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On behalf of
Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
of the Federal Republic of Germany

ACCCoast

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LOTTERY FUNDED

PROCEEDINGS OF THE
National Mangrove Conference on Climate Change Mitigation and Adaptation Through Mangrove Conservation and Rehabilitation

MO2 Westown Hotel, Iloilo City, 18-20 April 2012

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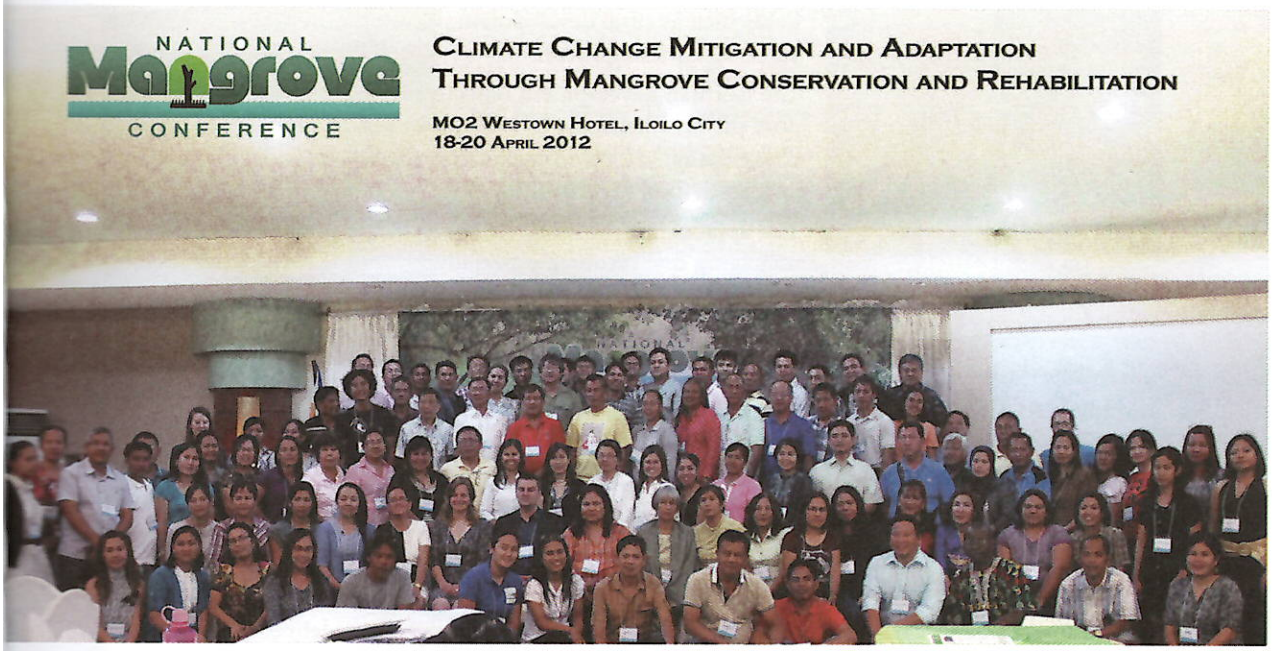

Participants, resource persons and organizers during the National Mangrove Conference held 18-20 April 2012 in Iloilo City

Foreword

Let me briefly take you through the background of the German government contribution to this National Mangrove Conference. Funded by the International Climate Protection Initiative through the Ministry of Environment, the GIZ ACCCOAST project together with the DENR PAWB Coastal and Marine Management Office, aims to achieve the Philippine commitments in the Coral Triangle through the implementation of the National Plan of Action.

Back in the 1980's, German line agencies and universities have been collaborating with the Philippines. GIZ as the implementing arm of the German government in the development sector- has been working in this country for more than 30 years in several fields such as rural development, forestry, fisheries, and Integrated Coastal Management.

The German development objective in the Philippines is to support the establishment of MPA networks to promote large scale conservation efforts in conjunction with sustainable fishery for long term food security.

The approach is to integrate the different mandates for jointly managing one resource especially in the face of climate change. It actually goes beyond the mere range of MPAs. Mangrove forests formerly stretching along the whole vast coastline of the Philippines have become severely destroyed by human activity and yet, they are crucial habitats which buffer the effects of climate change in coastal communities and ecosystems.

May I also mention that GIZ supported policies on abandoned, underutilised and undeveloped (AUU) fishpond reversion to mangrove forest during the national conference (on AUU) held in Iloilo in 2010. We will also support the roll -out training of BFAR national personnel this year in the implementation of the new guidelines.

This meeting is a good opportunity to discuss policy issues and achieve the final goal of putting in place the right policies and guidelines for mangrove conservation and rehabilitation with BFAR and DENR. The output of the workshops is a good basis and can contribute to the national policy formulation on mangroves which is vital for both BFAR and DENR.

Capturing the essence of my message, I may say that sustainable management of coastal resources is therefore not only a part of Philippine policy but also our contribution to the future generation, by providing them a secure and resilient environment. It is in this light, I hope that during the coming days, we can forge this strong mindset among us.

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PATRICK SCHWAB
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Foreword

I was privileged to be one of the attendees at the first National Mangrove Conference, held in Iloilo City in April 2012. This conference set out to share information about effective approaches to mangrove protection and rehabilitation in the context of climate change. This was a truly national conference, with government agencies, NGOs, researchers and community representatives from across the regions.

Our particular driver for the conference, as the Zoological Society of London (ZSL)–Philippines, was because our 'Community-based Mangrove Rehabilitation Project' had completed its first four years. The conference provided an ideal platform to share our results and gain valuable feedback from participants into the practical manual resulting from the project[1]. It was encouraging to see such enthusiasm and engagement from participants, with a number of new initiatives and partnerships developed at the conference.

The philosophy of the National Mangrove Conference was one of information-sharing to build momentum and skills in mangrove rehabilitation. None of us could have foreseen super-typhoon Yolanda that would ruthlessly demonstrate the devastating impact of the increasing frequency and severity of storms and typhoons as a consequence of climate change. The conference provided a vital forum that actively contributed towards mangrove conservation, helping protect coastlines, communities, fisheries and marine biodiversity. Recent events can only re-emphasise the value of expanding the scale and scope of such initiatives, to conserve the important and beautiful mangrove forests of the Philippines.

Heather Koldewey

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[1]Primavera, J.H., Savaris, J.D, Bajoyo, B., Coching, J.D., Curnick, D.J., Golbeque, R., Guzman, A.T., Henderin, J.Q., Joven, R.V., Loma, R.A. and Koldewey, H.J. (2013). Manual for community-based mangrove rehabilitation. London, UK: ZSL viii + 240p

Foreword

Mangroves play a very significant role in the ecological integrity and socio-economic well-being of the Filipino people. Being an archipelagic country, the Philippines benefit much from this ecosystem, especially in the protection and livelihood of the coastal communities. As the country has been frequently the hub of weather anomalies such as typhoons and storm surges, our mangroves should have been our primary frontline of defense.

This nation once had a dense mangrove cover, however, it has already declined, as these areas have been converted to fishponds and settlement areas, and have been utilized into other purposes.

Efforts in terms of policy formulation and direct conservation activities are currently undertaken by the Department of Environment and Natural Resources (DENR). Guidelines on mangrove rehabilitation and biological reversion of cancelled AUU fishponds are being drafted to provide an ecologically-sound and participatory framework at the local level. Meanwhile, the National Greening Program (NGP) – the flagship program of the DENR and the Integrated Coastal Resource Management Project (ICRMP), includes mangrove rehabilitation and reforestation activities.

We are grateful for the National Mangrove Conference focusing on *"Climate Change Mitigation and Adaptation Through Mangrove Conservation and Rehabilitation"* that has been conducted in April 2012, in partnership with the Zoological Society of London (ZSL). This event served as a strategic venue for the different stakeholders to update developments in the regulatory framework and other policies pertaining to mangroves; showcase past and on-going mangrove programs and; validate current mangrove strategies and/or establish new directions based on the experiences of the ZSL Community Mangrove Rehabilitation Project and other mangrove related projects implemented in other parts of the country.

The conference proceedings will give an overview on the best practices in mangrove conservation and rehabilitation, particularly in relation to climate change mitigation and adaptation, including inputs from other mangrove projects and studies on Fishpond Lease Agreement (FLA) areas and mangrove polices.

The DENR hopes to further strengthen partnerships in doing collaborative works, such as these, in the advancement of the mangrove protection and rehabilitation undertakings of the country to save the remaining mangrove stands – our natural vanguards in the coasts.

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Introduction

Mangroves play an important role in Climate Change adaptation and mitigation. Fringing mangroves form part of the coastal greenbelts that protect local communities from increasingly intense and frequent storms. On the other hand, mangroves store carbon at rates 4-5 times higher than terrestrial forests and therefore play an important role in regulating carbon dioxide levels.

The Zoological Society of London (ZSL) in partnership with the German Technical Cooperation (GIZ) and the Department of Environment and Natural Resources (DENR) organized the National Mangrove Conference on **Climate Change Mitigation and Adaptation Through Mangrove Conservation and Rehabilitation** at the MO2 Westown Hotel, Iloilo City last 18-20 April 2012,. A total of 160 participants from the DENR, DA-BFAR, various Local Government Units (LGUs), Non-Governmental Organizations (NGOs), People's Organizations (POs), academe, private sector, and research institutions all over the country participated (see Appendix A).

The Workshop aimed to:

1) To update developments in the regulatory framework and other government policies pertaining to mangroves;
2) To share recent experiences from the ZSL-CMRP in mangrove conservation and rehabilitation, particularly in relation to Climate Change mitigation and adaptation;
3) To showcase other past and ongoing mangrove programs, and
4) To validate current mangrove strategies and/or establish new directions based on the experiences of CMRP and other projects

The topics on the first day of the Conference focused on the 4-year ZSL-CMRP project in Panay and Guimaras Island. The presentations were divided into two sections: Biological and Social. The first group included topics such as Nursery Establishment, Outplanting, Maintenance and Monitoring. The Socio-Economic aspects on the other hand covered Organizing Communities in Mangroves, Formation of the Mangrove Convergence Initiative (MCI), Community-Based Forest Management Agreements (CBFMAs) and Information Education and Communication (IEC) campaigns.

The second day of the Conference was sharing of field stories which included the Mangrove Marine Protected Area (MPA) in Bani, Pangasinan; Pagatpat Germination in Zamboanga, Sibugay; Mangrove Eco-tourism in Ibajay, Aklan; Local Governance in Bgy. Punta Taytay, Bacolod City and Mudcrabs and Mangroves.

The last day of the Conference was a workshop on Policy Directions with the participants divided into 3 thematic groups: Research and Development/ Education, Policy and Livelihoods.

