

## Review

# Strategic and challenge driven municipal action for remote Philippine coastal San Luis communities

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### Abstract

**Coastal Philippine regions have challenges associated with all ocean-front communities and the impact of sea-rise from climate change. Many are also dependent upon marine fisheries that are in decline. These communities have also been found to devalue the potential of women in leadership roles. San Luis was selected for this action research in part because of having women in key municipal roles. Other specific local challenges include aspects of communication, transportation and the presence of insurgents in the area. A women's leadership approach to food and water security addressed these challenges within a broader coastal resource management strategy.**

**Keywords:** Participatory coastal resource assessment, resilience, marine protected areas.

## INTRODUCTION

The 90+ million Filipino people are dependent upon small-scale fisherfolk to provide an annual 3 billion kg of marine fish for protein. Filipinos consume on average, 36kg/person/year of marine fish; the highest rate for large SE Asia countries (Silvestre and Pauly 2004). The country is arguably the most coastal dependent in the world, with a coastline to land mass ratio exceeding 120m/km<sup>2</sup>. The coastal challenges of the Philippines are perhaps best outlined in detail by the 2004 review by the Bureau of Fisheries and Aquatic Sciences, titled: *In Turbulent Seas* which contains 60 articles on a wide range of thematic topics. The current study is focused in part on a primary goal internationally and in the Philippines, the establishment of marine protected areas (MPAs) to help reverse the decline in fisheries. In addition the project specifically focused upon participatory engagement in coastal resource assessment and the following challenges: the exclusion of women from significant roles in coastal resource programs; lack of funds for high-school marine enhancements as well as peace and order issues

resulting from the presence of insurgents. In addition the water supply system in each of the four Barangays was targeted for upgrading and a second primary step completed in the establishment of an integrated Municipal high school coastal resource management (CRM) program.

The social-process activities of Philippine coastal fishing communities are usually determined by males through elected leadership positions while women are often relegated to stereotypical functions such as secretary or treasurer. However, it has been recognized that women play significant management roles in the fisherfolk household to balance budgetary requirements for food, clothing and education and that their skills may not be optimally utilized at the community level for development of Marine Protected Areas (MPAs). (Pajaro et al. 2010). The current work highlights women in strong leadership roles, with the Municipal Mayor also serving as President of the Lady Mayors Association of the Philippines, in addition to the lead science role by the first author. Further female leadership was provided by the municipal Medical Doctor, Social Work Director and Municipal Agriculturist responsible for marine fisheries. The concept of the approach was to overcome specific local challenges that limit development in the four coastal villages or Barangays of Sun Luis, specifically; Dibut,

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Dibayabay, Dikapinisan and Dimanayat. These coastal communities do not have roads, cell phone communication nor internet and the SE Monsoon weather makes travel difficult for six months of the year. There were four main aspects to the initiative; the construction of water delivery systems to houses in need for each of the Barangays; Participatory Coastal Resource Assessment (PCRA) regarding livelihood development and the protection of community resources; an evaluation of service delivery to the coastal Barangays, and the second phase of the Municipal Integrated High School CRM Program development.

Local government units (LGUs) in the Philippines consist of 80 provinces containing about 1500 municipalities and 40,000 *Barangays*. Barangays are the lowest level of Philippine jurisdictional organization; neighbourhoods often with strong similarities between people through genetics, livelihoods and other cultural components. The framework used in this study is based upon the iterative *Action Research* (AR) concept, focused on creating positive changes in the governance activities and social process at the Barangay levels themselves. Action Research first described by Lewin (1948) can perhaps best be considered as a practice involving development steps or iterations, each of which is composed of: *planning, action and evaluation* aimed at the desired results of the action. Action Research recognizes the collaborative role of the investigator and has gained acceptance as a global tool for international development, for example through Volunteer Services Overseas (VSO 2004). This developmental form of research reviewed elsewhere (Reason and Bradley 2008) has also in part led to transdisciplinarity, as demonstrated in the field of Ecohealth ([www.ecohealth.net](http://www.ecohealth.net)) where the intention is to draw upon all necessary disciplines, jurisdictions and social-processes with a focus on a specific goal. Specifically, the *Ecohealth lens* involves a focus on the linkage between human health and environmental wellness. The PAMANA Philippine alliance of fisherfolk MPA managers has been identified as prototypical Paraprofessional Ecohealth Practitioners (Anabieza et al. 2010); and were co-facilitators for the current initiative. The project reported herein focused on the linkages between the environment and food/water security through one project cycle in a broader and iterative action research approach.

