SAMUT-SARI
The quarterly newsletter of the Philippines-Netherlands Biodiversity Research Programme for Development in Mindanao
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Master and Open Research Projects set for implementation

Fourteen studies under the Master Project and two open research projects have been approved for implementation by the Joint Programme Committee (JPC). The studies under the Master Project fall under three components: terrestrial, aquatic and socioeconomic-cultural. Under the terrestrial component are studies on floral, vertebrate and invertebrate faunal, and soil ecological diversity and relevant interrelationships of critical resources in Mt. Malindang. The aquatic component consists of two sub-projects, one for the riverine/riparian ecosystem and another for the coastal ecosystem. The approved project for the riverine/riparian ecosystem is "Comprehensive Assessment of Langaran and Layawan Rivers," which consists of four studies. For the coastal ecosystem, the project is "Comprehensive Analysis of the Ecological Factors Useful for the Development of Strategies to Sustain Coastal Biodiversity and Improve Fish Stock Management," under which three studies will be undertaken. The approved studies under the socioeconomic-cultural project are "Resource Utilization Patterns in the Terrestrial and Aquatic Ecosystems in Mt. Malindang," "Indigenous Knowledge System (IKS) and Technology-based Approaches: Opportunities for Biodiversity Management and Conservation in Mt. Malindang and its Immediate Environs," and Policy Analysis for Biodiversity Management and Conservation in Mt. Malindang and its Environs."

The Master Project is a result of highly participatory sets of workshops involving Mindanao researchers and Dutch research partners.

Dr. Jose B. Arances of Central Mindanao University (CMU), Dr. Proserpina Gomez-Roxas of Mindanao State University (MSU) - Naawan, and Dr. Alita T. Roxas of MSU-Iligan Institute of Technology (IIT) lead the terrestrial, aquatic and socioeconomic-cultural projects, respectively.

The Master Project was developed by a pool of Mindanao researchers and Dutch research partners in a series of highly participatory workshops to assure complementation of the timing and location of the study sites so that research results can easily be integrated to better understand the Mt. Malindang landscape in terms of cross-cutting concerns in the biosocial and policy fields. Through such a Master Project, support activities are also integrated to strengthen research activities and promote participation of various stakeholders.

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Inside this issue:

The BRP is funded by the Netherlands Ministry for Development Cooperation (DGIS) through the SEAMEO Regional Center for Graduate Study and Research in Agriculture (SEARCA).

5th JPC meeting held

The JPC decides on the approval of the first-generation research reports, Master and open research projects, and thesis grant applications.

The BRP Joint Programme Committee (JPC) met for the first time this year on 6-8 April 2003 at the Asian Institute of Management (AIM) Conference Center, Makati City and SEARCA, College, Laguna for their 5th meeting. Filipino and Dutch JPC members, National Support Secretariat (NSS), Site Coordinating Office (SCO) and Support and Liaison Office (SLO) staff, and key researchers who will be implementing the Master Project attended the meeting.

The JPC discussed the progress of the BRP, both at the programme and project levels. The JPC decided to conduct quarterly researchers' integration and planning meetings, which are foreseen to have important function for synchronization and close monitoring of research activities. Key researchers of the Master and open research projects presented their research studies to the JPC, including the support activities that will be conducted in tandem with the research activities. It became a way for the JPC to comment on some aspects of the research studies, clarify some points, and make suggestions for further improvement.

The JPC approved all the studies under the Master Project as well as the two open research proposals. They also decided on the support activities that need to be undertaken. Likewise, the JPC approved all thesis grant applications. They also deliberated on the approval of the first-generation research reports. With the conclusion of the first-generation phase of the programme, the JPC emphasized the need for an Information-Education-Communication (IEC) Enhancement Facility so that information derived from the first-generation projects will be disseminated to the stakeholders and scientific community.

The JPC also planned the activities of the programme for its fourth year of implementation. Master and open research projects are to be implemented, and a programme evaluation is slated for March 2004 in time for the 7th JPC meeting.

Dr. Delfin J. Ganapin, Jr. formally resigned from his position as JPC Chair to take the post of Global Coordinator of the UNDP Global Environment Facility (GEF) Small Grants Program based in New York City.

