proposals 26 February 2001		• To further review research proposals for JPC approval	• Submission of 11 integrated proposals by researchers for final action of the JPC

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		• JPC Meeting and Review of Proposals 19-23 March 2001 Oroquieta City, Mis. Occidental		• To act on the revised research proposals	• Approved capsule proposals to be developed into full-blown proposals to be presented by proponent for further evaluation • Two proposals not accepted
		• Workshop on Research Design and Methodology 23 March 2001 Oroquieta City, Mis. Occidental		• To assist researchers to identify strategies for preparing community profile, and conducting participatory resource assessment, inventory, and data analysis	• Research participants are equipped with the knowledge of strategies for preparing community profile, and conducting participatory resource assessment, inventory, and data analysis
Implementation (Base lining or "First Generation" Research)		Programme Level: • Signing of MOU with partner institutions • Signing of Research Grant Agreement with individual researchers • Mobilization and establishment of the PMO • Acquisition of PAMB endorsement and collection permits from DENR and BFAR	Capacity building • Provision of technical assistance in the refinement of the methodology and data analysis	• To provide technical assistance in the refinement of the methodological component as well as data analysis of the study projects on policy (Canencia), coastal (Bacaltos), delivery systems (Lariosa), and vertebral fauna (Gomez)	• Five proposals were approved for implementation • An additional two proposals were approved for implementation which brings to seven the total number of research projects implemented (See List of "First Generation" Research Projects)
		• Quarterly monitoring and validation of research activities • Call for proposals for support activities • Signing of additional MOUs with new partner institutions • Signing of MOU with Dutch partner institutions • Formation of Local Advisory Group	• Field Scanning Activity 11-16 February 2001	• To determine the progress of each project study in terms of its understanding of the overall landscape of Mt. Malindang; • To identify the benefits that can be derived from the programme by the various stakeholders; • To describe and analyze the policy context of biodiversity conservation efforts in the area	• Presentation of initial study results • Surfacing of problems and concerns faced by researchers in the conduct of their study • Identification of gaps for researchers to fully comprehend the landscape framework of the BRP

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Implementation			• Midstream Evaluation Workshop 16-20 February 2002 Oroquieta City Misamis Occidental	• To plan for the future of the on-going research projects in terms of identifying gaps, potential NGO partners, and potential graduate students who can be involved in future BRP researches	
			• Information Management	• To develop a GIS-based data management system in support of BRP research activities	• Development of data management framework • Enhancement of GIS facility
			• Public Awareness Campaign	• To design and develop an IEC Strategy Plan • To develop and produce information materials for the BRP	• Development of an IEC strategy plan for the BRP • Development and production of information materials as part of the public awareness campaign
			• Linkages and Networking		• PMO local level link-up • NSS national level link-up • JPC international level link-up
Implementation	Development of a more comprehensive and integrative set of researches which examines more deeply the biosocial systems interactions and which is able to provide knowledge for alternative strategies and policy development	Project Level: • Formation of Mindanao Biodiversity Research 1. 21-24 July 2004 CMU, Bukidnon 2. 11-13 August 2004 MPSC 3. 22-25 August 2004 CMU, Bukidnon		• To create the Mindanao Biodiversity Research Consortium • To update Mindanao researchers on the status and progress of the BRP • To orient researchers of the "master project" • To prepare concept proposals for the Master Plan (MP)	• Consortium of researchers from 14 Mindanao-based institutions • Drafting of concept proposals for the MP • Naming of project teams to compose the MP
		• Researchers' Value Formation Workshop 16-17 September 2002 Oroquieta City, Misamis Occidental		• To orient the researchers to the spirit and premises of development research • To clarify the quality of development-oriented research • To provide an overview of the methodologies in field-based experimental research • To discuss the system of project monitoring and evaluation to arrive at common agreements regarding the criteria for quality assessment	• Presentation and discussion about the nature, context, and substance of research for development; enhancing a "development research culture" in Mindanao; the methodological, ethical and evaluative issues in development research

