



Institutional Arrangements in Mangrove Rehabilitation Management of Palaui Island Protected Landscape and Seascape (PIPLS), Sta. Ana, Cagayan, Philippines



ABSTRACT

Sound and effective mangrove management can be achieved when the institutional stakeholders are well organized under a balanced arrangement. This paper aimed to present the case of Protected Area Management Board (PAMB) of Palaui Island Protected Landscape and Seascape (PIPLS) in terms of stakeholder's role, interaction, and efforts to address problems and issues on mangrove management. Key informant interviews (KII's) in 14 institutions using a structured questionnaire were employed. The responses were validated in the field through community interview using unstructured questions. Stakeholder analysis was used to analyze the result of the interview. The interaction is only apparent among some stakeholders as far as mangrove management is concerned. Strong interaction was observed among some stakeholders while others have weak or no interaction. Stakeholders with weak interaction are those who do not have the jurisdiction on the resource while those with no interaction are stakeholders with no defined roles on mangrove management. Strong interaction was observed among stakeholders whose mandate is in line with the protection of the resource and has clear roles. Problems on the enforcement (i.e. lack of manpower and resources, inaccessibility of the administering authority, and overlapping institutional roles) still persist but coordination, consultation, and collaboration are being exercised by PAMB members to prevent further confusion and successfully manage the resource. However, the weak implementation of laws due to humanitarian reasons may hamper the effectiveness of enforcement which eventually affects the successful and sound management of mangroves. Therefore, these problems should be immediately addressed. The functions of the members were only stated during the survey and interview and these shall still be subjected to further analysis to come up with a more organized and systematic development of mangrove management in PIPLS.

Key words: institutional arrangement, stakeholders' analysis, mangrove rehabilitation

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INTRODUCTION

An institutional arrangement is essentially characterized by balancing both formal and informal rules influencing human behaviour, which could be categorized into three levels, namely, operational rules, collective rules and constitutional rules (Ostrom 1990). Ostrom (1990) describes operational and collective choice rules as the day-to-day rules made by resource users and external agents, respectively, while constitutional choice rules determine the eligibility to participate in the system setting rules for collective choice rules. The basic objective of resource management is to ensure that present levels of exploitation are consistent with the replacement of stocks to guarantee long term sustainability. Therefore, any management approach (Sectoral, Integrated or Collaborative Management) can be adapted in the administration of coastal and marine spaces provided that it does not conflict with the basic concepts of resource management (Mather and Chapman 1995).

The Protected Area Management Board (PAMB) of

Palaui Island Protected Landscape and Seascape (PIPLS) existed for 19 years and have been confronted by several issues and problems in mangrove management. Mangrove rehabilitation in Palaui Island has been initiated since the Coastal Environmental Program (CEP) started in 1993 (DENR RO2-CEP 1997). However, successful management of the planted mangroves was not achieved due to some bio-physical and social concerns. Cutting of mangroves and conversion of mangrove areas to other uses in some areas of the PIPLS are still apparent to satisfy the needs of the people living within the island. Prevention of further extraction can be achieved when the institutional stakeholders are well-organized and there is a balance- arrangement.

Hence, this paper aimed to present the specific case of the Protected Area Management Board of Palaui Island Protected Landscape and Seascape in terms of stakeholders roles/functions, interactions, problems and issues on enforcement and their efforts to address

the issues in four aspects of mangrove management (i.e. protection and maintenance, capacity building, enforcement of laws, and monitoring and evaluation).

MATERIALS AND METHODS

Site Information

The study site is a sitio of Barangay San Vicente, Sta. Ana, Cagayan. It has a length of 10 km and up to 4.5 km wide. It has a maximum elevation of 307 m and approximately 165 km north of Tuguegarao City, the Provincial Capital and Regional Center of Cagayan Valley Region. It lies between 18° 30' to 18° 35' North latitude and 122° 05' to 122° 10' East longitude. It is bounded on the east by the Pacific Ocean, on the north and West by the Philippine Sea and on the south by the San Vicente Strait (**Figure 1**). The area was declared as Marine Reserve in August 1994 under the category of Protected Landscape and Seascape based on RA 7586 known as the National Integrated Protected Area System (NIPAS) Law. It is being managed by the Protected Area Management Board, that is mandated to oversee the management of the Protected Area (*PAMB-GMP 2010*).

PIPLS falls under the Type IV climate with rainfall that is more or less distributed throughout the year. The area is experiencing an annual average temperature of 27.9 °C and the month of June appears to be the warmest month. The coolest months are January and February with an annual average temperature of 24.3 °C. The island experiences temperatures that go up as much as 33.4 °C. The area is

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characterized by moderate to steep slopes on the western side. The west coast of the Island has high cliffs and several coves while the eastern shoreline has an extensive reef flat with rock islets (*PAMB-GMP 2010*).