The outputs of the workshop were incorporated in a petition letter addressed to the DENR, DA-BFAR, DAR and DILG.

Other equally important activities carried out during the Conference were a lunch time Press Conference on the 1st day and Poster Exhibit opening on the 2nd day. Awards were given to deserving ZSL-CMRP partners during the dinner sponsored by the Governor of the province of Iloilo in the 2nd night of the Conference. Appendix B is the Program of Activities.

The following pages give a complete report of the presentations, workshop outputs, issues, recommendations and immediate steps on moving forward in mangrove conservation.

I. Presentations

A. ZSL-CMRP Experiences

1. **Nursery Protocols.** Ms. Armi May Guzman, ZSL-CMRP Biologist started by comparing commercial and non-commercial or backyard mangrove nurseries. The latter is appropriate for community-based mangrove projects. Species to be nursed would depend upon the target area, with four- *Avicennia marina, Sonneratia alba, Rhizophora apiculata* and *Rhizophora mucronata-* best for seafront planting with *Rhizophora spp.* behind the first two species. Eleven mangrove species on the other hand were considered suitable for landward planting. Using a tidal calendar, wildings are sourced during spring tide to allow enough working time. Wildings are found in areas near mother trees, and where pneumatophores or broken dikes of abandoned ponds would trap seedlings. Wildings in excess in mature forests are recommended to be bagged for nurseries as they would suffer from competition. Sites for nurseries should be accessible to sea or fresh water, well drained, relatively flat, shaded and with minimal wave impact, among others. Bagging activities should be well coordinated and the participants should be in proper attire (long sleeves, hat, rubber shoes). Materials such as digging blades/ spade, sacks and bamboo poles for seedling transport should be prepared prior to planting. Participants should be given a brief orientation on-site prior to bagging. Bagging covers eight steps from filling the plastic bag with 1/3 soil to placing a fence around the bags to hold them and prevent them from toppling down. Transporting bagged seedlings can be done invidually, in groups of two persons or by relay. Care and maintenance in the nurseries include regular visits to ensure the plants are watered and protected from grazing animals; healthy plants are separated from those that are diseased.

2. **Nursery Establishment: The BPFA experience.** Ms. Pelsy Barber, a leader of the ZSL-CMRP assisted People's Organization (PO) named Barangay Pedada Fisherfolk Association (BPFA) presented their experience in establishing backyard nurseries. There are three main reasons why BPFA needs a nursery: to raise the planting materials needed for the 29-ha mangrove rehabilitation project, to utilize abundant wildings in the area, and to make available seedlings for replacement planting at any given time. At the PO level, nursery establishment starts with planning, followed by identifying the nursery site, setting up the nurseries, bagging of wildings up to maintaining and monitoring the nurseries. Following the protocols discussed by AM Guzman, BPFA established four backyard nurseries in Pedada that produced the 80,000 seedlings provided by the Ajuy LGU. One lesson learned by the BPFA was to tap the students from nearby schools for labor in bagging activities.

3. **Seafront Planting.** Dr. Jurgenne H. Primavera, ZSL Chief Mangrove Scientific Advisor and a world renowned scientist presented the sites suitable for planting in seafront areas, planting strategies and innovations developed by the project. Selection of planting sites should be conducted during low water of neap tides. Many seafront areas are in the lower intertidal

and sub-tidal where mortality rates are high compared to abandoned ponds. The presentation also emphasized planting of the right species in the right site. It is more appropriate to plant *pa abante* where planting starts in the landward portion going seaward and not *pa atras*. Planting strategies shall take into consideration: direct planting vs bagged seedlings (3-6 mo in the nursery), planting size of at least 30 cm or >10 leaves, number per hole (single for inner rows and cluster for frontline), density/ spacing (closer or 1 m for seaward and wider or 1.5-2 m for inner rows), time of planting (low tide during the day, season of least wave action) and protection (construction of temporary wave barriers). Several outplanting problems were pointed out: biological (barnacles, oysters, filamentous algae, insect larvae, boring isopods, crabs, wild animals), anthropogenic (fishing gears, gleaners, garbage, boat traffic, oil spill, domestic animals) and physical (wave action, flooding, sedimentation). Monitoring and maintenance of newly planted mangroves shall be on a regular basis; activities include replacement of dead plants, removal of algae, barnacles and debris and repair of fences. The latter is recommended to keep the plants safe from stray animals and help trap the debris until the plants are strong enough.

4. **Bio-Physical Reversion of Abandoned Ponds.** According to Mr. Jofel Coching, Assistant Biologist of ZSL-CMRP the same considerations in seafront planting are followed in selecting sites and in employing strategies for rehabilitating abandoned ponds. A site map needs to be generated to delineate good planting areas within the abandoned pond by noting substrate variation, waterlogged portions, etc. Areas with firm substrate are preferred to those with soft substrate in the case of the Jastillano Fishpond, Barangay Nanding Lopez, Dumangas, Iloilo. In Basyaw Cove, Barangay Dolores, Nueva Valencia, Guimaras *Rhizophora mucronata* species grown to a minimum height of 1 meter thrives better in loose substrate hence is preferred over other species.

5. **The LGU Leganes Mangrove Experience.** Mr. Wilson Batislaon, an Agricultural Technician from the Office of the Municipal Agriculture at the same time Environmental Focal Person of the Leganes LGU presented their experience with ZSL-CMRP in rehabilitating a 9.5 ha abandoned fishpond. He recounted the timeline of their mangrove project which started with the project orientation by ZSL-CMRP followed by the cross visit to other mangrove projects, Memorandum of Agreement signing, conduct of community trainings, nursery establishment, planting by the students and other groups and monitoring and maintenance. The Leganes LGU allocated P148,000.00 for the mangrove project that included building a house and hiring of caretaker. A comprehensive Mangrove Ordinance was passed by the LGU to ensure mangrove protection in the whole municipality. A total of 27,000 mangrove seedlings mostly *Avicennia marina* was planted in the abandoned pond.

6. **Networking and CBFMA Application.** Josephine Savaris, ZSL-CMRP Project Manager, led the presentations on the social aspects of the project starting with networking and facilitating the POs CBFMA application. The presentation started with the criteria used in selecting the CMRP sites, to wit: area must be in the intertidal zone (middle to upper intertidal),

LGU buy-in (open minded, easy to work with, willing to provide counterpart funds and has the shares the same vision regarding the project), and support group to discuss issues and develop strategies to fast track pond cancellation and reversion among others, and presence of a PO. Networking was shown in CMRP with the Mangrove Convergence Initiative (MCI) formation and the partnership with academe, specifically the Northern Iloilo Polytechnic State College (NIPSC) Ajuy campus. The MCI fast tracked the cancellation and reversion of the Ongkiko FLA in Ibajay, intervened for the approval of the KAMAMADO CBFMA application, and facilitated the amendment of the Doligosa FLA among others. The partnership with the NIPSC Ajuy campus accomplished the planting of 30-31% (10,000 of total 30,000) of the CMRP target in Ajuy and Leganes by mobilizing 167 students.

The process of CBFMA application is long and tedious starting with the PO orientation until approval by the DENR Secretary. The CBFMA is a tenurial instrument awarded by the DENR for organized groups to manage a mangrove area for 25 years. Only one CBFMA was awarded i.e. KAMAMADO's for the whole CMRP. The application of the other five CMRP-assisted POs is still a work in progress after 1000 days of processing.

7. **Organizing Communities.** Mr. Basilio Bajoyo and Mr. Rodney Golbeque, both Community Organizers (COs) of ZSL-CMRP made the presentation on organizing communities in mangrove areas. Organizing mangrove communities is anchored on the CBFMA framework. Three reasons to organize communities in mangrove areas: a) to make communities more responsible in sustaining and maintaining their environment and resources, b) to encourage communities to take active participation and form alliances for advocacy work, and c) to sustain social integrity and social preparation for improved livelihoods. The indicators of a functional PO developed by ZSL were also discussed. Highlighted were the five major organizing steps, to wit: a) forge agreements with partners, b) get to know the community, c) form and re-build POs, d) build capability of POs, and 5) secure tenure and sustain community initiatives.

8. **Conducting Information Education and Communication Campaign.** Ms Rosalie Joven, CO of the ZSL CMRP stated that the three goals of IEC are, a) to increase awareness and knowledge of community members and partners about the project goals and objectives, b) educate partners on the importance and proper management of mangrove resources, and c) campaign and call for communities' support. Forms in conducting IEC materials include print (brochures, flyers, posters, bookmarks, tide calendars and media press releases), films (documentary and films from the internet or from other groups), posts (signage, billboards and information boards) and oral presentations (lectures and consultations).

B. Stories from the Field

1. **The Bani Mangroves: A Success Story.** Bani, Pangasinan which is considered the western-most town in Luzon is site of a 34-hectare mangrove MPA. Noteworthy features of the Bani mangrove MPA are 16 mangroves species, 57 bird species, 21 species of shells and several fish species. The best practices to ensure better MPA management in Bani included the structure of the management board, review of the plan, passage of the ordinance, and the various capability building activities to empower the POs. Benefits of the MPA were measured by increase in fish catches, became the bird sanctuary of the region, increased forest cover, protection of the coastal areas from storms and absorbs river pollutants. Several awards were received by Bani for taking care of the mangroves and the environment.

2. **Pagatpat Germination.** Mr. Eric Buduan of the Philippine Tropical Forest Conservation Foundation (PTFCF) discussed *Sonneratia alba* germination techniques developed by a PO in Zamboanga Sibugay. The germination starts with fruit collection, seed extraction and sun drying and germination in an abandoned pond. The seeds germinate in 3-5 days and grow to seedlings in 4 months before they are transplanted. The seedlings are mud balled and placed in plastic bags for ease in transport.

3. **Ibajay Mangrove Ecotourism.** Mayor Ma. Lourdes Miraflores talked about the Ibajay Mangrove Ecotourism Park or the Katunggan It Ibajay (KII) Ecopark. A brief project introduction described the people's belief that the forest is protected by spirits and the people power initiative to protect the trees from being cut down for pond development. The mangroves of Ibajay were discovered by the Southeast Asian Fisheries Development Center Aquaculture Department (SEAFDEC-AQD) researchers in 1996. Over the next 10 years, mangroves were described in a 2004 publication of the *Handbook of Philippine Mangroves*. The KII was constructed by the POs with 50% of the labor as their contribution in 2009. The features of KII include 28 mangrove species, centuries old mangrove trees, a kilometre footwalk, tree house and rest areas. KII has been considered a research destination of many educational institutions.

