



DGIS representative visits southern Philippines

Mr. Fon van Oosterhout, representative of the Netherlands Ministry for Development Cooperation (DGIS), together with members of the Joint Programme Committee (JPC) and Dutch research collaborators, visited the upland, lowland, and coastal research sites of the BRP in Mt. Malindang and environs, Misamis Occidental.

During the visit, the researchers briefed the group with findings of the first generation research projects and an overview of activities for the second generation research projects.

Mr. Oosterhout also met with the members of the JPC and the BRP Local Advisory Group (LAG) during the 6th JPC meeting. Issues and concerns regarding the status of the programme were the major points discussed during the meeting.

Mr. Oosterhout observed that the BRP has established good contacts with the local government units and national government entities. An example is the formation of the LAG, composed of representatives from the local government units and nongovernment organization, whose purpose is to guide the BRP in its operation. He, however, addressed the JPC to “set all sails to cooperate and coordinate very closely with nongovernment development organizations in order to gain mutual strength for development and poverty alleviation.” ■



A local researcher (right) welcomes Mr. Fon van Oosterhout (left), DGIS representative during his visit to Mt. Malindang.

JPC holds its 6th meeting

The 6th Joint Programme Committee (JPC) meeting was held on 19-25 October 2003 in Ozamiz City. The meeting was attended by JPC members; NSS, SCO and SLO staff; Mr. Fon van Oosterhout of DGIS; all Mindanao researchers and research staff implementing the Master and Open research projects, Dutch research collaborators; and BRP Local Advisory Group (LAG).

Activities of the week included the: (a) researchers' meeting, where BRP researchers implementing the Master and open research projects reported the development of their respective studies, (b) visit to the upland, lowland, and coastal research sites, (c) meeting of the DGIS representative with LAG, and (d) JPC business meeting.

Among the agenda items tackled in the business meeting are: (1) status of the first generation research projects, (2) the development of the Master and Open Research Projects, (3) approval of applications for thesis grant, (4) approval of proposals for research and support activities for funding, (5) internal and external programme evaluation, (6) administrative and financial matters, and (7) future plans for the programme.

The JPC, composed of Filipino and Dutch members, is the highest policy and decision making body of the BRP. It holds its meetings twice a year. The next meeting is set in March 2004 in the Netherlands. ■

BRP has new JPC Chair

BRP is pleased to have Dr. Perry S. Ong as its new JPC Chair effective 1 September 2003.

Dr. Ong is an Associate Professor at the University of the Philippines (UP) Diliman and convenor of the Biodiversity Conservation Program at the UP Center for Integrative and Development Studies. His professional interests lie mainly in biodiversity conservation and management, behavioral ecology, and protected areas management.

Dr. Ong continuously shows strong commitment to the protection of the environment and conservation of biodiversity. He has led a number of projects concerning biodiversity conservation in different areas of the Philippines, joining hands with the government, nongovernment organizations and private sectors.



Dr. Perry Ong (standing, third from right), together with the members of the JPC, staff of the BRP Secretariat, and LAG member.

Because of his invaluable contribution in the field of science and technology, he has been recipient of a number of awards. He has received the Jose Rizal Award for Excellence in Science and Technology, and has been awarded Hiyas Environmentalist of the Year (2000), Outstanding Young Man (for Environment/Conservation), and Outstanding Young Scientist given by the National Academy of Science and Technology (NAST) of the Philippines.