JPC approves thesis grant applications

The Joint Programme Committee has approved thesis grant applications of four graduate students of Mindanao State University-Iligan Institute of Technology (MSU-IIT) and University of the Philippines Los Baños (UPLB). Thesis grants were awarded to Ms. Sherry M. Paul and Mr. Nonillon M. Aspe, both taking up Master of Science in Biology at MSU-IIT, and Mr. Gideon D. Binobo and Mr. Romeo G. Bornales, Jr., faculty members of MSU-Marawi pursuing MS and PhD studies in Environmental Science at UPLB, respectively.

Ms. Paul's research, titled "The Volant Mammals of Mt. Malindang, Misamis Occidental," aims to provide baseline information on the current status of volant mammals in the area. Mr. Aspe's research focuses on the taxonomy and distribution of earthworms in Mt. Malindang. Mr. Binobo's study, titled "Subanen Indigenous Knowledge and Biodiversity Conservation and Management in Mt. Malindang Natural Park, Philippines," aims to document the Subanen indigenous knowledge pertinent to utilization, conservation and management of the floral diversity in the area. Mr. Bornales' research is on "Adaptation and Vulnerability of Subanen Community to the Environmental Conditions in Mt. Malindang National Park (MMNP)," which is geared towards examining adaptive mechanisms of the Subanen residing in the environs of MMNP, as a response to environmental changes or extreme environmental conditions.

These thesis grant applications got the nod of the JPC since the thesis/ dissertation topics are relevant to the existing Master Project.

In 2002, the BRP awarded thesis grants to three undergraduate BS Biology students of Central Mindanao University. True to its commitment in undertaking research for biodiversity conservation, the BRP continues its call for thesis grant applications to undergraduate and graduate students who will be conducting their research in Mt. Malindang and its environs. ▪

Researchers develop specific project descriptions for the Master Project

Mindanao researchers and Dutch partners work together in developing specific project descriptions for actual implementation, including timetable of activities and budget estimates.

With the aim of developing specific project descriptions for the Master Project, a Methodology Refinement Workshop was conducted on 19-22 March 2003 at SEARCA, College, Laguna. Key researchers from Central Mindanao University (CMU), Mindanao State University (MSU)-Marawi, MSU-Naawan, MSU-IIT, Misamis University (MU) and University of the Philippines Mindanao; Dutch researchers from ALTERRA Green World Research and Wageningen University and Research Centre; representatives from the Cagayan Valley Programme on Environment and Development (CVPED); and resource persons from the Philippine Working Group participated in the workshop.

The researchers validated the proposed statistical design and methodologies that will be used in the research activities. As a result of the workshop, the researchers came up with specific studies under the terrestrial, aquatic, and socioeconomic-cultural components of the Master Project. The terrestrial team came up with studies on the vegetation, fauna and soil ecology of Mt. Malindang. The aquatic team came up with studies on the riverine/ riparian and coastal ecosystems, and the socioeconomic-cultural team developed studies on resource utilization, indigenous knowledge system (IKS), and policy analysis. The researchers also integrated support activities into the specific research studies.

The workshop was an offshoot of the Operational Planning Workshop held in February 2003 where the researchers discussed the general framework and highlights of the Master Project, and identified the support activities that will be implemented in tandem with the research activities. ▪

BRP conducts Desktop Mapping Training

"Learning by doing." The hands-on approach is used in the training.

Selected Mindanao researchers who will be implementing the Master Project, research staff, and National Support Secretariat (NSS) and Site Coordinating Office (SCO) staff completed a three-day training on desktop mapping on 19-21 May 2003 at Mindanao State University-Iligan Institute of Technology. Dr. Aart van den Berg, a collaborating research partner from ALTERRA Green World Research, facilitated the training and was assisted by Mr. Francis Fletcher M. Freire, a BRP research collaborator from the University of Southeastern Philippines. The training, which was part of the capability building component of the BRP aimed to equip the participants with skills in making maps using the ArcView software. The training employed the "hands-on" approach which was best appreciated by the participants.

Exercises included adding spatial data sources such as shape files to maps, adding tabular data about features to maps, symbolizing the data in the map, labeling maps, and setting up and using hotlinks to map. There was also an exercise on taking coordinate point data through the Global Positioning System (GPS).