4. **Punta Taytay, Bacolod City Experience.** The topic on Mangrove Development Initiative of Barangay Punta Taytay of Bacolod City captures the LGU in action and was presented by Punong Barangay Rufino Alcala. Bgy Punta Taytay is a fishing village whose people are highly dependent on the sea for livelihood and ecotourism. Punta Taytay is famous for its beaches. The Barangay's motto, Saving Lives, Saving Properties, Saving Mother Earth is the precursor of the mangrove project. The 2003 Kapistahan sa Baybayon Festival of planting 10,000 propagules started the mangrove initiative. Regular mangrove planting activities followed with the participation of schools, NGOs, private companies, civic organizations and the military. Partnership was established with 29 schools, 16 GOs and 30 NGOs. The community is actively participating in the weekly coastal clean-up, mangrove nursery management and planting.

5. **Mudcrabs and Mangroves.** This topic was discussed by Dr. Emilia Quinitio of SEAFDEC-AQD. Mudcrabs inhabit mangrove swamps and nearby tidal muddy flats throughout the Pacific and Indian Ocean. There are four common species of mudcrabs, *Scylla serrata, S. olivacea, S. tranquebarica* and *S. paramamosain*. Mudcrabs are collected using net basket traps *(panggal),* bamboo tube traps *(bubo)* or lift nets *(bintol).* Mudcrabs are attractive species for culture due to their high demand in the local and export markets, good taste, big size, easy to transport, can be cultured in mangrove areas and good investment for cooperatives and POs. Several studies on mudcrabs as well as examples of mudcrab culture and fattening practices were discussed.

C. Technical inputs

1. **Disused Areas covered by FLAs in Region VI Philippines.** This topic was the study conducted by a team of researchers headed by Dr. Alice Joan Ferrer of the UP in the Visayas and funded by Economy and Environment Program for Southeast Asia (EEPSEA) of the IDRC. The BFAR has issued 1, 487 FLAs covering an area of 14,253 hectares in Region IV. From this number, 74 were disused (=abandoned) FLAs covering an area of 1,552 hectares. The study revealed that no active monitoring or identification of areas for cancellation is being done. More FLAs should have been cancelled due to failure to pay rentals for two consecutive years, failure to submit production records, "active" in list only, non-renewal of expired FLAs, subleasing and non-development of the entire area. Disused areas were evaluated and suitability for reforestation was discussed. Cancellation of expired FLAs and reversion to DENR, approval of the guidelines on FLA cancellation and reversion, review and harmonization of policies and laws on FLAs were among the recommendations of the study.

2. **FLA Cancellation Initiatives.** Mr. Roy Ortega from BFAR Central Office was the presenter and gave the history of how FLAs came about. Region VI has the highest area of fishponds released under FLA which is 14,258 hectares. The terms and conditions in granting of FLAs including the process were also described. The highest number (74) and area (1145 hectares) of FLAs was recommended for cancellation in 2011. The FLA cancellation process has stages considered as time consuming and beyond the control of BFAR. Several solutions were recommended including review of FAO 197, approval of the JAO on reversion, exploring other management schemes, creation of the Department of Fisheries and active engagement with the Regional/ Provincial Fishery Office.

3. **Pond-Mangrove Reversion.** Ms. Angelita Meniado, the Supervising Ecosystems Management Specialist of the DENR PAWB-CMMO was the presenter. She gave a backgrounder on the formation of the Interagency Technical Working Group to draft the guidelines on the reversion of abandoned, underutilized and undeveloped fishponds back to their original mangrove state. This was followed by the presentation of the draft DA, DILG and DENR Administrative Order # 2008-01.

4. **Green from Above, Blue from Below.** Dr. Laura David of the UP Marine Science Institute delivered this last topic. There are countries including the Philippines where the three drivers of vulnerability were identified such as high or very high reef dependence, low or medium adaptive capacity and high or very high threat exposure. Climate change manifestations such as extreme heating events, sea level rise, increasing ocean temperature, extreme rainfall events among others were discussed. Sea level rise effect on mangroves is on the establishment of propagules which need to be above surface during daytime in order to photosynthesize. The UN estimates that 13% of the world's mangroves will be drowned by 2100. It is also expected that there will be change in species composition as sea level rise may favor faster growing species in new areas. For corals and seagrasses, sea level rise will affect amount and wavelength of light that can penetrate the water and thus affect primary productivity. One recommended adaptive capacity is to increase sizes of marine protected areas. Greenbelts are proposed to bring back sediment trapping efficiency.

II. Workshop: Policy Directions

The mechanics for the workshop are the following: a) participants are divided into 3 workshop groups (Research and Development/ Education, Policy and Livelihoods), b) workshop facilitators and documenters are assigned per workshop group (Dr. Carlos Baylon for R and D, Fred Yap for Policy and Angie Nellas for Livelihoods).

Workshop output: Research and Development and Education

Area of concern	**How do we proceed with turning these ideas into action?**	**Timeframe** (when do you think this action should take place)	**Agencies/ groups to take the lead and their role**
Mangrove database	Develop mangrove and fishpond maps; collate and update all available data; standardize methods for data collection and analyses	3-5 years starting 2012	DENR, ZSL, GIZ, DILG, SAG
DA-BFAR Aquasilviculture Program	Develop implementation protocols based on developed technologies and local knowledge	3 years starting 2012	BFAR, SUCs, LGUs, Pos, SEAFDEC
Promote Assisted Natural Regeneration (planting) in mangrove area	Site and species matching; restore the natural hydrology; long term monitoring of ANR vs pure natural vs plantation	Ongoing – 2016 (NGP); monitoring: ongoing ----	DENR, academe, LGU, POs
Mangroves integrated into curriculum	Recommended for K+12 program; integrate/ strengthen in related subjects and courses offered in the tertiary level; teachers training	2012 - onwards	Academe, DepED, TESDA, CHED
Relocation program for the coastal and mangrove area settlers	Vulnerability assessment; Identify appropriate relocation sites; IEC/regulations for non-return to vulnerable sites	soonest	DENR, LGU, NDRRMC

Workshop output: Policy

Area of concern	How do we proceed with turning these ideas into action?	Timeframe (when do you think this action should take place)	Agencies/ groups to take the lead and their role
Implementation protocols of the JAO	Information/ awareness bet BFAR and DENR; joint meetings bet BFAR and DENR per region; how it works; DILG to join the information campaign	As soon as all parties sign the JAO/ May 2012	BFAR and DENR, DILG (LGU-on ground action; how much the LGU actually reforest)
MCI Institutionalization and elevating it to the Regional and National levels Note: to include as part of the private group fishpond operators associations, LGUs where the fishpond is located	Formation of provincial PMMC Formation of National MMC	As soon as all parties sign the JAO/ May 2012	DENR-PENRO
Formulation of the National Mangrove Plan/ Framework	Work assigned to the NMMC- series of consultations at the provincial levels; cost of conducting the consultations (who will take responsibility)- to be discussed with DENR, BFAR-petition letter	15 days after effectivity of the JAO –	DENR FMB Director as chair/ members are DA-BFAR, PAWB, BLGD, civil society (section 7 of the JAO); note: representation requested by the fishpond ops assoc
Push for National Mangrove Conference in the succeeding years to be led by BFAR, DENR	Both agencies meet- NMMC BFAR and DENR to allocate budget for the purpose Objectives needs set why conduct a National Mangrove conference	Third quarter of 2012	DENR , BFAR (FRQD/ FRMD)
Science advisory group formation that would provide technical advise	Composition – academe, research institutions, NGOs Task: adviser to the NMMC Appointment of members from above group Cite that this group will be created in support of JAO	May 2012	NMMC

Promote /Strengthen locally-designated mangrove MPAs and other conservation areas	LGU to pass ordinance BFAR ,DENR and LGU to allocate budget Provide technical capacity from the National agencies Inclusion of mangrove habitat as MPAs (most of declared MPAs are coral reef areas)	May 2012	DENR, LGU, BFAR, NMC to take up as agenda
Guidelines on reclamation (to spare mangroves	Consultations Drafting Finalization Implementation Experts -comparison between reclaimed mangrove area vs maintaining mangroves and its effect on the community- output of the study can be presented when there is planned development EIA Need to invite PRA in the consultations	Within 2012, study and guidelines to be presented in the next National mangrove conference	NMMC to take this as agenda, DENR
Guidelines on Mangroves within titled property	Continuing Education campaign (primers on mangrove utilization, conservation)	Continuous	DENR, BFAR, LGUs, NGOS, POS

Workshop output: Livelihood

Area of concern	**How do we proceed with turning these ideas into action?**	**Timeframe** (when do you think this action should take place)	**Institutions/organizations/ Agencies/ groups to take the lead and their role**
1. Sustainable development of mangrove-based products	Diversify and develop mangrove -based products (e.g. nipa wine, vinegar, *tangal* as source of dye, *ambolong* for roofing) Sustainably utilize trimmed mangroves for furniture Develop/ refine systems of integrating aquaculture with mangroves *aka* aquasilviculture Evaluate species feasible for stock enhancement in mangrove ecosystems e.g. imbao, sea urchin, mud crab hatcheries and fattening/production Evaluate plant species that can be source of livelihoods for communities Seedling production	within 2012 (mangrove-based food production feasibility study)	LGU DENR DOT DTI DOST BFAR SEAFDEC
2. Capacity building	Trainings for Product development Conduct entrepreneurship trainings/ cooperative Conduct interpretaion and tour guide trainings		PSF, SEAFDEC, BFAR, DOLE, TESDA, DENR, DOT, ZSL, Academe DOT - Training and promotion LGU - budget PO - implementation
3. Eco-tourism planning, management and development	Develop mangrove areas as learning destination Develop community-based eco-tourism (i.e., eco-tourism promotion, conservation first before appreciation, identification of tourist product, business plan, infrastructure, guided tours, leadership and financial mgt trainings, simple mangrove monitoring, facilitating partnership with tourism sector) Conduct cultural mapping for potential capital, incorporate in the tour, indigenous knowledge, full site diagnostic assessment Develop visitor management guidelines and identify carrying capacity		DOT, LGU, DENR, TIEZA, ZSL, PO

	Utilize localized materials for construction of facilities Conduct planning and development for ecotourism Prepare project proposal for possible funding Include in the Barangay/Municipal Development PlanIdentify managing structures/roles Develop tour packages Utilize and promote local cuisine/ delicacies Hire tour guides from the community		
4. Networking and linkaging	Network with line agencies; B/MLGU for allocation of budget		ZSL, LGU, PO, NGA
5. Gender mainstreaming	Increase involvement of women in livelihood interventions		UGSAD, WINFISH UGSAD (Regional Gender Resource Center of Western Visayas); Women in Fisheries Network of the Philippines - Gender Planning, Gender sensitivity Training

III. Steps in moving forward

The participants of the conference agreed on the immediate steps, to wit:

- Identify more mangrove sites as additional conservation areas
- Inform National Technical Working Group (TWG) to define concrete actions
- Map out areas of abandoned fishponds at the local level of groups working on mangroves
- Systematized information sharing
- Incorporate mangroves in the information courses
- Finalize and publish FLA inventory of Dr. Alice Ferrer
- Finalize and publish ZSL-CMRP manuals
- Make available list of FLAs
- Determine mangrove and FLA areas in the Autonomous Region for Muslim Mindanao (ARMM)
- Revisit Comprehensive Land Use Plan (CLUP)

IV. Petition letter

In light of the importance of mangroves in the everyday life of the Filipino people, and given the reality of Climate Change, we, the participants of the National Mangrove Conference held 18-20 April 2012 in Iloilo City call on various national agencies to urgently take the following actions:

The DENR, DA-BFAR, DAR and DILG – to finalize and sign soonest the draft Joint Administrative Order on Fishpond Lease Agreement-Cancellation and Reversion of Abandoned, Undeveloped and Underutilized Fishponds to Mangroves in view of the urgent need for mangrove rehabilitation areas under the National Greening Program of the DENR and the Aquasilviculture Program of the DA-BFAR.