Dr. Ong obtained his PhD degree in Science (Behavioral Ecology and Evolutionary Biology) at Monash University, Melbourne, Australia and MSc in Zoology at the University of the Philippines Los Baños. ▪

BRP awards thesis grants

The BRP Joint Programme Committee (JPC) awarded thesis grants to four undergraduate and graduate students conducting their research in Mt. Malindang, Misamis Occidental. Grants were awarded to the following students whose thesis/dissertation topics are based on the research themes identified from BRP scanning activities in the Mt. Malindang environs, and are relevant to the existing Master Projects:

- Azuelo, Andrea G. [PhD Biology, Central Mindanao University (CMU)] – “Bryophyte Flora of Mt. Malindang, Misamis Occidental”;
- Calumba, Honey Jane A. [MS Environmental Science, Mindanao State University-Iligan Institute of Technology (MSU-IIT)] – “Species Diversity and Abundance of Land Snails on Mt. Malindang, Misamis Occidental”;

- Ejem, Lynette A. (PhD Biology, CMU) – “Lichen Flora in Mt. Kalatungan, Bukidnon and Mt. Malindang, Misamis Occidental”;
- Perez, Harold C. (BS Environmental Science, MSU-Marawi) – “Diversity of Trees along Altitudinal Gradient: From Layawan River Going Up to North Peak in Mt. Malindang Natural Park, Misamis Occidental”.

The BRP continues its call for thesis grant applications. Since 2002, the BRP has given 11 thesis grants to undergraduate and graduate students conducting their research in the area. Three students have graduated from their university, and the rest are in the data gathering and data analysis stages. ▪

BRP researchers reap two awards

BRP researchers of the first generation project reaped two awards for their research titled “Community-based Inventory and Assessment of Riverine/Riparian Ecosystems in the Northeastern Part of Mt. Malindang.” Dr. Proserpina Gomez-Roxas, Ms. Annabella M. Gorospe, Dr. Renato D. Boniao, Dr. Linda M. Burton and Mr. Sherwin S. Nacua won First Place in the professional paper presentation during the 35th annual convention of the Federation of Institutions in Marine and Freshwater Sciences (FIFMS) held at Zamboanga State College of Marine Sciences and Technology, Fort del Pilar, Zamboanga City on 16-18 October 2003.

The group also bagged the Best Paper Award (Research Category) during the 8th annual Zonal Commodity RD&E Review and S&T Planning Workshop held in Naawan, Misamis Oriental on 12-14 November 2003. ▪

Lake Duminagat is a crater lake located in Mt. Malindang Natural Park, one of the protected areas in the Philippines. There are two communities adjacent to it – Brgy. Lake Duminagat, of which it is part, and Brgy. Gandawan—both within the municipality of Don Victoriano, Misamis Occidental. The Park represents the flora and fauna of the Zamboanga biogeographic zone.

Lake Duminagat is a worthy area to study, not only for its biodiversity but because it holds a central place in the spirit life of the Subanens, who look on the lake as sacred and as a source of healing water.

The indigenous Subanens have lived in various parts of the Zamboanga Peninsula, starting from pre-Hispanic times, including the Mt. Malindang area. Although the Subanens have had their own traditional customs and practices, they have become more or less enculturated by the influence of Visayan and western cultures, brought about by Visayan settlers, businessmen and mass media.

Participatory approach was employed in this project, one aspect of which is participatory inquiry, formally termed as Participatory Biodiversity Assessment. The research involved people in the community as local researchers or local partners. It aimed to study the morpho-physico-chemical and biodiversity characteristics of the lake and its perimeter. The socio-economic-cultural profile of the community was included in the research as a background information, so that the community would know their situation—how they are related to the lake and its biodiversity, how they might affect these resources, and how they can conserve these resources and maximize their use to improve livelihood opportunities.

The area of study consists of valleys and mountains, Brgys. Gandawan and Lake Duminagat, and the lake basin being considered as crater valleys, surrounded by varying tall mountains.



Participatory Biodiversity Inventory and Assessment of Lake Duminagat, Mt. Malindang Natural Park

by Carmelita G. Hansel, Project Leader
Mindanao State University-Marawi

Being at a high elevation (~1,240 to 1,560 m above sea level), the climate in the Lake Duminagat area is cooler compared to the lowlands. The area belongs to the region classified as Intermediate B type – no very pronounced maximum rain period and no dry season, with an annual rainfall of 2099 mm.