Dr. Aart van den Berg addressed the challenge to use the knowledge and skills acquired from the training to the research projects that will be implemented. ▪

Biodiversity Research: Making it Relevant for Local Development

by Dr. Delfin J. Ganapin, Jr.
(Last of two parts)

There is also the need to look at governance concerns given the linkage between local and global concerns. Examples of these are when the local area becomes a point of global concern (i.e., biodiversity hotspot) and where donor countries and institutions from the North have put in funds for major development projects. These linkages can help answer important biodiversity research questions (i.e., how can international cooperation be made more effective in meeting poverty-cum-environment needs). On a more practical level, linkages with international agencies open opportunities for increased funds generation as well as the transfer of information and technology. Linkages with development programs and their donor agencies are also important in that they wield influence and power concomitant to the size of funds they bring in. In many cases, research is asked to direct its funds and efforts towards more urgent livelihood needs. The presence of complementary development programs to which the research program can redirect such demands has been helpful.

In addition, South-North linkages could also initiate needed political support, particularly when bad governance allows wealth and power to be so abusive of people and environment as to render local and national efforts inutile. When biodiversity research lead into sensitive political issues, the participation of partners from credible and influential international institutions and countries of the North is important. The international partner could open the argument on the need to answer sensitive questions on biodiversity loss and the role of poverty and bad governance. The linkage also creates a transfer of credibility and influence to the local research and its researchers thereby also giving local researchers a measure of protection when the answers that come out threaten the powerful selfish interests. There is the challenge, however, of making sure that the process eventually leads to local empowerment rather than to deeper colonial mentality.

Linkages certainly create advantages. But they also come in with problems and issues. For one, a few linkages may not be enough, particularly when the scope of the research covers a landscape. One critical stakeholder left out in the process can cause serious difficulties later on. A critical mass of support linkages has to be developed. The complexity of the research program, however, increases and there would be added burden on its budget and administration. The larger the number of stakeholder groups involved, the more difficult the participatory approach becomes. The delays that arise make one question how participatory a participatory approach should be. Political tensions also arise as various stakeholders also often do not relate well with each other and have their own ideas of the high importance they have to decision-making.

A possible solution would be to take a "progressive approach." While a wide contact with stakeholders at various levels is made at the outset, the intensity of follow-up with them and their eventual integration into the dynamics of decision-making within the research program will vary according to the relevance and timing of their roles and the capacity of the program to manage the linkages. For example, linkages will have to be immediately strengthened with the sectors of the poor that would be part of research design and implementation. Linkage activities with the Mayors, Governors and heads of national government agencies, after the initial entry protocols, can be intensified at a later stage when policy recommendations built from research outputs are being readied for presentation.

In the Biodiversity Research Programme for Mt. Malindang, a question that is being raised in hindsight is whether it would have been better for the program, management-wise, to have linked first with one or two of the local research institutions rather than target them all. The program, however, is of a short five-year duration and the perceived need to provide research for development opportunity to a critical mass of local institutions was predominant. Had the program been designed to be at least ten years, then it would have perhaps taken a design that builds linkage with local research institutions in stages.

The value of linkages as so far discussed is along getting a better understanding of the local situation and initiating proper entry protocols for the biodiversity research. These linkages have to develop through progressive engagement into genuine partnerships. Partnership in this context means having a clear, shared vision and commitment to work together over the long term. This should lead to a shared ownership of the research and consequently shared leadership.

Such partnerships should strive to put stakeholders on an equal footing and become part of the process to create empowerment and equity. By experience, research that brings in the participation of local stakeholders, various research institutions and South-North researchers together will have an initial stage of intense competition

between themselves because of their particular mindsets and their particular interests and agenda. Equity and transparency becomes vital to maintain unity. A highly participatory and open process of proposal review and approval, with communities validating the research design, become important features.

Partnership also means that the researchers and the local stakeholders respect and recognize each others' strengths and relevant contribution. An example of this is the recognition of the value of indigenous and local knowledge systems and use of such systems to provide not only knowledge but also methodologies for accessing knowledge for the research program. Appropriate consent and agreements on fair and equitable sharing of the benefits of the research, however, must be in place for this to be considered part of genuine partnership.

Building partnership is also a case of building trust. Trust is critical if the research is to get truthful answers from local stakeholders. It is also the foundation for the successful teamwork of researchers particularly when they come from different institutions. Similarly, trust is necessary to build institutional cooperation between competitive stakeholder groups such as between local and national government agencies, government and non-governmental partners, and South researchers with their Northern counterparts.

From the delivery of research outputs point of view, partnership with eventual users allows direct delivery of research results. The poor, when made partners in implementation do not have to wait for refereed publications that they cannot read anyway. Partnership with policy makers leads to less advocacy work as they, through their active participation in the research, will deem the output as the own. This manner of "seeing for themselves" critical issues and what needs to be done is important in that politicians in a developing country situation are highly distrustful of recommendations that come from the outside, especially if such recommendations tend to go against their interests and curtail their power.