Said JAO should ensure that any activity or development in the cancelled pond areas should be able to withstand sea level rise and increasing storm intensity/ frequency as Climate Change mitigation and adaptation mechanisms, respectively, and note that the only option for former mangroves areas is reforestation.

The DENR, DA-BFAR, DILG, DAR and other concerned agencies – to nationalize the Mangrove Convergence Initiative model as developed and implemented since 2007 in Region 6, and to institutionalize it in the different regions. The national MCI will be hosted by the DENR and membership of the national and regional MCIs will include LGU alliances, civil society organizations, academe and other concerned stakeholders. The national MCI will organize the National Mangrove Conference.

The DENR – to create a Mangrove Scientific Advisory Group (SAG) comprising experts from academe, practitioners and other R & D institutions to advise the national and regional MCIs on conservation, rehabilitation, education and other mangrove issues.

The DepED, CHED, TESDA and SUCs – to adopt available instructional mangrove modules and/or develop new ones for use in both certificate and formal courses at all educational levels, and to retool their academic curricula to incorporate courses on mangroves and marine habitats.

Signed in Iloilo City this 20th day of April 2012.

Name and affiliation	Signature

B. Program

Conference on Climate Change Mitigation and Adaptation Through Mangrove Conservation and Rehabilitation

18-20 April 2012

MO2 Westown Hotel, Iloilo City

PROGRAM OF ACTIVITIES

DAY/TIME	SESSION/TOPIC	RESOURCE PERSON
	DAY 0, 17 APRIL 2012	
8:00-5:00	Arrival and Settling of Participants	Secretariat
	DAY 1, 18 APRIL 2012	
8:00-9:00 AM	Registration	Secretariat
9:00-10:00 AM	Opening ceremonies	Josephine P. Savaris
	Morning praise	
	Singing of the National Anthem	
	Welcome remarks	Mayor Jed Mabilog
	Introduction of participants	
	Messages	Dr. Theresa Mundita S. Lim, DENR Patrick Schwab, GIZ Atty. Asis Perez, BFAR Dr. Heather Koldewey, ZSL
10:00 – 10:15 AM	What is ZSL?	Dr. Heather Koldewey, ZSL
10:15-10:30 AM	CMRP background	Dr. Jurgenne H. Primavera
10:30-11:30 AM	***Nursery establishment and maintenance*** Nursery protocols Nursery community experience	 Armi May T. Guzman Pelsy Barber, BPFA
11:30-12:00 NN	Open Forum (Panel)	Josephine P. Savaris
12:00-1:00 PM	LUNCH	
	Press Conference	Ian D. Tayo/ Roxanne P. Poingan
1:00-1:30 PM	Group photo	Rona Joy A. Loma
1:30-3:00 PM	***Outplanting, maintenance and monitoring*** Strategies: Seafront planting Pond-mangrove reversion Leganes LGU experience	 Dr. Jurgenne H. Primavera Jofel D. Coching Wilson Batislaon

DAY/TIME	SESSION/TOPIC	RESOURCE PERSON
3:00-4:30 PM	***Socio-economic aspects***	
	Organizing communities in mangroves	Rodney L. Golbeque and Basilio E. Bajoyo
	Mangrove Convergence Initiative (MCI) and Processing CBFMA application	Josephine P. Savaris
	Conducting Information, Education and Communication campaigns	Rosalie V. Joven
4:30-5:00 PM	Open Forum (Panel)	Erwin Pador
5:00-6:00 PM	Setting up of posters	Junriz Q. Henderin
	DAY 2, 19 APRIL 2012	
8:00-9:30 AM	***Stories from the field***	
	Mangrove MPA: Bani, Pangasinan	Eufemia Rarang
	Pagatpat germination: Zamboanga, Sibugay	Eric Buduan, PTFCF
	Mangrove eco-tourism: Ibajay, Aklan	Mayor Ma. Lourdes Miraflores
9:30-10:00 AM	Open Forum (Panel)	Dr. Alice Ferrer, UPV
10:00-11:00 AM	***Stories from the field***	
	Local governance in action: Bgy. Punta Taytay, Bacolod City	Punong Bgy. Rufino Alcala
	Mudcrabs and mangroves	Dr. Emilia Quinitio, SEAFDEC AQD
11:00-12:00 NN	Open Forum (Panel)	Terence Dacles
12:00-1:00 PM	LUNCH	
1:00-1:30 PM	Survey of FLA AUU ponds	Dr. Alice Ferrer, UPV
1:30-2:00 PM	Pond FLA cancellation initiatives	Atty. Annaliza Vitug, BFAR
2:00-2:30 PM	Pond-Mangrove reversion	Exec. Dir. Jacob Meimban, DENR
2:30-3:15 PM	Climate change	Dr. Laura David, UP MSI
3:15-3:45 PM	Open Forum (Panel)	Carlo Custodio
3:45-6:00 PM	Opening of Poster exhibits, Poster presentations and viewing	Junriz Q. Henderin, Poster presenters
6:30-10:00 PM	Governor's Dinner and Awarding Ceremony	
	DAY 3, 20 APRIL 2012	
8:00-9:30 AM	Workshop: Policy directions	Facilitator
9:30-10:30 AM	Presentation of workshop outputs	Facilitator
10:30-11:30 AM	Plenary: Recommendations and steps in moving forward	Facilitator
11:30-12:00 NN	Closing ceremonies Distribution of certificates	Josephine P. Savaris
	Closing message	RED Julian Amador, DENR 6
12:00-1:00 PM	LUNCH	
1:00- onwards	HOMEWARD BOUND	

C. Press Conference

The press conference started with the introduction of the panel of discussants, JHPrimavera, HKoldewey, Patrick Schwab, DENR PENRO for Aklan Ivene Reyes and BFAR Director Atty. Asis Perez. Representatives from 10 media networks/ station i.e. print, TV and radio from Iloilo City were present.

The press con started with the opening statement addressed to the panel of discussants "What is their organizations role in the conference?" This was followed by the question from the press.

To wrap up the Press Con, the members of the panel of discussants gave parting words. The media were invited to the Governor's dinner and poster exhibit which were set in the succeeding days of the conference.

D. Poster Abstracts

A Multi-disciplinary Approach to Understanding the Mangrove Ecosystem: A Basis for a Community-driven Mangrove Protection, Rehabilitation, and Restoration Management Program

Ericson J. Alarcon, Rowena V. Banes, Mercedes L. Canal, Ana Rosa A. Carmona,
Ramon Clemente Martin F. Lachica, and Jessica O. Pacalioga
University of Saint La Salle, Bacolod City

Abstract

Mangrove reforestation alone is not enough to ensure significant plant cover and to bring back the full ecological condition in any mangrove restoration program. Many attempts previously documented had shown very low survival rate of planted mangroves. These expensive efforts have failed due to the assumption that planting any available species of mangrove in any open area would suffice. It is also attributed to lack of understanding of the interplay of appropriate mangrove species, local hydrology, spatial location of local residents vis-à-vis the mangrove forest, and their views and response to the changes of their coastal environment. To answer this concern , study groups were formed to conduct a multi-disciplinary study of the mangrove forest located in Bago City. This work focuses on the collaborative effort of four study groups working on participatory community mapping, mangrove community structure, hydrology, and comprehensive community profiling. Its main goal was to establish a good understanding of all the biophysical processes involved, as well as the social behavior and culture of the local residents. This better understanding provides the best available scientific knowledge about the mangrove ecosystem which will serve as basis of a management plan for the mangrove forest while empowering the local community as active participants in the process. The results of these studies had spurred some concrete actions from the community and local government in slowly realizing the restoration of the fragmented mangrove forest in the area.

Action for Regreening and Transformation: A Climate Change Mitigation and Adaptation

Soledad R. Sucaldito
Iloilo Provincial Environment and Natural Resources Office
Provincial Capitol Building, Bonifacio Drive, Iloilo City

Abstract

The **Action for Regreening and Transformation** is a banner program of the Iloilo provincial government under the leadership of Gov. Arthur D. Defensor Sr. To cushion the adverse effects of global warming, the program aims to plant one million trees in one year and thereafter through mobilization of citizenry. To reached the target of one million trees planted, The province envision to tap 1,721 barangays and required each barangay to plant 300 trees at the launching of the program on June 25, 2012 to coincide with the Philippine Arbor Day under proclamation No. 643, Series of 2004. The other 500,000 trees will be planted at the celebration of the "Piyesta sa Kakahuyan" on the second week of September. Simultaneously, the "Foot soldiers" will also be mobilized to help reach the target. These are: provincial government employees, secondary and elementary school children, high school and elementary school teachers, policemen, municipal employees, barangay health workers, barangay service point officers, day care worker, barangay officials, barangay tanods, municipal officials, college students. The Iloilo provincial government established five satellite nurseries to supplement the tree planting materials while; the municipalities, barangays and schools were required to establish their own nursery in preparation for the planting season. The recommended species for planting are indigenous species or species that are endemic in the planting area. The trees could be planted on roadsides, riverbanks, upland areas, abandoned pond, coastal areas (seafront) and other open or available spaces. To effectively spread awareness and commitment to the program and its sustainability, the following strategies are employed: 1.) Creation of Executive Program Committee; 2.) The League of Municipalities, Phil, Councilors League-Iloilo Chapter, Liga ng Mga Barangay Provincial Federation, Philippine National Police and the CHED shall be involved in all undertakings and made to co-own the program, 3.) Public-private partnership shall be established with companies whose corporate social responsibility projects include tree planting and other environmental advocacies, as to help spread the word on the Program; 4.) Electronic media, like television and radio and print media shall be utilized and saturated with press releases to make the public aware of the need to plant trees and encourage them to support the program; 5.) Information and education campaign materials shall be sent to barangay officials for them to conduct "pulong-pulong to gain support for the program; 6.) Facts and figures on deforestation and its contribution to global warming and Climate Change phenomenon shall be highlighted. To ensure the sustainability of the Program, the Barangay Service Point Officers were required to monitor the trees planted including its survival. The projected impact of the

program is increased forest cover, reduced soil erosion and siltation, sufficient and clean water, enhanced biodiversity, the protection and conservation of environment and natural resources is ingrained in the values of the Ilongos.