Lake Duminagat is a small lake, with an area of 8.04 ha, maximum depth of 20.95 m, water volume of 933,000 m³, mean depth of 11.6 m, shoreline length of 1,060 m, and shoreline development of 1.054. The water is low in alkalinity and is very soft. The water at the middle of the lake is potable enough to be a source of drinking water at various times of measurement. Its various morphometric and physico-chemical characteristics such as a low surface area to volume ratio, low lake area to watershed area ratio, low alkalinity, and low amount of dissolved solids all contribute to its low productivity. Its macrophytes (representing one component of primary productivity) and zooplankton (representing secondary productivity) population are

thus low in numbers, aside from being limited in number of species. Consequently, the fish population, which is at the top of the aquatic food chain, is also low in kind, numbers and biomass. Nonetheless, the lake supports a high diversity of indigenous shoreline fauna and flora.

The population of the two barangays consists of about sixty households each. The population has a high potential for increase because a greater sector of the population is at their reproductive age. There is also the potential for in-migration to the area. However, there could also be out-migration for people who want to seek “greener pastures.”

Although the area has an attractive cool climate because of its high elevation, it is beset by heavy rains, bad roads, leeches, difficult livelihood, lack of electricity, and lack of the finer amenities of life. Making the place more attractive by providing more services could lead to increased in-migration which can overshoot the area’s carrying capacity.

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Discovering earthworms

by Renato D. Boniao

Early in the morning of 8 November 2003, Dr. Sam James, a Biology professor at Marahishi University of Management, Iowa, USA, and the Soil Ecology team composed of Dr. Rosa Villa Estoista, Dr. Carmelita Hansel, Ms. Rhea Amor Lumactud, Mr. Nonillon Aspe and myself, headed to Brgys. Gandawan and Lake Duminagat in Mt. Malindang for a three-day site visit and earthworm sampling. We were blessed with a fine weather that day. We arrived at Brgy. Lake Duminagat at around 4 o'clock in the afternoon while the sun was still high enough for us to have a good view of the sampling sites.

The next day, we set out early for the upper Gandawan sampling site. This is on the other side of the barangay and we intended to sample a secondary growth forest, previously logged-over close to Lake Duminagat. We sampled two 20 m x 20 m plots in this site.

Dr. James showed us how sampling was done. He himself dug 0.5 m x 0.5 m x 0.3 m holes, placed the dug soils to a plastic sheet spread on the ground, and hand sorted it for earthworms. Earthworms collected were immediately processed: pictures taken, one part preserved using formaldehyde for dissection purposes and another part with ethyl alcohol for DNA study, both for species identification and other ecological studies.

Not all earthworms are underground dwellers. Some thrive very well on the ground surface and some even dwell on places as high as five meters or so above grounds. These species live generally on pure organic materials. They are jumpy and move like snakes. In contrast, those that live deep in the soil are slow moving and mostly, unpigmented.

After the two-day field visit, we headed to Mindanao State University-Iligan Institute of Technology (MSU-IIT) for a training on earthworm identification and field techniques on collection, preservation and population estimation conducted on 11-14 November 2003.

On day one, Dr. James set the mode of the training by giving the participants the impression that these humble but relatively ubiquitous organisms may not be as lowly as they seemed or often times portrayed. They could have been in existence long before there was man and there are probably records to show that their presence or absence in one particular place or continent support theories that some of earth's landmasses were connected or separated in the early geological times than they are today.

As the training progressed, we discovered that earthworm was not, after all, synonymous to *Lumbricus terrestris*. There were probably hundreds more of species; and the Philippines will, perhaps, have a good share of these new species to be known very soon. We got to know too, especially for those who were interested in vermiculture or vermicomposting, that species particularly suited for the purpose are those that live in organic habitats. A few good examples for these are *Perionyx excavatus* and *Eudrilus eugeniae* (from Africa). Take these recommended species, however, with extreme caution. They are introduced species and introduced species most of the times endanger native species.