Framework of the Study

The type of institutional arrangement being implemented in an area determines the success of resource management. The study was focused on mangrove rehabilitation at Palau Island Protected Landscape and Seascape (PIPLS). This study encompassed how the institutions (government agencies, peoples' organizations and non-government organizations) interact with each other in the management of mangrove rehabilitation projects in the area. The type of institutional arrangement from all aspects of management such as protection and maintenance; training and capacity building; enforcement of policies and regulation; and monitoring and evaluation, was determined and the roles, commitment and contributions of the government, non-government and peoples' organizations were taken into account. Peoples' organizations included in this study were the Palau Environmental Protectors Association (PEPA), Palau San Vicente Motorboat Association (PASAMOB) and San Vicente Protectors Association (SVCEPA). Government organizations included the Department of Environment and Natural Resources), Bureau of Fisheries and Aquatic Resources (BFAR), Philippine Navy (PN), Philippine Coast Guard (PCG), Cagayan Economic Authority (CEZA), Provincial Environment and Natural Resources Office (PENRO), Local Government Unit (LGU) of Sta. Ana and the Barangay

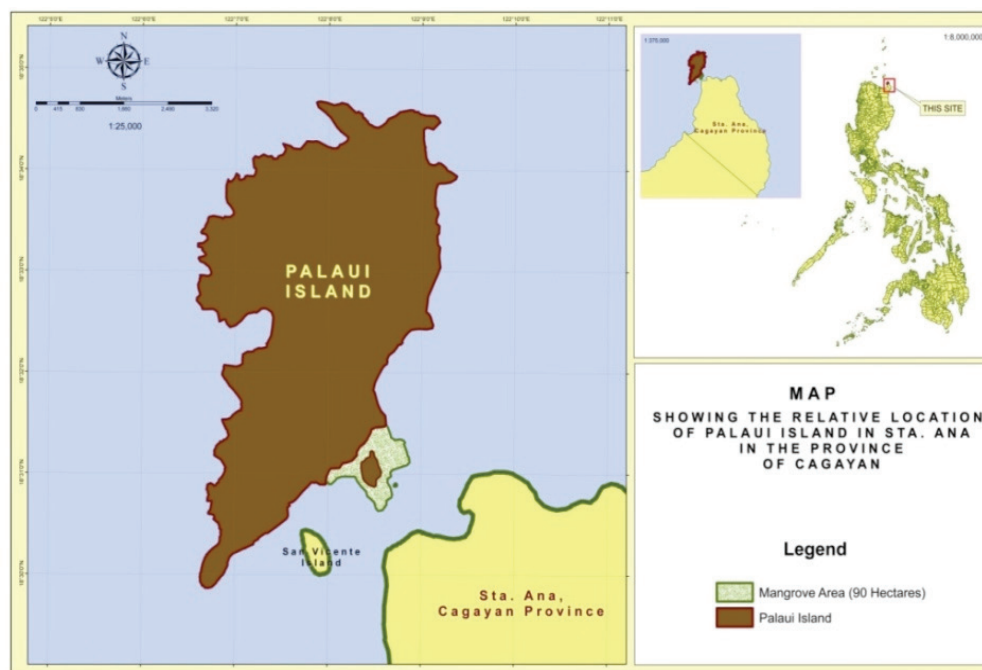


Figure 1. Location of Palau Island Protected Landscape and Seascape. (Map Source: DENR-NAMRIA, 2012)

Council. Non-government organizations were represented by the Participatory Research Organization of Communities and Education Towards Struggle for Self Reliance (PROCESS- LUZON) (Figure 2).



Figure 2. Framework of the study.

METHODOLOGY

The analysis of the institutional arrangements for mangrove rehabilitation management in Palau Island focused mainly on four (4) aspects, namely; protection and maintenance, training and capacity building, enforcement of policies and laws, and monitoring and evaluation. Data gathering lasted for two months from April to May 2012.

The data gathered were subjected to descriptive techniques generated through key informant interviews (KII's) to the fourteen stakeholders composing the PAMB. The key informants were the institution heads and institution's regular member of the PAMB. Each member of the PAMB was interviewed using a structured questionnaire focusing on the four aspects of management already mentioned earlier. Through a formal letter, the interview was scheduled for each institutional stakeholder to be able to clearly explain the questions and provide clarifications when necessary. Personal field observations, documents review, and attendance to PAMB meetings generated additional data and information. Based on the result of the interview to the institutional stakeholders, the information gathered were validated in the field through the conduct of interview to 49 percent of the household population (51 respondents). An unstructured questionnaire was implemented to validate the responses of the institutional stakeholders.