From the governance point of view, multistakeholder partnerships that highlight empowerment, equity, transparency and building trust provide a good model and actual experience with good governance. The concept of good governance becomes real and valued. The research program then becomes the best advocacy tool for good governance in spheres even outside of research.

Capacity-building

Capacity-building is an integral and most important component of biodiversity research for local development given the importance of building genuine partnerships as part of such research. The best situation is to build partnerships among equals, even in relative if not absolute terms. The process of research for local development must in itself be capacity development at various levels and stages of the research program.

This capacity building should not just be of a technical nature but also of values. The researchers must genuinely feel for the poor and see the applied research targeted at meeting urgent needs of the poor to have as much prestige as that for academic purposes. The researchers must have in themselves the needed paradigm shift in thinking having resolved within themselves the question of "why the poor?" In the Biodiversity Research Programme for Mt. Malindang, this was facilitated when the Mindanao-based research participants themselves realized that they are themselves the "poor" relative to Manila-based researchers and have thus been given priority. For the poor, there should develop the confidence in themselves based on the realization that they have strengths and resources and that these are of value to others who seek partnerships with them. The paradigm shift here is that partnership in the research is not based on a joint recognition of the weaknesses of the poor, thus resulting in a client-patron relationship, but rather of the latent strengths that both can draw upon to solve problems.

One other important task of capacity-building is to make better researchers by making them better communicators. First of all, to be able to communicate on the question of why the research and be honest about it. Then to always know the value of the information being asked and how it will be useful for all, particularly to the ones from whom inputs are being taken from. The researcher must be seen not only as an information taker but also as an information giver and development facilitator. The researcher must know how to communicate not just through scientific journals but also through effective local forms of communication and media.

All of these capacity-building objectives cannot be accomplished from just classroom type trainings and workshops. These can only be developed through an iterative process of fieldwork and reflection, guided at first, but eventually through self-realization.

One of the important objectives of research for development is the development of a continual pool of researchers. This means that the research process is a continuous sharing of knowledge and experience, even cross-sharing in the case of multidisciplinary teams. This is to deal with the limited time availability of researchers and rapid turnovers given that researchers coming from universities from relatively poorer regions of the country have heavy teaching and administrative duties. This has also to do with the need for such

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research for development to be a long-term effort to equally match the long-term effort needed to even make a significant shift towards sustainable development in critical poverty areas.

There is advantage in working on capacity-building with institutions, government and non-government, already based in the area. The rationale for this is not just based on equity considerations but more of the greater access to them of local stakeholders in terms of sustaining the research efforts and their eventual participation in local policy-making and governance. Research for development, therefore, looks at establishing formal agreements not just with researchers but also with their institutions. Capacity-building partnerships, which includes building the infrastructure for research, are established with requisite institutional backing so that the scope of benefits go beyond individual researchers and would be sustained in the long term.

Capacity building, especially in a developing country context, also means confidence and credibility building. There should be effort at getting research outputs utilized and researchers, particularly non-scientist participants, and their institutions recognized at local, national, and global levels. Providing support for proper presentation of research results and of policy dialogues and advocacy using research results at various levels is important. In certain cases, endorsement of researchers and their excellent work by already credible members of the research team is helpful.

Other Key Considerations

There is need for considerable investments in time to make biodiversity research for local development truly relevant. The research support commitment should be for 10 years at least and at best for 15 years to match and provide knowledge support to an ideal development cycle. In agroforestry or forest plantation development projects, for example, the organization of project participants, the production of their products for livelihood, the marketing of these products, and the proper reinvestment of profits so that sustainability is achieved takes at least 15 years. Many of these projects have failed because donors often just provide a 5-year support and leave the participating communities when what they have planted are not even ready yet for harvest. The experience is that unlike infrastructure projects, biodiversity related livelihood projects for which knowledge support is critical, take a long time to be at a sustainable stage. Policy development has a similar time scale. In the Philippines, incorporation of community-based forest resource management into formal policy took more than a decade and may take another decade for refinements based on lessons learned beyond the pilot stage.

Biodiversity research for local development requires good preparatory phases. There should be at least a "grounding phase" where researchers using appropriate entry protocols establish positive linkages with key stakeholders. This phase also has potential for providing opportunities for "junior" researchers to gain needed experience before proceeding to research topics of larger scope. In the Biodiversity Research Programme for Mt. Malindang, there was a first-generation research phase, the purpose of which was to better understand the landscape and to deepen linkages into partnerships. These phases has already taken three years out of a five-year program.