When it comes to species survival and preservation, it may seem that earthworms are better prepared than humans. For instance, earthworms are hermaphroditic, that is, they possess both male and female internal reproductive organs. Mutual cross-fertilization usually takes place. The eggs, containing considerable yolk, are buried in the earth in capsules formed from secretions of the clitellum, a thickened portion of the body wall. The capsules protect the young until they hatch as small, fully developed worms. Some species live for ten years or longer. And perhaps to *Homo sapiens'* envy, earthworms have on the minimum two, and in most cases four or more, male and female reproductive organs in contrast to man's one and dysfunctional at times.

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BRP researchers collect earthworms for the soil ecology study to assess soil ecological resource diversity and availability in selected sites of Mt. Malindang.

From Research to Policy: The Case of the Philippines-Netherlands Biodiversity Research Programme for Development in Mindanao*

Gil C. Saguiguit, Jr.¹, Paul Smits², Ed Maan³ and Mariliza V. Ticsay⁴

Introduction

The Philippines-Netherlands Biodiversity Research Programme (BRP) for Development is a long term North-South research partnership focused on Mt. Malindang and its surrounding environs, in the island of Mindanao, southern Philippines. The programme was jointly conceived and designed by a group of environment practitioners in the Philippines known as the Philippine Working Group (PWG) for Biodiversity Research and the Netherlands Development Assistance Research Council (RAWOO). The partners agreed to a genuine research collaboration between researchers from the Philippines and the Netherlands based on principles of joint responsibility, mutual trust, sharing of experiences and expertise, and a two-way learning process.

RAWOO found a ready ally in the SEAMEO Regional Center for Graduate Study and Research in Agriculture (SEARCA), whose concern is the promotion of sustainable agriculture through natural resource management and environmental protection in the Philippines and in Southeast Asia. These two institutions jointly prepared and packaged the programme for funding by the Dutch government and other possible donors. SEARCA facilitated and organized the activities in the Philippines of the PWG and local researchers involved in the endeavor. RAWOO mobilized professional and material resources in the Netherlands and advised the Dutch government on the implementation of the programme. The BRP has since been approved by the Dutch government to start in July 2001. Funds in the form of a grant have been awarded to SEARCA to implement the programme over a five-year period.

An underlying goal of the BRP is to promote biodiversity conservation in the area, by making available its research findings and results to a host of stakeholders including local government units, farmers, fisherfolk, government, and nongovernment organizations. Hopefully this will be translated to local policy, ordinances, and practices that will sustain the effort to conserve biodiversity in Mt. Malindang. The nature and processes of implementing the BRP in itself will enhance local capacity in biodiversity research and conservation. Now that it is on its fourth year of implementation, it is worthwhile looking at the programme's design and evidences on the aspect of influencing policy for biodiversity conservation in Mt. Malindang.

Why the need for BRP?

The BRP was conceived by its proponents for several reasons. First, it is meant 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 (South) country, which is the recipient. An unwritten practice is that control over such collaboration usually rests with the donor country. Donor preference or specifications in terms of the research agenda, programme design, and research implementation is the rule of thumb. More recently, a school of thought fast gaining ground in the development world is that collaborative research programmes must represent a true partnership. This means equal footing status between the North and South partners whether in terms of

management/administration or technical expertise requirements of the research.

The *second* purpose of the BRP is to test the hypothesis that the success and sustainability of any research and development undertaking is highly dependent on how *participatory* it is. The consensus is that a research agenda grounded on actual needs of stakeholders and target beneficiaries stands a better chance of being accepted and supported locally. The participatory nature of 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 so-called participatory approach can make a difference.

Finally, the *third* purpose of the BRP is 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

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*Paper presented by Dr. Mariliza V. Ticsay during the Policy Forum on "Biodiversity Research and its Contribution to Sustainable Development" on 19 September 2003 in Quezon City, Philippines.