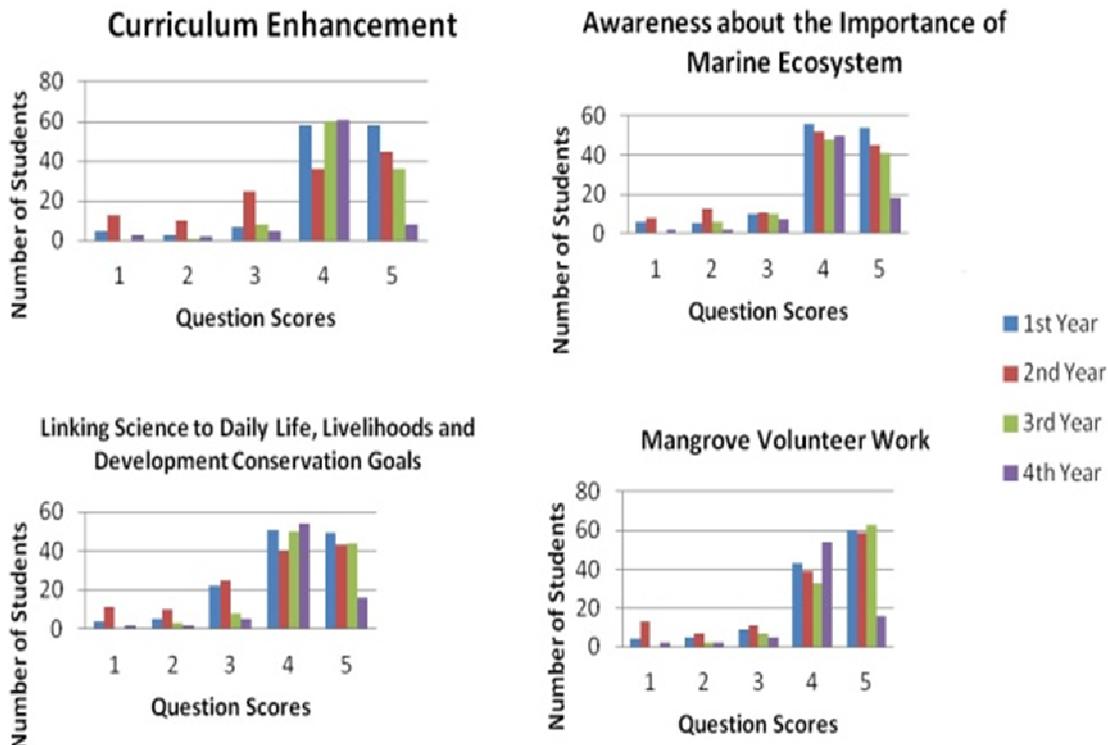
Ongoing parallel work is focused on the national approach to fisherfolk led CRM (Anabieza et al. 2010) applying the concept of nurturing paraprofessional communities of practice, a process that has been recently recognized as a significant innovation (Theodorakopoulos et al. 2012); the bioregional approach (Watts et al. 2010) and the provincial coordination role (Anabieza and Watts 2010). However, the Republic of the Philippines Local Government Code (RP 1991) designates municipalities with the primary mandate for CRM out to the 15km offshore. The Philippine coastal paradox is that

neither the municipalities nor any other local LGU currently have the expertise to effectively manage marine environments. The situation is national in context and the premise for the call to develop a new bioregional approach to establishing Bachelor of Marine Science accreditation (Watts et al. 2010). However, government funding is not regularly available for the development of reflexive educational programming in the Philippines. Thus, at this time the role of non government agencies (NGOs) is significant as a result of the need to facilitate a transformation that helps establish the culture of science use within the LGUs, and related educational programming. Activities such as a systematic needs assessment of fisherfolk communities across a bioregion require sequential NGO initiatives to both identify funding and knowledge management. Further, NGOs may also be required for key roles in the development of a linked educational framework that facilitates transformation and resilience to meet the looming future coastal challenges resulting from climate change. The ongoing development of San Luis CRM programming has been a partnership involving the municipality, Barangays, the local state college and several NGOs.

Municipal records indicate that the coastal Barangays of San Luis have an annual internal revenue allotment of 3.5 Million Pesos or approximately \$85,000 U.S. for approximately 4500 residents in 900 households which is about 16% of the population in San Luis. Dikapinisan has the only coastal high school in the San Luis. Local Barangay programs often include counterparts from provincial, municipal and national government offices as well as non-government organizations (NGOs). The creation of social-process is however dependent upon the development of participatory strategies at the barangay level. The current study led by women leaders built upon a broader program of coastal resource management involving high schools and resources- use analysis. Previous work in this coastal region involved the development of a management plan for the one established MPA in the barangay of Dibut, as part of establishing a province-wide CRM program (Anabieza and Watts 2010).