The challenge is how to convince donors who have to show results themselves to keep their own fund levels high to invest in a "reverse process" where the first three or more years are seemingly less useful preparatory processes. Traditionally, the approach has been to set the goals at the national and/or global levels, then conduct the research, produce quick outputs, then draw on the outputs to convince the stakeholders to accept recommendations. The hope is that the research results will awaken those that hold the power to make changes. But as a popular saying in the Philippines goes: "The hardest person to wake up is the one that pretends to be asleep".

If biodiversity research for local development is to succeed, the process has to be reversed – the forces of change have to be awakened first. The seemingly less useful preparatory processes are actually the most important ones as they are the ones that put the *sustainable* in sustainable development. Goals are set at the local levels, the stakeholders convinced to support the process and provided requisite capacity building to be genuine partners, and then the search for answers commences. In the traditional approach the agenda is imposed from the top, an easy task for the holders of funds and power. In the alternative approach, the agenda is set from below, which is usually difficult with persons and institutions used to having their own set agenda for others to adopt.

If biodiversity research is to be relevant to local development then its methodologies must be adaptive to local practices. The research should be able to transcend fixed tools of the discipline and researchers should have the ability to innovate. Even such simple matters as being able to schedule the work according to the stakeholders' schedule and not according to that of the researchers and broadening the qualifications of "researchers" to include non-scientists are important. The issue that has to be often resolved, however, is how to maintain scientific rigor yet open the research to the active participation of non-scientists and make use of modified methodologies that better integrates with local knowledge systems.

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SEAMEO SEARCA has a new Director

SEAMEO SEARCA has a new director effective 14 July 2003 by the name of Dr. Arsenio M. Balisacan, Professor of Economics at the University of the Philippines Diliman and former Undersecretary for policy and planning of the Philippine Department of Agriculture. He is one of the leading experts on poverty, rural development and policy research in East Asia.

He is the current President of the Philippine Human Development Network, an organization of prominent experts and leaders of strategic organizations in human development, supported by the United Nations Development Program (UNDP).

Dr. Balisacan obtained his PhD degree in Economics at the University of Hawaii and MSc in Agricultural Economics at the University of the Philippines Los Baños.

Socioeconomic team attends training in policy analysis

Three BRP researchers from the socioeconomic-cultural team and Dr. Mariliza V. Ticsay, NSS Coordinator attended the Introductory Training in Policy Analysis on 7-9 May 2003 held at SEARCA and PCARRD, Los Baños, Laguna. The Policy Studies Project of SEARCA and Policy Action Group of the Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD) organized the training. The policy analysis training aimed to introduce general policy concepts as well as provide insights and lessons for better understanding and appreciation of policy analysis.

1st Quarterly Researchers' Integration and Planning Meeting

As decided during the 5th JPC meeting, quarterly meetings with the researchers will be conducted to monitor the activities of each research team, for synchronization of activities and cross reporting among lead proponents. As a start, the first quarterly researchers' meeting centered on planning and working out the details of the activities to be conducted for the implementation of the Master Project, which included the schedule/timetable of activities for each participating team, identification of Dutch collaborators, review of protocols, and composition of the study teams. The meeting was held at Mindanao State University-Iligan Institute of Technology, Iligan City on 30 April 2003. Key researchers from the different Mindanao institutions and thesis grantees were in attendance.

BRP has a logo

The National Support Secretariat (NSS) received a total of eight entries for the BRP Draw-a-logo contest. The logo designed by Mr. Kamil Mark T. Roxas of Iligan City bested other entries. The selection was done through a survey involving BRP stakeholders and SEARCA staff.

Dr. Bacaltos visits NNM

"Productive and enriching." These are the words that Dr. Della Grace G. Bacaltos used to describe her one-month visit to the National Museum of Natural History-Naturalis (NNM), Leiden, the Netherlands on 5 April - 5 May 2003 to develop a catalogue on the fish and shellfish resources in the coastal waters of Misamis Occidental. The visit, which was facilitated by Dr. Bert Hoeksema, Head of the Department of Invertebrates at Naturalis was supported by a grant awarded by the Schure-Beijerink Foundation, the Alida B. Buitendijk Foundation, and the Jan Joost ter Pelkwijk Foundation. The catalogue is being produced to instil awareness and management consciousness for economically valuable yet exploited coastal resources among stakeholders. ▪

SCO transfers to new office

The Site Coordinating Office (SCO), the on-site implementing office of the BRP has moved to Don Anselmo Bernad Avenue corner J. Abad Santos St., Ozamiz City. You may contact the SCO at telephone number (+63) (088) 521-4286, fax (+63) (088) 521-4297 or e-mail brpsco@ozamiz.com.