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comparatively few and disjointed conservation and development efforts placed 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 where there are remaining stands of old growth forests and is an acknowledged biodiversity "hot spot". The urgency of the situation requires an immediate response from research, i.e., 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.

What is the BRP?

The Philippines-Netherlands Biodiversity Research Programme for Development in Mindanao: Focus on Mt. Malindang and Environs, as it is formally called, is a five-year research programme with the following specific aims:

1. To make biodiversity research more responsive to real life problems and development needs;
2. To introduce a new mode of knowledge generation for biodiversity conservation that is interactive, participatory, multi/interdisciplinary, and learning-based;
3. To strengthen national capacity for biodiversity research and enhance local ownership by empowering Philippine research partners and local stakeholders; and
4. To promote genuine research cooperation between researchers from the Philippines and the Netherlands.

Overall this innovative research seeks to generate knowledge and insights that can contribute to a better understanding of biodiversity issues in the Mt.

Malindang area, to better policy responses, management practices and possible re-direction of people's livelihood activities and opportunities to align with biodiversity conservation goals.

The programme responds to the need for better understanding of biodiversity, especially at the ecosystem level, where interaction with the social system produces impact felt most by the greater portion of the human population. Research is not for the sake of generating knowledge alone, but primarily to benefit both biodiversity and human communities.

Programme Development with Stakeholder Participation.

The programme's beginning is traced to the conduct of a National Consultation Meeting for Biodiversity Research Agenda Setting participated in by a multi-stakeholder group of researchers, and representatives from government and nongovernment institutions in the Philippines' three major island groups. A similar group from the Netherlands representing the academe and government joined them. A National Biodiversity Research Agenda was drafted based on research needs and questions important to biodiversity conservation in the country. It was through this Agenda that the guiding concepts and qualities of a research program responsive to sustainable development needs were defined, later to become the foundations of the design of the BRP.

Through a process of consultations and joint meetings and conferences between Philippine and Dutch proponents the draft research agenda underwent further refinement and focusing. Subsequently on the basis of funding realities, the decision to start the biodiversity research programme on a pilot scale in Mt. Malindang, Mindanao was reached. It was largely viewed and intended as the possible springboard from which similar biodiversity conservation initiatives throughout the country could be launched.

A Participatory Rapid Appraisal (PRA) was conducted by partners in Mindanao who had formed themselves into an informal consortium composed mainly of researchers and technical people from leading academic institutions on the island. Experts from the Netherlands in specialized fields assisted where local capacities were concededly lacking. Results of the PRA were then used as basis for identifying and narrowing down the focus of the research programme in terms of specific ecosystem-based topics in both biophysical and socio-economic-cultural fields. This was developed with representatives of the national line agencies through their regional offices, the Local Government Units (LGUs) of nine municipalities covered by the programme, the Provincial Government, and other entities implementing development programmes and projects in generally the same geographic locality.

Largely due to its highly participatory and consultative nature, the conduct of preparatory activities leading to the development of the programme framework took over two years. The period known as the Pre-Implementation Phase (PIP) and its attendant activities for the development of the BRP is summarized in a Ladder of Events as shown in Figure 1.

Management Structure Conducive to Partnerships and Participation.

The Programme's management set-up lends itself well to partnerships and participation as shown in Figure 2. The highest policy and decision-making body is the Joint Programme Committee (JPC), consisting of three members each from the Netherlands and the Philippines. The JPC reviews work programs, endorses the annual budget, and is responsible for overall management of the programme. It is a collegial body where decision-making is a shared responsibility, although in practice, much weight is given to the views of the Philippine members because of their familiarity with local context and issues.

A National Support Secretariat (NSS) puts into action the plans and decisions of the JPC. It manages and coordinates the overall implementation of the Programme in the Philippines and monitors its progress. It is also responsible for coordinating the programme's multiple partners in the country. The SEAMEO Regional Center for Graduate Study and Research in Agriculture (SEARCA), a regional organization based in the Philippines has been designated as the NSS. A Support and Liaison Office (SLO) serves as the secretariat in the Netherlands, which coordinates Dutch partners' participation.