Ecosystem-based Adaptation as Means of Improving Livelihoods and Conserving Biodiversity in the Face of Climate Change

Conservation International
6 Maalalahanin St., Teacher's Village, Diliman, Quezon City

Abstract

Climate change affects people in different ways and is projected to impact natural ecosystems to a point of reducing its provisioning services, the lifeblood for survival. Ecosystem based adaptation (EbA) approaches to climate change provide numerous benefits and are considered as cost effective solutions compared to other conventional means. Among these approaches are mangrove forest rehabilitation and the establishment of mangrove forest conservation areas or mangrove MPAs. Mangrove rehabilitation and conservation are the most convenient and economical methods in buffering coastal communities against strong wind, storm surges and coastal degradation. Mangroves also serve as nursery grounds for diverse species which are utilized as food and as a source of livelihood for coastal communities. In the Verde Island Passage (VIP) marine conservation corridor, Conservation International Philippines has initiated the establishment of mangrove MPAs and the rehabilitation and reforestation of mangrove areas in partnership with local governments and communities. Various steps were taken to ensure that this approach is employed in appropriate areas and that the lessons learned from this initiative will provide beneficial information for similar initiatives in the future. This paper shares the initial steps taken in implementing an ecosystems-based adaptation to climate change project through mangrove conservation and rehabilitation in the VIP.

Evaluating Benefits of Mangroves on Fish Production and Protection In Ajuy, Panay Island, the Philippines

Natalie Jaworska
Imperial College London

Abstract

Mangrove ecosystems in the Philippines have suffered from severe degradation attributable to the aquaculture industry during the last century, which has led to acute deterioration of the diverse flora and fauna communities and a plethora of wide-ranging subsequent ecological and economical impacts. This study directed its focus on two economically important areas of research; the production and protection of milkfish ponds in the Municipality of Ajuy, Panay Island. Key response variables analysed were the harvest volume and breaching of pond dikes by utilising interview data on milkfish pond management and community structure measures of adjacent mangrove forests.

A multiple regression analysis revealed a significant positive correlation between harvest volume and mangrove area ($p=0.014$), supporting the hypothesis that mangrove ecosystems significantly improve extensively farmed milkfish pond production. Pond production was also a significant function of pond drying time (negative correlation at $p=0.040$) and organic fertiliser (positive at $p=0.047$).

A general linear model with Gamma errors showed the protection response variable time since the last dike breaching to be significantly positively correlated with mangrove width ($p=0.029$), which may be attributed to an almost significant reduction in proportion of breaching caused by wave action ($p=0.053$).

These important findings have identified key areas for future research, and can be utilised to encourage mangrove conservation and rehabilitation and mangrove friendly aquaculture schemes both locally within Panay and worldwide.

Generating Updated Mangrove Cover Estimates

Jon P. Altamirano
Aquaculture Department, Southeast Asian Fisheries Development Center
Tigbauan, Iloilo, Philippines

Abstract

Useful information on area covered and rate of loss of mangroves are important for coastal management. In the Philippines, however, data for specific coastal areas are largely unavailable and inconsistencies are common due to the high costs of producing updated and accurate maps.

We present two practical methods of mapping small patches of mangroves that can be implemented rapidly both at minimal cost and with relative reliability. The first method involves GPS field survey and was demonstrated on a small, discrete mangrove forest stand in Barangay Jawili, Tangalan in Aklan Province, Panay Island, central Philippines. For wide areas where GPS survey is not practical, such as the semi-enclosed coastal wetland of the Batan Estuary with an area of 8,000 ha, the second method employs manual image classification of remotely-sensed data with affordable software like OziExplorer, and image processing using common software like Adobe Photoshop.

Results show that the Jawili mangroves, absent from current maps, actually included 21.5 ha with 24 true mangrove species. On the other hand, the Batan Estuary mangroves, shown to be 4,244 ha in available topographic maps, revealed only 406 ha of scattered patches.

The techniques can be applied by general users with minimal technical training, can be rapidly executed, and require low initial and operating expenses. The methods may be considered crude but arguably important and practical in generating usable mangrove cover estimates for areas where otherwise no spatial data would be available.

First published as: Jon P. Altamirano, Jurgenne H. Primavera, Ma. Regina N. Banaticla, Hisashi Kurokura. (2010) Practical techniques for mapping small patches of mangroves. Wetlands Ecology and Management 18:6(707-715).

Harmonizing Mangrove Rehabilitation Efforts and Brackishwater Pond Utilization in the Philippines

Maricar S. Samson[1,2], Rene N. Rollon[3], Jurgenne H. Primavera[4], Porfirio M. Alino[5]
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[5]*The Marine Science Institute, University of the Philippines, Diliman, Quezon City*

Abstract

The inverse link between the remaining mangrove cover and extent of brackish-water ponds has been well established. Although efforts toward reverting idle ponds into mangrove forests had been numerous, such seemingly straightforward approach towards mangrove rehabilitation appeared to be much more complex. This poster presents a roadmap towards harmonizing mangrove rehabilitation efforts and brackish-water pond utilization in the Philippines. Evaluating the status of the remaining mangroves (ca. 280,350 ha), and existing brackish-water ponds (ca. 230,000 ha), it appears highly achievable to revegetate up to 69% of these existing ponds, retaining the rest (31%) for optimal aquaculture production, following the 4:1 mangrove-pond ratio put forward by Primavera et al (2000) and various authors. In the face of imminent impacts of climate change on our coastal environment, revegetating a sizeable extent of these idle ponds may prove to be among the concrete workable measures.

The Impact of Forest Structure on Ecosystem Processes In Planted and Naturally Regenerated Mangroves

Lisa Becker

Abstract

Global reductions in mangrove coverage have resulted in increased re-and afforestation projects worldwide. As plantations tend to diverge from natural forests in abiotic and biotic factors, the evaluation of ecological functioning of these systems is crucial. The main objective of this study was to assess the impact of forest structure and community composition on microclimatic conditions and decomposition processes in naturally regenerated and plantation areas within Bakhawan Eco-park mangrove in the Philippines. The effect of the damage caused by a typhoon in 2008 was also investigated. Decomposition of *Rhizophora* spp. (*R.mucronata* and *R.apiculata*), *Sonneratia alba* and a mixture was investigated *in situ* using litterbags. Forest structure differed significantly between forest types due to species assemblage, stand age and disturbance. Natural stands displayed the largest density of small sized trees, dominated by *Avicennia* and *Sonneratia* compared to less dense plantation areas that consisted primarily of larger sized *R.mucronata* and *R.apiculata*. Typhoon affected areas contained less alive and vegetated trees. Forest type had no impact on microclimate and decomposition. In this study, topography and hydrological regimes might have had a greater impact on microclimate and decomposition than vegetation structure. Leaf degradation was species specific; leaves of *S.alba* decomposed fastest in all sites. Mixed treatments showed intermediate decay parameters. Although forest types did not influence individual litter decay, the community composition within forest stands and species specific decay rates of leaves might influence overall stand decomposition and nutrient dynamics. This could have significant implications for the productivity of mono-generic plantations and subsequently provision of ecosystem services. The consequent effect on mangrove dependent fauna might impact fisheries.

Sino'ng Sikat? Mga Kuwentong Pumapalibot sa Bakawan. An Investigation of Dominant Discourses Surrounding Mangroves in the Philippines

Janalezza Morvenna A. Esteban
University of Waikato, New Zealand

Abstract

Mangrove rehabilitation projects in the Philippines commonly present mangroves as fragile ecosystems needing proper management. In project documents, local people are seen as the cause of mangrove forest degradation; they are treated equally with mangroves as resources needing management. Resource management projects are often associated with dominant groups seen as superior in expertise, finance, and political influence. The Filipino term '*Sikat*' is used in this study to describe power groups who are able to advance their respective corporate agenda through implementation of mangrove projects. The *Sikats,* using the influence of dominant discourses, can legitimize policies and actions surrounding mangroves in the Philippines. This study identified three *Sikats*: the experts (scientists and NGO development practitioners); the decision makers (government officials); and the donor-funders (ODA agencies, e.g., the ADB). These *Sikats* use dominant discourses to naturalise clichés or metaphors that reinforce power blocs and stereotypes, such as those that portray mangroves and local people as resources to be exploited or problems to be solved.

Project documents from three mangrove management projects were studied, namely (1) *The Mangrove Development Project* (ADB 1990-1992); (2) *Training local communities in Balingasay, Bolinao, Pangasinan* (Marine Environment and Resources Foundation, UP-MSI funded by UNDP-GEF Small Grants Programme 1997-1999) in; and (3) *The Kalibo Buswang Mangrove Plantation* (Kalibo Save the Mangroves or KASAMA 1990). In the project documents, *Sikats* outlined their own objectives and targeted outcomes. The agenda carried by the Sikats are reflected in the way that project documents are written and recorded, and reveal power relations that influence how project outcomes were evaluated and reported.

This study explored the question "*What are the dominant discourses surrounding Philippine mangroves, and where do these discourses situate mangroves in Philippine society?*" A critical discourse analysis identified the dominant voices and naturalized clichés ('tropes') in the text of Philippine mangrove project reports. Mangrove project tropes that reinforce dominant discourses are influenced by poverty ("mangroves are exploited for subsistence"); science and technology ("mangrove technical knowledge is vital in conservation projects"); funding and financial support ("community-based mangrove projects need financial support to succeed"); and background-setting ("mangrove activities take a background role in project management").

Three dominant discourses emerged: that of science ("local people are the problem"), economics ("local people are poor"), and community development ("local people are weak").

These dominant discourses and tropes situate mangroves in the background, based on control agendas carried by the *Sikats*. The study found that reports treat local people as part of a mangrove forest, a process termed as 'conflation', and place both people and mangroves in the background while the *Sikats* implement their agenda. Through 'backgrounding', *Sikats* assume local people to be passive actors, and mangroves to be the setting where the *Sikats* direct the outcome of mangrove management projects. Often, the *Sikats'* agenda and dominant discourse place mangroves and local people in a subordinate position, which influences the way mangroves and local people are portrayed in documents of mangrove management projects.