The new Site Coordinating Office in Ozamiz City.

Institutional Profile:

Central Mindanao University

Central Mindanao University strives for the holistic development of the people in its service areas. CMU aims to train and equip its students with capabilities for entrepreneurship and employment in development agencies and agro-industrial enterprises to bring about change and improvement in the quality of life of the deprived, disadvantaged, and underserved sectors in Mindanao.

The CMU campus is located in Musuan, Bukidnon, which is 40 kilometers south of Malaybalay, the provincial capital. The quality of education is supported by the university's facilities to meet the needs of the students and its faculty. The university has several buildings for classrooms, session halls, science and speech laboratories, cafeteria, social hall, administration and faculty offices, student and faculty cottages, libraries, hospital, extension and research services, printing press, radio station, parks, convention center, instructional materials development center, and museum, which contains the herbarium, botanical and zoological collections and ethno-anthro artifacts. Science laboratory facilities include soil and tissue testing laboratory, plant disease clinic, aerial photogrometry laboratory, surveying laboratory, timber harvesting laboratory, and forest pathology laboratory.

All program thrusts of the University are anchored on food security, people empowerment and sustainable development for a globally competitive, progressive and humane society. It aims to strengthen its research and extension capabilities to generate, package and promote mature technologies to uplift the quality of life. Because of its quality of instruction, research and extension, it has been declared as Center of Excellence in Agriculture and Forestry, and Center of Development in Biology.

To date, the University is manned by 288 faculty members, 47 of whom have PhD degrees, 139 have MS degrees and 102 have Bachelor of Science degrees. ▪

Before it became CMU...

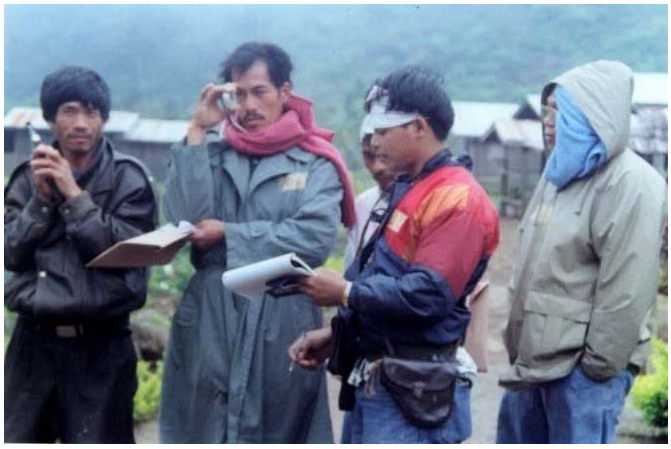
Date	***Name***	***Implementing Order***
1910	Mailag Industrial School	
1921	Bukidnon Agricultural School	
1923	Bukidnon Rural High School	Proclamation No. 30
1928	Bukidnon Agricultural High School	Republic Act No. 3377
1938	Bukidnon National Agricultural School	Commonwealth Act No. 313
1952	Mindanao Agricultural College	Republic Act No. 807
1965	Central Mindanao University	Republic Act No. 4498

Development of a Participatory Methodology for Inventory and Assessment of Floral Resources and their Characterization in the Montane Forests of Mt. Malindang

By Dr. Jose B. Arances and Dr. Victor B. Amoroso
Central Mindanao University

Vaccinium jagori, an endemic plant in Malindang range.

Two groups of local Subanen researchers actively participated in the assessment of plant diversity in two one-hectare semi-permanent plots in a primary forest in Mt. Ginanlajan, Barangay Lake Duminagat, and a secondary forest in Palo 6, Barangay Mansawan. Members of both groups have a high degree of familiarity with forest flora but one group was trained on inventory techniques, identification and nomenclature of floral species, herbarium preparation, assessment of conservation status, ethnobotanical survey, diversity measurements, use of equipment, tree profiling, and field data collection.



Local researchers are taught how to use field equipment.

Participatory inventory of flora yielded 301 species, 181 genera, and 113 families. Complete inventory of trees showed high species richness (63-67 species/ha) and high tree density (961-1,000 trees/ha). These figures are higher compared to those reported for lowland and montane forests in Mt. Kitnglad, Bukidnon and other neotropical countries.