### **Integrated Municipal High School Coastal Program**

The development of a high school CRM program that integrated the one coastal high school with other schools in San Luis has been a long term goal of the combined Municipal-NGO program. San Luis National High School (SLNHS) located inland was the site for the first step in developing an integrated municipal secondary school program aimed at developing exchange programs and awareness. Students were provided with a CRM symposium developed, administered and evaluated during 2007-2009 with input from the SLNHS science instructors. Each grade level symposium was designed to



**Figure 1.** San Luis high school student responses when asked about the value of the symposium 1 - Strongly disagree, 2 – disagree 3 – neither agree or disagree; 4 – agree; 5 – strongly agree. Students indicated that: there regular curriculum was enhanced (top left); that they had increased awareness of the marine environment (top right); the symposium improved their knowledge regarding the linkages between science and livelihoods (bottom left); and that, as a result of the symposium they understood what they could do to volunteer on mangrove reforestation (bottom right)

enhance the science program at that time of the year. About 400 students participated across the four grade levels. After the symposiums each student was asked to complete a survey anonymously. They were given four questions and asked to respond in one of five ways: Strongly agree, agree, neither agree or disagree, disagree, strongly disagree. The students were asked to evaluate the following questions (italics represent a summary of grade level specific questions):

Compared to before the symposium I now know more about the selected aspect of the *regular science curriculum*.

Compared to before the symposium I now know more about the importance of the marine ecosystem.

Compared to before the symposium I now know more about the specific linkages between *people, livelihoods, science and environmental*

Compared to before the symposium I now know more about what I can do to help coastal resource management by volunteering on mangrove reforestation.

### Inland High School CRM Survey Results

The results from the survey indicated that we had a good design on terms of meeting the goals of enhancing

existing science curriculum and building awareness for the marine environment (Figure 1).

The next step in the Municipal integrated High School program was to establish infrastructure in San Luis' only coastal high school in Dikapinisan. The analyzed results from the SLNS Symposium were subsequently used as part of the preplanning for the Food and Water Security Coastal 2010-2012 Project Cycle.

### Coastal Resource Management Action Cycle 2010-2012

Planning for the project action cycle began in the summer of 2010 through contact with the Canadian Embassy NGO affiliates. There was a need to identify specific funds for any significant advancement. A program called the Canadian Fund for Local Initiatives was identified and a proposal submitted in the spring of 2011. The framework included close collaboration with the police and military so that the project would be incident resistant; meaning that if there was any events associated with the insurgents, the effect upon the activities would be minimized by communication and coordination. The activities were planned so that community actions could all be led by the five women; the



**Figure 2.** Location of 4 Marine Protected Areas initiated along the coastline of San Luis Municipality, Aurora Province in the Northern Philippine Sea Marine Bioregion

Municipal Medical Doctor, Mayor, Social Work Director, Scientist and the Municipal Agriculturist. The first author as science leader through her position as Program Development Officer at the Aurora Marine Research and Development Institute (AMRDI) was responsible for designing the Participatory Coastal Resource Assessment (PCRA) and leading that process. The third author as President of the Philippine Association of Lady Mayors emphasised during the orientation and in follow-up visits/communications that it was an important opportunity for women to contribute and learn. The Director of Municipal Social Work assisted in putting the project in perspective in terms of reducing women's time spent gathering water and livelihood development that could benefit their roles and goals in the household. The Municipal Health Officer outlined the significance of water quality in avoiding diseases such as diarrhea and helped to mobilize the community through the Barangay Health Worker. The proposal was successful and awarded approximately P1.7 Million (\$38,000 U.S.) or almost half of their Internal Revenue Allotment for all of the four barangays together during an entire year.

This project action cycle included a review of services going into the coastal barangays and a study of how these were organized, both through the municipal **centre** and the barangays themselves. The coastal portion of the

program was initiated through an orientation in all of the coastal barangays outlining the goals and objectives associated with a request for local counterpart in terms of labour and workshop attendance. Women actively participated in large numbers including surveys and reporting; with numbers generally representative of the population demographics, which was particularly unusual regarding PCRA which is usually dominated by men in the Philippines. About 60% of the overall budget was used to purchase water pipes. The Municipality provided the engineers as their counterpart. PCRA was conducted by bringing representatives into the central location of Dikapinisán and facilitated by the first author and other staff at AMRDI. This involved several days of activities culminating in a write shop to assist each barangay in developing their plans. Travel and meal expenses for the participants were covered by the project and AMRDI provided a human resource for facilitation. One outcome of this work was that there were 4 new MPAs proposed and initiated for coastal San Luis (Figure 2).