Thus, the dominant discourses and clichés from the *Sikats* relegate Philippine mangroves in the background, giving both locals and the mangroves a marginal role in the resource management enterprise.

Understanding the relationship between dominant discourses and the mangrove-local people conflation can inform mangrove project implementation, particularly in ensuring sustainability of project outcomes. Counter discourses that surface alongside the dominant discourses reveal pockets of resistance by local people, who can neglect mangrove project outcomes once the *Sikats* leave a project site.

Role and Contribution of Men and Women in Mangrove Rehabilitation In Region VI, Philippines

Josephine P. Savaris[1], Alice Joan Ferrer[2], Rosalie V. Joven[1], Rodney L. Golbeque[1], Basilio B. Bajoyo[1]
[1]*Zoological Society of London, #48 Burgos St., La Paz, Iloilo City*
[2]*University of the Philippines Visayas, Miag-ao, Iloilo*

Abstract

Given the substantial decline of mangrove forest in the Philippines, the rehabilitation and restoration of mangrove areas is urgent. Pioneering community-based mangrove rehabilitation efforts has been on-going in six sites in four provinces in Region VI, Philippines covering 103.22 hectares. In each site, the mangrove rehabilitation program is undertaken by a local organization of men and women and currently with technical and financial support from the Community-based Mangrove Rehabilitation Program (CMRP) of the Zoological Society of London (ZSL). Using these sites as cases, the paper focused on the role and contribution of men and women in mangrove rehabilitation efforts. Specifically, the paper described the female and male members' socio-demographic and economic profile, their entry and retention in the organizations at each site, their activities related to mangrove reforestation, and the formation of the organizations with focus on the positions occupied and responsibilities performed by male and female members. Primary data were collected through participatory rapid appraisal methods in 2009.

Men and women participated in mangrove rehabilitation efforts in six sites. Overall, the males outnumbered the females (315 males and 270 females) but females dominated three organizations. Two organizations started with all male members, two started with all female members and two with both female and male members. Mixed membership was encouraged under the CMRP-ZSL. External agencies were instrumental in the formation of the organizations. Four organizations formed earlier were strengthened under CMRP-ZSL starting 2009; two were organized under CMRP-ZSL in early 2009.

Although the organizations were headed by males as president or chair of the Board of Directors, the females played a significant role in running the organization as record keepers and fund managers. They shared with the males the major activities such as bagging of seedlings, hauling of planting materials, planting of mangroves, taking out algae from newly planted mangroves, and replacement planting. Particularly, the activities performed by females included organizing meetings and monitoring the growth and survival of planted mangroves. Meanwhile, heavier physical activities were usually performed by males such as setting up bamboo poles and binders during area demarcation, digging holes during planting, constructing foot walks and constructing breakwater. As wives of male members who were fishers, female

E. Program during the Governor's Dinner and Awarding Ceremony

GOVERNOR'S DINNER AND AWARDS CEREMONY

MO2 Westown Hotel
6:30 PM – 10:00 PM, 19 April 2012

P R O G R A M

6:30 – 6:35	Evening praise	
6:35 – 6:40	Welcome talk	Dr. Heather Koldewey
6:40 – 7:00	Message	Gov. Arthur Defensor Sr.
7:00 – 7:15	Rationale of the activity	
7:15 – 8:00	Dinner	Mayor Bermejo's Band
8:00 – 8:30	Awarding of ZSL-CMRP partners	DENR, BFAR, PLGU, GIZ
	Awarding of LGU partners	Ajuy, Ibajay, Ivisan, Leganes, Nva. Valencia, Panay
	Speech	Mayor Enrique Rojas
	Cultural dance number	
	Awarding of PO leaders	BPFA, NAMAO, BFA, KAMAMADO, NewBAMA, Buntod Katibyugan
	Speech	Mrs. Azucena Chapman
	Awarding of academe partners	NNHS, FCU, NIPSC Ajuy, STMTC
	Speech	Mrs. Madelyn Kho
	Awarding of private partners	Zerrudo Family Jastillano Family
	Cultural Dance Number	
8:30 – 8:35	Closing message	Dr. J. H. Primavera
8:35 – 10:00	Dance, dance, dance	

MC – Jospehine P. Savaris

F. Discussion during the Open Forum

DOCUMENTATION

National Mangrove Conference

DAY 1, 18 April 2012

Morning Session Presentations

- Jurgenne H. Primavera – CMRP Background
- Armi May Guzman – Nursery Protocols
- Pelsy Barber – BPFA Nursery experience

Open Forum

Q (SPasicolan): May I clarify which seedling bag size you are using, 4x6 in. or 4x4x10 in. seedling bags?

A (AGuzman): We use 4X4X10 in. seedlings

Q (LBriones): If mortality rate is high (45-50%), why do you replant/ bag wildings? I favor natural growth. Why do you uproot the wildings then replant?

A (JHPrimavera): If there are 100 seedlings in 1 meter area, 99 will eventually die. We are just harvesting the excess. Care is given in balling the wildings. You save time when you use wildings since some are already 1 year old.

Q (Participant) How much carbon can be sequestered by mangroves?

A (HKoldewey): Mangroves trap more carbons than tropical forests. We have a MSc student that studied blue carbon which will you will see in the poster exhibit.

Q (DVillaluz): Meron bang data kung ilan na ang nagasta ng Pilipinas on mangrove planting? Is there a model for aquasilviculture? How much are we going to earn if we are going in this system?

A (JHPrimavera): Mangrove planting cost millions of Pesos because we focus on seafront planting which has less survival. Aquasilviculture is just starting and difficult because you need to combine plants and animals. The methods need refinement. Some of government money should go into research, a challenge for BFAR and SEAFDEC.

A (Atty. APerez): Methodology among scientist may differ. It is very tempting to use the term science-based, even when between scientist, methods may be different. We want to be proactive backed up with a science. What is the objective of aquasilviculture? To integrate refores-

tation and production. Law says that convert fishponds to mangroves? How can BFAR feed you since bureau is already importing fish? The reason why we have partnered with SUCs offering fisheries courses, so they'll conduct studies. There has to be a distinction between research and production. BFAR will research as it moves along. BFAR is not a research institution, but an implementing institution. Research should be done by UPV and SEAFDEC.

C (JHPrimavera): Carbon footprint is not paid. Community members do the planting for free. Nurseries are not production.

C (THautea): Fishpond operators are not against mangroves. We are protectors of mangroves. Mangroves help fries grow. We are okay with conversion of abandoned ponds. But we should also consider upstream planting.

Afternoon Session Presentations

- Jurgenne H. Primavera – Seafront Planting
- Jofel Coching – Bio-physical Reversion of Abandoned Ponds
- Wilson A. Batislaon – Leganes LGU Experience
- Josephine Savaris – Networking and CBFMA application
- Rodney Golbeque and Basilio Bajoyo – Organizing Communities
- Rosalie Joven – Conducting IEC

Open Forum

Q (SPasicolan): I'm impressed with the project. However, I'm waiting for the economic aspects of the project. Has the community income increased? Have they brought their kids to college? Do they eat 3 meals a day? What are the opportunity costs?

A (JPSavaris): During the mid-term evaluation, it was seen that livelihood initiatives should run a 3-cycle. The Governor of Iloilo and LGU Ajuy has provided 1.5 M to complete the facilities of Pedada eco-park and have formed partnerships with the lot owner. The ecopark will hopefully be launched in July 2012. For the Guimaras PO, the first run of the milkfish cage culture was not successful and they are now making the second run equipped with learnings of the 1st run. The PO in Nueva Valencia Guimaras is a recipient of a 2M UNDP project. Opportunity costs - we schedule activities where leaders would be available. This is an investment of POs to the project.

A (JHPrimavera): We are used to culture of dependence. As long as there is a project, the community is enthusiastic. There is no continuity when the project ends. As a scientist, I am already happy when LGUs pass an ordinance. Education is key. With my Pew grant, mangrove modules were distributed to high school and elementary students.

Q: (Participant) I didn't see a management plan in the presentations. I would like to pattern our management tool with yours.

A (JPSavaris): We utilize the CRMF and AWP management/planning tools of DENR. Mangrove management should be long term, i.e. 25-year plan. We assisted LGUs in CRM planning (6 CRM plans). CRM plans are integrated in the management plan so that activities will have budget allocations. The CMRP team has bio and socio teams. The bio team conducts MCS and data is fed to the socio team for planning.

Q: (Participant) What would be the appropriate action in reverting and replanting an abandoned titled fishpond? Trees were cut down for charcoal.

A (JHPrimavera): The project we have with GiZ ACCCoast is to create a database of abandoned ponds. Maybe DENR should check it since the area might be A&D. Dagat should not be titled.

A (JVego): I suggest that they make a report regarding the matter so that proper investigations will be done.

A: (Participant) You cannot have the land titled if not certified by the Barangay and LGU before the certification of the DENR.

C (DENR R9): In 1975, it was legal for mangrove areas to be titled, but was superseded by PD 705. Mangroves are not only the responsibility of DENR, but also of the LGU (SB members). They can file cases against mangrove cutters since they know the area more. CBFMA Memo orders the temporary hold of CBFMA issuance to applicants. DENR to continue providing technical assistance to CBFMA holders. We recommend that LGUs enter a MOA with DENR and stakeholders enter into a sub-MOA with the LGU. The mandate of DENR office is technical assistance. I felt bad when you mentioned in your presentation that DENR and BFAR are not talking to each other, but yesterday we were discussing things. Maybe we should involve ZSL in all our discussions.

A (JPSavaris): The 2006 memo that you are talking abaout may not have been lifted since CBFMA was awarded to KAMAMADO in 2009. Co-management agreement is never a tenurial instrument. We should discuss this issue in the workshops (policy groups).

Q: (Participant)Thank you for sharing your experiences. What are the major challenges in your area, i.e. in organizing?

A (RJoven): Changing the perception of the community.

A (RGolbeque): Mobilization. It is difficult for POs to realize that what they are doing for their own good. Fortunately we have partners who help in organizing.

A (WBatislaon): Community attitude and behavior.

Q: (Participant) ZSL project will be closing in 2012, what are your exit strategies?

A (WBatislaon): Discussions with the LCE was done. Budget was allocated, ordinance in place.

C (EPelayo): Tourists are coming in at KII Eco-park and the Boracay hotels already know about it. All the economic benefits will be for the community. But the communities have not realized this. We also need a ridge to reef approach.

Q: (Participant) How do you sustain the POs' interest after the project?