Pre-testing of questionnaire for the institutional stakeholders was conducted prior to formal survey to assess the appropriateness of the questions. Pre-testing guided the researcher in determining the sections of the questionnaire

that were difficult to understand by the interviewee. Data obtained from the KII was subjected to stakeholder's analysis following the technique of *Dick (1997)*.

RESULTS AND DISCUSSION

Interaction of Institutional Stakeholders

A Venn diagram was created based on the interactions of stakeholders in managing mangroves (Figure 3). It was noted that the interaction of institutional stakeholders was only apparent to some as far as mangrove management is concerned. The size of the circle shows the importance of the institution in the management of mangroves, the bigger the circle the more important is the stakeholder, while the proximity of the circle illustrates how much interaction between the institutions is on-going. Activities on the mangrove protection and maintenance, training and capacity building, enforcement of policies and monitoring and evaluation activities are collaborative and coordinative among some of the institutional stakeholders. According to *Carlson and Berkes (2005)*, collaborative arrangement is more efficient since certain task can easily and cheaply be done at local level while enforcement activities can be done by the state.

The DENR was placed at the center since it is the primary government agency mandated to oversee that the implementation of all activities being undertaken within the protected area does not contradict to the provision of the National Integrated Protected Areas System (NIPAS) Law (R.A 7586).

The Sangguniang Kabataan (SK) and Rural Improvement Club (RIC) do not interact with other institutional members except with the Barangay Council level. They never joined in any activities conducted on the island suggesting their limited participation. They also do not know their role when it comes to management of mangroves in the area. The Barangay Councils also has very weak interaction with DENR since their role focus only within the community such as settling disputes. But with regards to mangrove management, their role is not clear.

There was strong interaction between DENR, CEZA, LGUs, PEPA while minimal interaction was noted with PN when it comes to the protection and maintenance of mangrove, capacity building, enforcement of laws and regulations and monitoring and evaluation since it is not their mandate. The DENR together with the LGU and CEZA constantly provide trainings focusing on resource protection and management, laws and regulations, and livelihood trainings. With the help of the community and

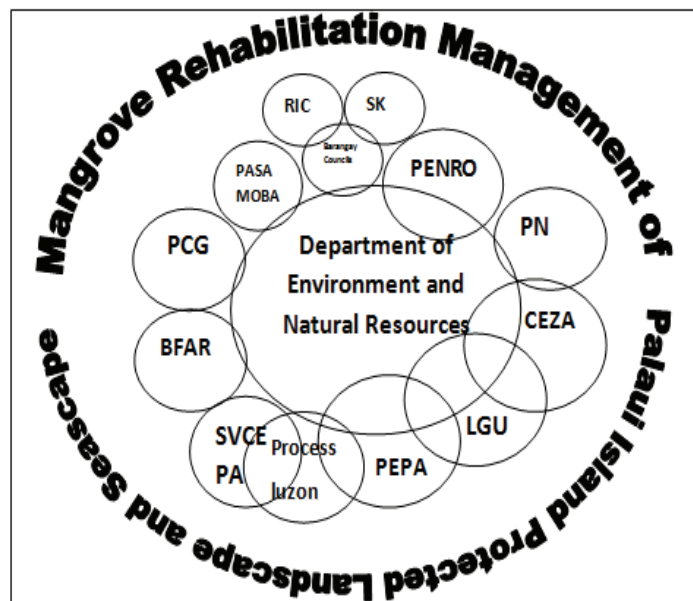


Figure 3. Venn diagram on the interaction of institutional stakeholders involved in mangrove rehabilitation management of PIPLS.

the PEPA officers, protection of mangroves including the newly planted was maintained. This organization is responsible for mangrove protection through regular visits to the site and giving feedbacks and reports to LGU, CEZA, DENR or any lead agency. The DENR that is represented by the PASU, the LGU which is represented by the MENRO, CEZA represented by Foresters and PEPA represented by its officers regularly visited and monitored the mangrove area and collating data and information into which a report is submitted to DENR R02. During patrolling and monitoring, community people were seldom involved.

In case a violation of the policies pertaining to mangrove protection has been committed by the local community, further investigation is conducted prior to filing of the case. PN has only minimal interaction since they only join mangrove management activities upon request by the lead agency. But as far as the management of the whole protected area is concerned, they strongly collaborate since they have a great interest on the island. It was noted that the PN conducted its own patrolling and enforcement since the institution owns 2,000 ha of the land area which declared as military reserve under Presidential Proclamation 201 representing 71% of the total land area of the island.