Three species of mosses were seen for the first time in the Philippines within the one-hectare plot in Mt. Ginanlajan, Malindang Range. These were: *Camptochaeta subporotrichoides*, used to be reported only in Bali to Papua New Guinea and Northern Queensland, *Chaetomitrium horridulum* known from Borneo, Sulawesi, Java and Malay Peninsula, and *Metadistichophyllum rhizophorum* reported only in Borneo and Seram.

There were more species in primary forest than in secondary forest but there were more individuals of same species in secondary forest than in primary forest. Floral resource assessment also revealed two endangered, 71 endemic and 11 rare species. An ethnobotanical survey with the local researchers as respondents showed 171 economically important species, of which 39 species are medicinal, 14 species are food plants, 18 species are ornamental plants, and 100 species are used as construction material, firewood, and raw materials for handicraft. An ethnobotanical survey with other community members as respondents revealed 247 medicinal plant species, 79 food plants, and 134 species with economic importance. Ten other species of plants were found to have socio-cultural importance specifically used in burial rites, weddings, fertility, hunting, agriculture, and for protection and personal charm.

The active participation of researchers contributed significantly to the scientific identification of lower forms of plants, and the identification of food plants and other uses of plants. Both trained and untrained local researchers contributed significantly to the identification of medicinal uses of plants. The participation of local people

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Dr. Benito C. Tan, a collaborating research partner from the University of Singapore, trains the Subanen researchers on the identification and classification of bryophytes.

Development of a Participatory…from page 9

in biodiversity assessment yielded the preservation of local nomenclature of floral species corresponding to their scientific names, and also enriched scientific results on inventory and assessment of floral resources particularly on the ethnobotanical knowledge.

As a result of the participatory inventory and assessment, and community validation meetings, the local researchers identified the establishment of a Nursery and Community Economic Garden that would answer the dual objectives of biodiversity conservation and livelihood. ▪

BRP Research...from page 6

Adaptive research also implies that its management is also adaptive. The question here is whether government or university-based rules, traditionally non-community-based, could be adaptive enough and how could they be modified. Should bidding rules apply when community services are sought? Should employer-employee relationships be highlighted, as they usually are, in contracts signed between the agency in charge of research and its nongovernment organization partners who on the other hand wish to maintain their independence? Could "tokens of appreciation" for help provided by community members be in non-cash form and allowed under accounting procedures since cash compensation makes the activity more of employment rather than of participation? These are just some of the questions that have been raised in efforts related to biodiversity research for local development and they have to be properly answered.

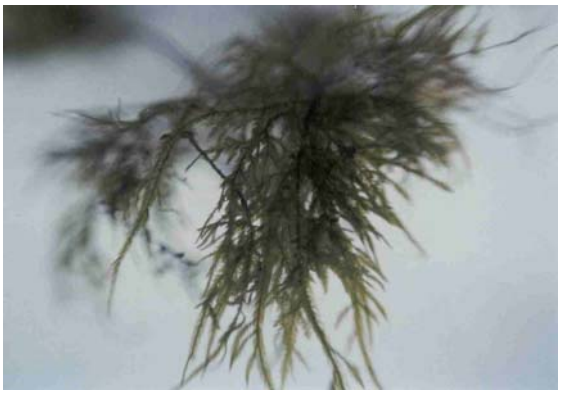
Concluding Remark

Biodiversity research for local development is a new thing. Certain ideals have been set as discussed in this presentation. Some have become guidelines of proven utility. But a lot of more of these have to be tested in terms of practicality and effectiveness in meeting the objectives of local development itself.

For this reason, the best way to conclude this attempt to answer the question of how to make biodiversity research relevant for local development is to point out the following:

> *"Just as the struggle to reduce poverty and nurture good governance will take many years, requiring not only innovation but courage along the way, so would the kind of research we will have to pursue to serve these goals."* ▪

New records of Philippine mosses



Camptochaeta subporotrichoides

Metadistichophyllum rhizophorum

Master and Open Research ...from page 1

Open research projects, meanwhile, are more specific and are intended to fill in gaps in understanding the landscape not covered by the Master Project. Two such projects were approved, namely: "Biodiversity Conservation of Arthropods in Upland Cabbage-Growing Area of Mt. Malindang through Integrated Pest Management (IPM)" by Dr. Emma M. Sabado of MSU-Marawi, and "Conservation and Utilization of Endemic, Rare, and Economically Important Plants in Three Barangays of Don Victoriano, Misamis Occidental" by Dr. Cecilia B. Amoroso of CMU.