A Site Coordinating Office (SCO) led by a Site Coordinator handles local and field level implementation and a staff of 3-4 people based on site. They take charge of coordinating the research and development activities in the study area. This includes providing logistical support and monitoring the activities of the research projects and researchers.

Finally, component research undertakings and projects, usually multidisciplinary in nature, emanate from scientists and researchers in the participating Mindanao institutions. There is the provision that Dutch scientists are called in where there are

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Guiding Concepts of the Mt. Malindang Biodiversity Research Programme

Location-derived and development-oriented

The research agenda, priorities and methods are obtained from the needs of the people in the area where it 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.

Promoting multi-stakeholder participation

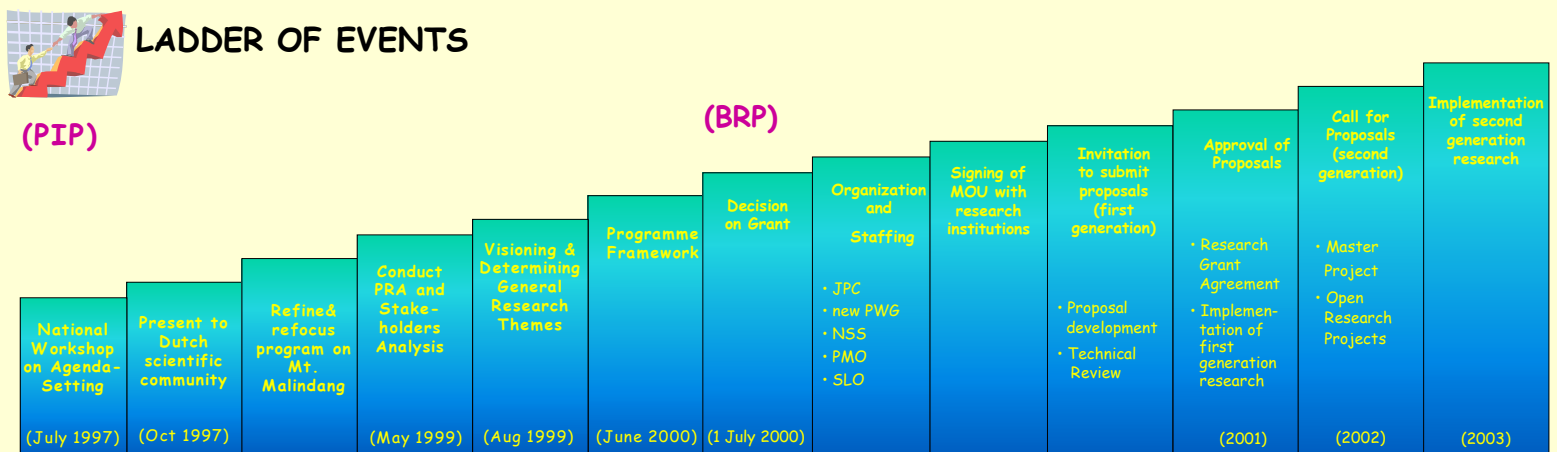
It involves not only the research community, but also most importantly, the local communities and stakeholders, including local government units and non-government organizations. Constant interaction and feedback among the stakeholders make research more responsive to local development needs. Their participation enhances the mechanisms for the research to input into policies, programmes, and day-to-day practices that will conserve biodiversity resources.

Systems-oriented and interdisciplinary

The conceptual framework of the research is holistic, i.e., it examines and aims to understand the interaction of different elements of the system. To do this, research brings together the natural and socio-economic-cultural components and their interactions, which affect biodiversity. Researchers of various disciplines in the natural and social sciences and those experienced in crosscutting or multidisciplinary studies come together in this approach.

Using an integrated ecosystems or 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 area that spans 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.



Participation of government, nongovernment organizations, academe, local stakeholders, and Dutch partners in each step

Figure 1. Programme development.