The Dikapinisán high school program was initiated through the purchase of snorkel gear and an underwater camera. A symposium was held at that high school to talk about the development of their school marine club and the relationship to local as well as global marine considerations. Subsequently, a small international tour

group was brought to Dikapinisan as a pilot study on the community's preparedness for tourism development.

The largest challenge that emerged from the project was due to the South East monsoon weather from October 2011 through until the end of the project in early 2012. Transportation was often impossible and usually hazardous. As a result, the project purchased some specific equipment to face the challenges, including life jackets (which are generally not used in the Philippines) and a water-proof equipment case. This allowed for the transport of an LCD projector, computers and a video camera. There was one significant event involving the insurgents during the project, but through detailed communication and coordination, schedules were established so that the project activities were preceded by appropriate security measures.

### Evaluation and future planning

Our results indicated that there was a need for a stronger coastal authority to help coordinate with the inland municipal centre. As a result the Mayor is proposing a Mini-Municipality or *Munisipyo* with a base in Dikapinisan. The broad involvement of women in leadership roles provided a somewhat unique profile for community development, particularly associated with the marine environment and fisheries sector. Women were more directly involved in the PCRA process than is generally found in these activities. Significantly, a new attitude of nurturing the environment was reflected in the many new proposed MPAs (Figure 1). The emphasis placed upon communication and coordination with both the police and the military resulted in an incident resistant project that was not hampered by local insurgency. Further advocacy and facilitation associated with these initiatives are currently being given budgetary consideration.

The school program was established by incorporating the snorkel equipment under the supervision of the local teachers. The pilot tour brought to Dikapinisan enjoyed their time in the community, renting equipment from the school and provided insights on further development strategies. Two of the four new water systems were instantly successful; while the others were challenged by issues associated with hydrology engineering that were somewhat beyond the expertise and available equipment of the municipal engineers. Through a Memorandum of Agreement, the NGO Daluhay is following up on the project, specifically the goal of best practice for maximizing the pipes provided for water upgrades and to continue the develop of the school program. Recently the third system was made operational and efforts continue regarding the one remaining system.

The San Luis coastal initiative is now in a new planning stage for the next project action cycle, involving an

assessment of how best to move forward to develop the new MPAs, related tourism activities and enhanced community environmental awareness. This includes establishing the formal linkage between the inland San Luis National High School (SLNHS), the new Rosaura Ruidera Tangson High School and the Dikapinisan High School program. This step is planned for 2013 based upon counterparts from Daluhay, the Municipality and others. Activities will include inland symposia and another symposium when students visit Dikapinisan. Currently international and in-country partnerships are under development to consider the overall approach to tourism, development of the municipal MPA network, facilitation for the Munisipyo, and advancing the Dikapinisan school activities with the goal of marine excellence. These goals require further consideration of the Philippine fisherfolk culture and socio-economic situation through consensus-based development of formal and non-formal bioregional educational programming.

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### REFERENCES

- Anabieza M, Pajaro MG, Reyes G, Tiburcio F and Watts P (2010). Philippine alliance of fisherfolk: ecohealth practitioners for livelihood and food security. *EcoHealth* 7:394-399.
- Anabieza M, and Watts P (2010). Hands Across the Waters – sustainability-through Philippine fisherfolk-empowerment IMPACT 44 (2). Available from: [www.impactmagazine.net](http://www.impactmagazine.net)-Accessed February 22, 2013
- Lewin K (1948). Action research and minority problems. In G. W. Lewin (Ed.). *Resolving social conflicts*. New York: Harper and Row: 201-216.
- Pajaro MG, Mulrennan ME, Alder JE, Vincent ACJ (2010). Developing MPA effectiveness indicators: comparison within and across stakeholder groups and communities. *Coastal Manag. J.*; 38(2):122-144.
- Reason P, and Bradbury H (Eds.), (2008). *SAGE handbook of action research: Participative inquiry and practice* (2<sup>nd</sup> ed.). London: Sage.
- Republic of the Philippines, (1991). Republic Act 7160 Local Government Code.
- Silvestre G, Pauly D (2004). An overview of tropical coastal fisheries in Asia: key challenges and opportunities', in DA-BFAR, In turbulent seas: The status of Philippine marine fisheries, Coastal Resource Management Project of DENR, Cebu City, Philippines, 150–67
- Theodorakopoulos N, Perciado DJS, Bennett D (2012). Transferring technology from university to rural industry within a developing economy context: The case of nurturing communities of practice. *Technovation* 32:550-559
- Volunteer Services Overseas (2004). *Skills for working development – training manual*. (London: VSO International).
- Watts P, Macose E, Angara E, Pajaro M (2010). A programmatic approach to empowerment in coastal resource management: Aurora Province, Philippines. *Gateways: Int. J. Communit. Res. Engage.*; 3:120-138.