Both the Master Project and open research projects aim to generate a critical mass of knowledge to meet the interrelated objectives of biodiversity conservation and the needs of the local stakeholders. ▪

Contact Information on Dutch Partner Institutions

Leiden University: National Herbarium of the Netherlands (NHN)

The NHN was established in 1999 as the central merger of the three major university herbaria in the Netherlands: Leiden, Utrecht, and Wageningen. The NHN is a core institute of the National Research School Biodiversity. It is one of the largest herbaria in the world.

Contact persons:
Dr. P. Baas, Director
Dr. Colin Ridsdale, Researcher
Address:
National Herbarium Nederland,
Universiteit Leiden Branch
P.O. Box 9514, 2300 RA Leiden, The Netherlands
Tel. No. + 31 71 527 3515
Fax No. +31 71 527 3522
Website: http://www.nationaalherbarium.nl/

Leiden University: Centre of Environmental Science (CML)

CML is an interfaculty department whose main area of work is on research and education on the causes and solutions to environmental problems. Biodiversity related issues are important research themes.

Contact person:
Dr. Gerard Persoon
Head, Programme Environment and Development
Address:
Einsteinweg 2
P.O. Box 9518, 2300 RA Leiden, The Netherlands
Tel. No. +31 71 527 7474/ 7428
Fax No. +31 71 527 7496
Websites: http://www.leiden.edu
http://www.leidenuniv.nl/interfac/cml/

International Institute for Infrastructural, Hydraulic, and Environmental Engineering (IHE)

IHE in Delft, the Netherlands is working in the field of water control and environmental resources. Its mission is to contribute to the education and training of professionals. It is active in research and networks on water security, environmental integrity, urbanization, information and communication, and integrations.

Contact person:
Dr. Erik de Ruyter van Steveninck
Department of Environmental Resources
Address:
P.O. Box 3015, 2601 DA Delft, The Netherlands
Tel. No. 015 215 1777
Fax No. 015 212 2921
Website: http://www.ihe.nl

Leiden University: National Museum of Natural History (Naturalis)

Naturalis is actively involved with nature. One of their main research themes is biodiversity. Museum Naturalis is strongly involved in the study of fauna of Southeast Asia since nearly 200 years, which has resulted in an extensive collection of specimens and secondary sources (publications).

Contact persons:
Dr. Jan Krikken, Associate Director
Dr. Bert W. Hoeksema, Head, Department of Invertebrates
Dr. Jan van Tol
Address:
P.O. Box 9517, NL-2300 RA Leiden, The Netherlands
Tel. No. + 31 071 568 7622
Fax No. + 31 071 568 7666
Website: http://www.naturalis.nl/english/index2.html

Wageningen University and Research Centre: ALTERRA Green World Research

ALTERRA is the key institute in the Netherlands specializing on rural areas. Biodiversity is an important research program within their sector Ecology and Environment.

Contact persons:
Dr. Paul Hillegers, Coordinator
Dr. Marleen van den Top, Dr. Aart van den Berg, and
Dr. Anton Stortelder
Address:
P.O. Box 67, 6700 AA Wageningen, The Netherlands
Tel. No. +31 317 477856
Fax No. +31 317 424988
Websites: http://www.wur.nl
http://www.alterra.nl/english/

Wageningen University and Research Centre

Department of Rural Development Sociology
Contact Person:
Prof. Leontine Visser
Address:
Hollandseweg 1
6706 KN Wageningen, The Netherlands
Tel. No. +31 317 482015
Fax No. +31 317 482842

Department of Environmental Sciences, Sub-department of Soil Quality
Contact Persons:
Prof. Lijbert Brussaard and Dr. Ron de Goede
Address:
Dreijenplein 10
P.O. Box 8005, 6700 EC Wageningen, The Netherlands
Tel. No. +31 317 482354
Fax No. +31 317 483766
Website: http://www.benp.wau.nl

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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.

Editor: ***Dr. Mariliza V. Ticsay***
Layout: ***Ms. Carina S. Fule***
Editorial Consultant: ***Ms. Leah Lyn D. Domingo***
Adviser: ***Dr. Gil C. Saguiguit, Jr***.

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Biodiversity Research Programme (BRP)
SEARCA, College, Laguna
4031 Philippines