A (JPSavaris): It really is a challenge for ZSL. 4 years is not enough. We need 7-10 years for POs to be mature. In the next phase, we will continue the work.

A (HKoldewey): There is a danger that an international funding is a livelihood in itself. Mechanisms like not paying for planting are the key paradigm shifts of the project

Q: (Participant) Can ZSL provide research funding?

A (HKoldewey): ZSL is not a funding agency. We are fortunate to have partners that fund activities - LGU, PO, PLGU and national and international agencies. I'd be happy to discuss research prospects and ideas.

Q: (Participant) How do you measure effectiveness of your IEC? What is the most effective tool?

A (RJoven): Film showing is most effective. It motivates PO members to join our activities when they see themselves on film/slides.

A (JPSavaris): Effectiveness may be measured in the manner people work after the IEC, i.e. involvement in activities. We use in-house documentaries and other films other organizations.

A (JHPrimavera): Sinaya's World was shown in fiestas which can relay the message to kids. There should be a clearing house of films.

Q: (Participant) We understand that community organizing is a process. What are the impacts of community organizing in the initial phase? As stated by Ms. Joven, what did you do to get the trust of people in the initial phase?

A (JPSavaris): Go back to basics of COing. Gain trust. Transparency is essential.

Q (Participant) What are the tangible impacts of the project? The community will ask what would I benefit if I join the project?

A (JPSavaris): It is a long process and impacts will be felt in about 10 years time. That is why education is necessary. Volunteerism would be a sign. When we started the project, we never told them that we will pay every single mangrove planted. We made them realize that it is important to plant. The communities were used on paid planting and it is very difficult to change their minds. Because of their experience with the project, POs we assist are now tapped by DENR and BFAR to do planting.

A (JHPrimavera): This is for NGOs since you will be preparing proposals. The project proposal (CMRP) was done by 2 scientists and did not involve a socio-economic person. Community should be considered.

C: (Participant) There should be a balance for short term goals. POs need to eat. Need to find right approach.

Q (RJoven): Maybe we should ask the POs what motivated them?

A (EBabiera): IEC opened our hearts and minds

Q (DVillaluz): The lumot (algae) from fishponds killed the planted mangrove? Fishponds need the lumot.

A (JHPrimavera): Nutrients from fishponds and domestic could grow the lumot. Water released from ponds should have less effluents.

Q: (Participant) You mentioned that pond-mangrove ratio should ideally be 4:1. What would be the effect of this proportion to fish supply vis-a-vis population growth? There should be balance.

A (JHPrimavera): Maybe we should ask Fred Yap who conducted a study in 2006 funded by ADB. He has all the figures.

A (WYap): The mathematics involved is very simple. Brakishwater fishpond production is very low. For statistics, actual hectarage is only 100 kg/ha/yr. Total fisheries production is about 5.5B metric tons. 3M metric tons is from fish, both culture and capture fisheries. Total fish production from fishponds is only 3% of the total annual production. Effect on total supply is small because is less than 5%. The brackishwater fishponds are not living up its potential. If properly managed, they could produce more fish.

C (DVillaluz): The main issue is the lack of/poor market. We operate to make profit.

A (WYap): Some operators are turning fishponds into nurseries. They have shifted to fish cage as it is producing 2x more. We are selfish because we restrict our production. People are expanding market by processed products, lengthening the shelf life of the produce. Prize of frozen bangus is high because cold storage costs much.

A (THautea): It is easier said than done. Look at the fishing port. Were is the ice plant?

A (WYap): Everything is private led.

A (JPSavaris): BFAR can discuss this (facilities) with fishpond operators.

A (EPelayo): We are now discussing profit and interest. Mangrove reforestation and fishponds are 2 clashing topics. What is our interest for having this conference? It is all about mangrove rehabilitation, not profit making.

Day 2, 19 April 2012

Morning Session (Part 1) Presentations

- Eufemia R. Rarang – Mangrove MPA: Bani, Pangasinan
- Eric D. Buduan, PTFCF – Pagatpat Germination: Zamboanga Sibugay
- Mayor Ma. Lourdes M. Miraflores – Mangrove Ecotourism: Ibajay, Aklan

Open Forum

Q: (Participant) What if you need more seedlings of pagatpat? How will you transport the seedlings? Your procedure may not be large scale nursery.

A (EBuduan): 1 ha of abandoned fishpond can propagate 500,000. It can supply pagatpat for entire year.

Q (RSadaba): I noticed that the pagatpat seedlings are taller than those that grew naturally. The seedlings in your presentation look like bungalon.

A (EBuduan): Those are 1 year old pagatpats. When a fruit falls on the ground, seeds won't easily germinate because they enclosed by pulp. Seeds are carried away by tide and trapped/stranded in groups/bunch. Human intervention is needed to replant it for better survival.

Q (SPasicolan): Mayor, have you considered the floating boardwalk with blue plastic drums as floaters? It is low in maintenance according to WWF Hongkong?

A (Mayor MLMiraflores): We have not considered it yet. The base of the KII footwalk is PVC with cement. We don't change the base, only the bamboo flooring.

A (JHPrimavera): Footwalks will depend on the type of mangroves. A floating footwalk is not applicable for KII. The design of KII and Pedada was from a person who works at NOAA.

Q: (Participant) One of the mandates on DENR-ERDB for NGP is production of planting materials. Have you researched on the number of viable seeds in a pagatpat fruit? How about the fruiting season of pagatpat compared to dipterocarp species?

A (EBuduan): We have not done research on viability, but it is not a problem. It only needs proper selection of fruit (color changes of mature fruit, shaking of trees).

Q (JCostas): Mayor, what are the challenges you encountered with this project and how did you overcome them? Does your place have a good selling proposition?

A (Mayor MLMiraflores): Initially, there were financial problems. Now, we have allocated 20% of our IRRA for mangrove activities and the footwalk (structure, maintenance). Dr. Primavera was the one who informed me that we have the biggest and oldest mangrove in SE Asia which might be 300-400 centuries-old. She brought scientists and researchers to visit the site.

A (JCostas) Thank you. You have a unique product.

C (DVillaluz): My observation is that seaward planting has very low survival. But we insist to plant in the seafront. We admit that fishponds are naturally vegetated by mangroves. Abandoned fishponds do not intervention since mangroves will naturally grow when left alone and as long as there is a neighboring greenbelt. We are investing a lot of money on planting activities as evident with the annual planting done by DENR.

A (EBuduan): We are not looking at seafront planting. We are looking for abandoned fishpond which is very hard to look for.

C (TSalanguit): Mayor, I would like to suggest that you need to strengthen your ordinances to protect the mangroves. You can communicate with the National Historical Institute to declare it a historical site or to Ramsar as a Wetland of International Importance. We need to hasten the reversion of fishponds back to mangroves. In NCR, unproductive fishponds are titled and sold for other uses as in the case of Navotas fishponds that were converted to dumpsites. Natatakot ako in my capacity that this will be a usual practice.

C (THautea): We are not against converting abandoned fishponds into mangrove forests. But you keep uprooting mangroves in fishponds which is illegal. Go to the mountains and plant trees so that water that goes down from the mountains will be clean and good for the fish.

A (JHPrimavera): We are harvesting the excess of nature. If in a 1 sq. m. there are 100 pagatpat seedlings, 99 seedlings will die. We are not uprooting the seedlings. Proper care is done in bagging the seedlings. Roots do not touch a molecule of air. Beach forests are also essential in reforestation. Bani is a local name for beach forest.. It would also be good if you can plant such trees.

Q: (Participant) What is the advantage of a footwalk that cut across the mangrove forest with a footwalk that goes around the mangrove forest.

A (JHPrimavera): We constructed a footwalk that will take us to the centuries-old trees. A footwalk that will go around will cost high and cut a lot of trees.

C: (Participant) I'm not anti-fishpond. What we are talking here is to plant mangroves and we are aiming to feed the people. We are talking of abandoned fishpond. Abandoned fishpond destroyed mostly of our mangrove areas, like in New Washington and Capiz. Why don't we join together to plant in the mountains and downstream for the future generation

Q (RNunez): Have you calculated the cost of seedlings when instead of plastic bags, coconut husks are used?

A (EBuduan): PhP3-5/seedling. It is cheaper than the usual nursery. But since the community treated as natural enterprise, prices may vary.

Q: (Participant) Can you please share with us the reason of Bani MPA's success?

A: (Participant) The success story started when the ex-mayor was sued thrice in court for demolishing/ uprooting fish corrals in the river. We faced problems with those who are hard headed. The ex-mayor's statement in court is for the LGU to provide livelihood projects for fisherfolks with fish corrals. The livelihood projects were given by partners. Political will is the key.

Other questions/comments which were not answered (only written in metacards):
Wilding or wildling?
Expand ZSL project to ARMM.
Could all sectors concerned conduct a tripartite survey of abandoned ponds/ mangrove areas?
DENR-BFAR-ZSL to take lead.

Morning Session (Part 2) Presentations

- Bgy.Capt. Rufino G. Alcala – Local Governance in Action: Bgy. Punta Taytay, Bacolod City
- Dr. Emilia T. Quinitio – Mudcrabs and mangroves

Open Forum

Q (EEscares): You made excavations in the mangrove area for mud crab fattening. Are you not violating some laws?

A (Dr. EQuinitio): Canals were built for crabs to take shelter during low low tides. Canals were located in areas with no vegetation/mangroves. This cannot be built in not siksikan na mangroves. Not all mangrove areas can have pens.

C (EEscares): We have problems with source of crablets. SEAFDEC has lots of orders

Q: (Participant) Do you have baseline data which shows income increase of the community?

A (Punong Barangay RAlcala): We have introduced eco-tourism in a sitio of Punta Taytay with fully grown mangroves. Employees are exclusively from the barangay. Fish catch of marginalized fisherfolk within the artificial reef has increased. Last week I got a report that 35 banyeras of guingaw were caught in the area. We also have bountiful catch using hila hila (beach seine).

Q: (Participant) I want to hear more stories on poverty alleviation. There are no socio-economic data mentioned in the presentations.

A (JHPrimavera): There are so many things that cannot be monetized like fresh air etc. In some of our sites, shellfishes have increased in which contributes to food security of people.

A (JPSavaris): At the start of KII, we did baseline data survey (monthly income, house materials, etc.). The project would be too ambitious if after 4 years of implementation, 40% or more of the community increased in income. Using the same tool in acquiring the baseline data,

we found out that there is a 2-3% increase in monetary income of those who are directly involved with KII eco-park. In June, we might have that data that we can share in the next conference. There are many benefits which cannot be monetized such as decrease of vulnerability from storms.