Participatory Biodiversity...from page 3

The major source of income in the community is gardening, a livelihood which cannot sufficiently meet the people's basic needs. As one resident complained, their products are being sold at a low price, yet the basic necessities they need to buy (e.g., rice) command a higher price. Gardening cannot really lift up the economic condition of the residents in addition to the fact that further opening of the area to agricultural pursuits would destroy the Park. Thus, livelihood alternatives should be developed.

The residents consider the lake as the dwelling place of spirits and do not encourage fishing in the lake. It is not only the Subanens but outsiders who consider the lake as source of healing water. They also believe that the lake has the capacity to wash away sins. The occurrence of many visitors to the lake, especially during Holy Week, attests to this belief. It is not only for this purpose that people troop to the lake

but for recreation. Thus, the lake and the adjacent North Peak have very good potential for ecotourism, provided that certain precautions need to be done for its preservation.

The lake supports a surrounding lush vegetation. Considering the need for sustainable livelihood alternatives, the plant resource can offer a mine of ornamental and medicinal plants, source of bioactive compounds, raw material for mat making, source of fiber, etc. if it is conserved and encouraged to flourish. The lake's surroundings also support a diverse fauna that can be encouraged to multiply.

Following the principle of participatory action development, it is hoped that this research (the diagnosing phase) will lead to experimenting and sustaining phases, possibly collaborative management of this protected area with the Subanen community. ■

Discovering... from page 4

Proper specimen preservation was another important thing we learned from the training and in the field. It was an enriching experience to have gone to two ecologically important ecosystems, agroecosystem and secondary growth forest, where we collected, preserved, and estimated the population of earthworms over an area.

In the laboratory, earthworms were dissected, organs were traced and identified. They were sorted to genus and species using colors, presence or absence of certain anatomical parts or by the numbers or size of some differentiating organs. The larger and the bigger the earthworm, the easier the identifying marks were seen.

At the end of the training, everyone believed Dr. James was an earthworm expert. And rightly so, for after all, now we know that it was not *Lumbricus terrestris* but *Pontoscolex corethrurus* species we are most familiar with. ■

From Research...from page 5

gaps in technical capability on the part of the Philippine partners and where the Dutch are the acknowledged experts. The same logic applies for bringing in expertise of researchers from other islands in the Philippines to participate in the BRP. The unique cross-cultural, cross-sectoral, and cross-disciplinary partnership built into the Programme ensures coverage of concerns often overlooked in other programmes.

To be continued...

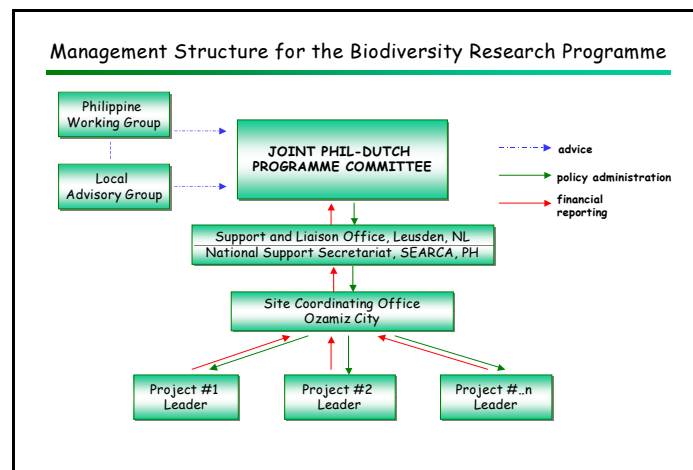


Figure 2. BRP Organizational chart.



“Development work starts from what people do with what they have, and not what they would want to have; Research should start with what people have already done.”

Mr. Fon van Oosterhout
DGIS

SAMU'T-SARI is the official publication of the BRP. Its name was derived from the Pilipino term for biodiversity which is “*samu't-saring uri ng buhay*.” *Samu't-sari* means variety.

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