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		• Researchers' Integration Workshop 5-10 November 2002 SEAMEO SEARCA, Los Baños		• To develop the Master Projects following a participatory and consultative process	• Development of the Master Projects guided by the BRP's 'research for development' framework • The physical, biological, socio-cultural, and economic characteristics of the landscape were analyzed and integrated • The interrelationships of the priority issues and urgent needs of the local stakeholders were set out in relation to BRP objectives; the socio-cultural and economic characteristics of the landscape were analyzed and integrated
Implementation				• To develop the Master Projects following a participatory and consultative process	• Identification of research questions related to resolving priority issues and meeting urgent needs that were made as bases for identifying potential studies
		• Operational Planning Workshop 14-17 February 2003 Oroquieta City Misamis Occidental		• To develop research and support activities for the MP • To present framework and highlights of the MP • To form the team of researchers who will implement the MP • To identify gaps in expertise • To conduct site visits • To conduct a writeshop to further refine the proposed research methodologies	• Initial revision of each team's proposed activities • Decision to hold a methodology refinement workshop focusing on the statistical aspects of the research • Development of specific project description
		• Methodology Refinement Workshop 19-22 March 2003 SEARCA, Los Baños, Laguna		• To assist researchers in the preparation of specific project descriptions • To identify appropriate capacity building activities in support of the Master Projects	• Development of specific project descriptions • Identification of appropriate capacity building activities in support of the MP • Validation of the appropriateness of the statistical sampling and design to be used in the conduct of the MP

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			Capacity Building • Introductory Training Course on Policy Analysis 7-9 May 2003 Los Baños, Laguna	• To introduce general policy concepts • To provide insights and lessons to better understand and appreciate policy analysis	
Implementation			• Desktop Mapping (GIS) Training 19-21 May 2003 MSU-IIT, Iligan City	• To equip research participants with knowledge on the use and application of the software ArcView for preparing maps	
			• Symposium on the role of biodiversity on the well-being of the people 5 June 2004 Oroquieta City, Misamis Occidental	• To enhance the awareness of the different stakeholders of Mt. Malindang about the nature, status, and importance of biodiversity	
			• Symposium/Policy Forum on Biodiversity Research and Its Contribution to Sustainable Development 19 September 2003 Quezon City	• To provide a venue for discussing the critical issues and efforts in conserving biodiversity in the country and how these related to efforts worldwide; • To discuss the various programs and statutes related to preserving the country's biodiversity; • To discuss the policy implications of current research efforts on biodiversity conservation	
			IEC Development • Production and dissemination of public information materials on the BRP and its research activities • Design and development of the BRP website		

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		Programme Level Formation of a Local Advisory Group (LAG) 21 August 2003 Oroquieta City, Misamis Occidental		• To create a representative body for the local community researchers that will serve as their direct link to the BRP • To provide entry points to local policy making bodies in agriculture, environment, and other concerns in Mt. Malindang • To provide the lead in defining the needs of local stakeholders and how these can be addressed • Assess the problems and needs of local stakeholders and translate these into priority areas • To identify support activities that will further make research results relevant to local stakeholders	
			Capacity Building • Training Course on Primary Data Collection for Flora, Fauna, Soil Ecology and Socio-Economic-Cultural Dimensions of Biodiversity Conservation in Mt. Malindang • First Session: 15-16 August 2003 Toliyok, Oroquieta City • Second Session: 22-23 August 2003 Iligan City	• To orient the researchers, research staff and local researchers with the basic skills in gathering relevant data for the different studies; • To equip the researchers with the skills necessary to generate data and information that are comparable across research sites to simplify evaluation and analysis; • To enhance awareness on the need to exchange ideas and information among BRP researchers throughout the field operations	
			• Exposure Tour/ Cross-Farm Visit 7-11 October 2003	• To visit farming technologies implemented by different agencies and organizations • To interact with farmer-practitioners to better their understanding and appreciation of farming systems	

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			• Gender Sensitivity Training 7-8 November 2003 Cagayan de Oro City	• To equip research participants with the knowledge on integrating gender sensitivity framework into their research	
			• Training on Plant Taxonomy, Taxonomic Research Methods, Herbarium Processing and Management 8-16 March 2004 CMU, Musuan, Buikidnon	• To provide participants updates regarding TEMP and aquatic riparian study • To update participants on the principles/concepts of taxonomy and taxonomic research methods • To equip participants with skills on actual implementation, classification, nomenclature and databasing of plant collections • Train participants on proper collection, processing and cataloguing of specimens • Assist participants in analyzing data	
			River Water Quality Monitoring Using Macroinvertebrates as Bio-indicators: Training on the Identification of Macroinvertebrates 16-18 March 2004 Oroquieta City	• To equip research participants with the knowledge on the use of macroinvertebrates as bio-indicators for monitoring and evaluating water quality	
			IEC Development (continuing activity) • IEC materials production • Educational intervention/advocacy • Media coverage		

Research That Makes Difference