Q (SAnayatin): Unlike Region 6 and Mindoro, Mindanao has no hatchery to produce crablets for the aquasilviculture. Please expand your operations in Mindanao so that aquaculturists in Mindanao can have crablets that are not stressed.

We cannot equate mangroves with money. There are many mangrove species which can produce products that may be source of livelihood of the people. Like the rubber tree which produces rubber from its sap. We have tungod which can be used as coloring.

A (Dr. EQuinitio): BFAR was communicating with me and they will put up a hatchery in Zamboanga and in areas where there are no hatcheries to produce crablets.

A (JHPrimavera): There are 35 species of mangroves in the Philippines. There are many that can be used for wood, like bakhaw. We need to plant to harvest the goods. We need to assign a zone for cultivation of fast growing species like bakhaw, tungog, pototan. Mangrove wood is very cheap if sold for fuel. We should go for higher value like furniture.

Q (DVillaluz): What is the status of nursery survival of crablets?

A (Dr. EQuinitio): Only 6% survival.

Q (DVillaluz): Survival is very low and cannot supply the demand. We need millions of crablets for aquasilviculture.

A (Dr. EQuinitio): BFAR is has a program that will train SUCs to establish nurseries. But this program is still on the planning stage which I am involved in. The growth of crab industry is very slow because stocking density is 1000 crabs/ha. You can only do monoculture for shorter culture period. Monoculture may lead to cannibalism; you cannot stock high density of mud crabs. You can do polyculture (crab and sugpo) to maximize the culture period and to make it shorter.

Q (DVillaluz): We have been doing it since 1982. As long is there is no market, then it is not feasible. We need to profit. We should expedite the seed stock production. But aquasilvi policies and technology should be in place before its implementation.

A (BFAR): We have recognized that problem. We work to solve the problem with them (fishpond operators.

Q (RMorales): Binalbagan has a mangrove eco-park and wildlife sanctuary with an area of 82 ha and a 1.2 km boardwalk. The eco-park was inaugurated last year (2011). We have full grown mangroves and ongoing reforestation. We want to introduce the mud crab livelihood in the park for our POs and we want to start the project right. May we invite you (Dr.

Quinitio) and Dr. Primavera for possible assistance in the planning process. This will be a great opportunity for our POs and the alliance (CENECCORD). We also would like to visit SEAFDEC.

A (Dr. EQuinitio): We are willing to help you. Thank you for seeking our assistance.

Q (MAndayog): Did you use refuge materials during trials? There is even mud crab tie culture method.

A: (Dr. EQuinitio): Tie mud crab method is only applicable in ponds. Only adult crabs are used in this methodso that they are finished with molting stage. Refuge is not used in pens.

C (DENR): The concept of planting and harvesting is only for CBMFA and I just want to remind you there is no issuance of CBFMA as of the moment. So we encourage POs to have an agreement DENR through the LGU. There will be a zone for domestic use. No cutting of the main trunk.

C (JGalve): I'll share our experience. We are a maritime school and do not offer fishery courses. The university made a sanctuary- people are not allowed to collect shells in the sanctuary. The university organized a cooperative which provided PhP50,000 seed capital. Fisherfolk now handles the canteen and caters the needs of the training center.

C (WYap): I agree with Dave that we really need more crab hatcheries. I am not discouraged with the low hatchery survival of 6%. This expected high demand for crablets presents a good opportunity for milkfish farmers. Make their ponds nurseries of "langaw-langaw."

Q (RNunez): We wanted to get as much buy in for our project. Apart from mud crab fattening, what are the other livelihoods we can initiate? My concern is BFAR has a lot of money right now. And if they push for aquasilviculture, they will not be ready.

A (JHPrimavera): You can look at both the animals and the plants. You can do imbao stock enhancement in healthy mangrove forest. Fish for aquasilviculture is not compatible with mangroves kasi malulunod ang mangroves. Plants have a lot of opportunities for livelihood. We need to tap DTI for product development. However growth rate of trees is slow. The father plants, the son will harvest. We are so used with quick fix. We need to have more research.

A (Punong Barangay RAlcala): We can get direct livelihood from seedlings. We get a lot of orders weekly at PhP5.00/seedling.

Afternoon Session Presentations

- Dr. Alice Joan G. Ferrer, UPV – Survey of FLA AUU Ponds
- Roy C. Ortega, BFAR – Pond FLA Cancellation Initiatives
- ED Jacob F. Meimban, Jr., – DENR Pond-Mangrove Reversion
- Dr. Laura T. David, UPMSI – Green from Above, Blue from Below

Open Forum

Q: (Participant) I am very interested in the presentation on climate change. The population in the Cordilleras is 1M. We would like to educate the people re sedimentation. Optimize the use of mangrove areas and its productive uses before it is completely inundated.

A (Dr. LDavid): You gave me an idea for my presentation in next year's conference. You will be surprised with the simulations that I will make.

C (THautea): Dr. David's presentation is the answer to my prayers. I would like to reiterate that we are not against mangroves. Follow the lecture of Dr. David to plant trees upland.

C: (Participant) Sea level rise is just part of climate change. There are other apparent issues we have to confront. We get so many storm each year.

Q: (Participant) What is the actual area of rehabilitated mangroves from cancelled FLAs? Do you know how many FLAs were cancelled and reverted?

A (AMeniado): We have no data.

A (JPSavaris): We have 2 FLA sites that were cancelled and reverted- FLAs of Ongkiko and Castro.

A (IReyes): There is also an abandoned FLA in Batan which is about 100 ha.

A (Dr. AFerrer): In our inventory of 1230 ha, 121 ha is vegetated with mangroves.

Q: (Participant) Considering the length of time for cancellation and reversion process, what happens to the FLA area in the mean time?

A (ROrtega): The issue is that the area is taken over by locals (illegal settlers) when left untouched. Ejectment is a big issue for DENR.

Q (Atty. ANunez): Considering the issue on illegal settlers, is it possible for DENR, BFAR and LGU to manage the area?

A: (ROrtega): It is provided in the JAO.

Q (DENR): Does BFAR regularly monitor FLA sites?

A (ROrtega): Sir Edwin (Javier), please help us. The regional offices know more about this matter.

Q (DENR): Do you have mandate regarding regular reporting?

A (ROrtega): Yes. BFAR Region 6 is dedicated in making reports.

Q: (Participant) In your presentation, Region 9 has 17 cancelled FLAs. Until now, I only received 1 FLA document.

A (ROrtega): Please ask the BFAR Regional Directors as they know more about this matter.

Q (CCustodio): This is a reaction to Atty. Allet. Until now BFAR has no rules on the cancellation process.

A (ROrtega): We have been cancelling FLAs for many years. The DA Legal Division is slow in acting on the documents. We have done necessary steps from step 1 - gathering information and formulating facts and findings to a good memo.

Q (SPasicolan): You've mentioned that we should refer to the tide table. Thank you ZSL for giving us this calendar. But we cannot use this in Manila Bay or other areas since this is only applicable in Iloilo.

A (Dr. LDavid): Tidal levels are different in one area to another. If you buy a calendar it usually indicates the Manila tide level. You can buy tide tables in NAMRIA. Talk to NAMRIA to make available the different tides in the form of the ZSL calendar.

A (JHPrimavera): Tides are really important. This is the last tidal calendar of ZSL. Can we not print annual tidal calendars.

Q: (Participant) What is the state of implementation of Provinciall MMC? What is the result of their meeting?

A (AMeniado): Wala pa po. OK naman po ang formation ng Councils, but we are still reviewing the task of each council.

Q: (Participant) How long will the JAO review take?

Q: (Participant) I don't know where the bottle neck is. When can we hear from the 2 institutions (BFAR, DENR) re status of the JAO on abandoned fishponds?

A (ROrtega): We are also surprised that the JAO has not been finalized when in fact it is already concurred by the DA Secretary. It is already with DENR. The NFARMC already gave their approval to the JAO.

A (AMeniado): It's with the policy technical working group.

C (JHPrimavera): Please relay to the technical working group that we are waiting for it since 2010.

Q (DVillaluz): If a cancelled FLA is turned over to DENR, is the area open for another application?

A (ROrtega): It is stated in the JAO that it will be open for multiple use like eco-tourism and aquasilvi.

Q (DVillaluz): Why can we not just leave the area as it is. Magkakaroon naman ng distraction dito.

A (ROrtega): BFAR is not happy accepting cancellation of areas that is intended for fishing/ aquaculture.

Q (DVillaluz): We are so confused. We are stereotyped as culprit in mangrove destruction. Why will you convert an abandoned pond for other uses?

A (Dr. AFerrer): There are fishpond areas that cannot be converted to anything. I know of a pond (2 ha) that is not fit for mangrove reversion. It was reclaimed and now has cogon grass. Maybe it can be used as resettlement of fishers or make it a government center.

A (Dr. LDavid): I am not against any industry. But in a world that is changing and unstable, you need to make into consideration that the area is low lying considering sea level rise. If you convert it into a settlement you are committing genocide/mass murder in the years to come. If a government center will be constructed, make sure that you have an architectural design that is on stilts. The most conscience-free decision is to return it back mangroves.

Q (DENR NCR): The conference can be summarized into 3 words - mangroves, rehabilitation, climate change. We have focused on mangrove rehabilitation. So what are the mangrove species that will address the impacts of climate change, cope up with the impacts of sea level rise, and withstand strong wave action?

A (JHPrimavera): In the Philippines, we only have about 5 meters of greenbelt. Law mandates a 20-50 meter greenbelt. Species would be dependent on sediments and other factors. The critical issue is the availability of a place for retreat.

Q: (Participant) Does BFAR process FLA applications filed 10 years ago?

A (ROrtega): The government is lenient and kind. We reject applications and we inform them the reason for such action. This mechanism is abused. It is a case-to-case basis.

Q (Participant): The barangay is involved in releasing of licenses, but only the LGU is involved in release of FLAs. Why is it that we are involved in the resolving issues related to FLA?

A: (ROrtega): There are applications that barangay clearance is attached, but most of the time its not included.

C (Participant): We will send a resolution to involve the barangay in the process.

Q: (Participant) What kind of investment in mangrove areas is consistent to rehabilitation and be beneficial to all and not a few.

A: (ROrtega): We need to be innovative to address such issues.

Much of the ecological knowledge to inform mangrove conservation and management is available from both peer-reviewed and gray literature. But lack of proper packaging and dissemination has made it inaccessible to those who most need it: government fisheries officials who promote pro-aquaculture policies negatively affecting mangroves, international funding agencies that support such policies, government forestry agencies and non-government organizations that undertake mangrove rehabilitation, and fish/shrimp farmers and beach resort operators who clear mangroves. The present volume aims to improve the accessibility and bridge the gap.

– J.H. Primavera (December 2013)