On the contrary, the SVCEPA does not know their role when it comes to management of mangroves in the area. These are members of the community who are residing on the mainland. PROCESS –LUZON has interacted with DENR and the two peoples' organization (PEPA and SVCEPA) since these cater the needs of the people by providing trainings and alternative livelihoods. The role of PEPA is to identify issues and concerns within the community and they

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are responsible in the day to day management of resources particularly mangroves.

The interaction of BFAR and PCG with DENR is minimal as far as mangrove management is concerned. Pursuant to RA 8550 as amended by R.A. 10654, BFAR is mandated to oversee the fisheries sector while PCG is taking responsibility on the marine environment. While PCG is mandated under R.A. 5173 to promote safety of life and property at sea, maritime security, enforce all applicable laws upon the high seas and waters under the Philippine jurisdiction and to assist in the national development. Though BFAR does not have responsibility on mangroves, DENR and BFAR complement each other in addressing cross cutting issues in mangrove and fisheries management.

PCG was seldom involved in conservation and protection of mangroves, patrolling and monitoring and evaluation. BFAR was never involved in the four aspects of management of mangroves. BFAR and PCG do not interact with each other in managing mangroves in the area.

PENRO, being the provincial office of the DENR, is also mandated in the management of the mangroves under its jurisdiction.

PASAMOBAS has very weak interaction with DENR since their main interest is to provide ferry service to visitors going to the island. They do not know their role and function in the management of the resource or the protected area as a whole. They were never involved in the protection and maintenance, patrolling and monitoring and evaluation.

Generally, strong interaction was only observed among some members, weak interaction for those institutions without mandate to manage mangrove resources; and no interaction to the institutions that do not know their roles in the management of mangroves. This type of interaction could be due to limited and non-involvement of some institutions during decision making process as stated by some institutions during the interview. According to *Pomeroy and Kato (2000)* participation and involvement (*Bryson and Crosby 1992*) of all stakeholders is extremely important especially during decision making because everyone is responsible for the future state of the resource. Effective management (*Schubeler 1996*) requires a clear definition of roles, jurisdiction, legal responsibilities and rights of concerned governmental bodies and other organizations. The absence of these undermines effective management and environmental protection.

Institutional Arrangement and Processes

The active members of the PAMB come together as partners in making decisions to address issues and formulate policies and regulations pertaining to the management of mangroves and the protected area as a whole. As observed, when violations are committed, special PAMB Meeting is convened to discuss and address the issues. During meetings, not all members are present despite a formal letter being sent out. Once there is a quorum, meeting will start where the members of the PAMB will agree or disagree to the solutions/interventions that have been proposed by other members of the board. It was observed that an internal arrangement is being exercised because of some reasons. Offenders on mangrove cutting and conversion were not sanctioned with the penalties stated by the law because the PAMB members exercised humanitarian considerations. In some cases, because of old age, only a mutual agreement is made regarding the punishment, which is replanting of mangroves on the area. And when minor violation is committed a case will no longer be filed. This only implies that laws are enforced endogenously through mutual agreement or by relations of power and authority among social actors involved (*Leach et al. 1999; DENR, DA-BFAR, DILG, and CRMP 2001*).

The active members of the PAMB also sat down together to make policies, regulations, and resolutions pertaining to the management of the area and its resources. Based on the attendance to meetings, interview and document reviews, the institutional arrangement is potentially consultative based on the needs of level of partnership stated by *Pomeroy (1994)* and *Sen and Nielsen (1996)*. The PAMB consult experts and established new relation with other organizations for information exchange. The PAMB welcomes organizations or individuals with technical know-how in the management of protected areas to help them improve their current management. Institutions like the University of the Philippines Marine Science Institute (UP MSI), University of the Philippines Institute of Biology (UP-IB) and Conservation International (CI) helped in the management, conservation and development by conducting activities and assessments that contributed to the rich bank of data of PIPLS. They also welcome other NGO's like the Seacology in providing them assistance in exchange for the pledge of the community to protect the forests of Palui Island for the next 20 years. The National Museum and the National Historical Institute (NHI) were invited to address the components of the tourism projects within the island.

Though there are still problems that prevail on the area of enforcement, the partnership is still coordinative

and collaborative where the Park Area Superintendent (PASu) interacted with the institutional stakeholders. This type of interaction as elaborated by *Kuperan et al. (2003)* cited by *Fernandez (2006)* has widely used in developing institutional arrangement where there is an interaction among various sectors, agencies and groups to achieve common goal or vision while maintaining their own institutional autonomy. On the contrary, *Boateng (2006)* mentioned that any institutional arrangement which does not involve all stakeholders particularly the resource users is likely to conflict with users' interest as well as the informal institutions of the users.

Problems and Issues on the Enforcement of Policies and Regulations

Weak enforcement of policies

Minimal and non-punishment of offenders were sometimes employed. According to Forester Danilo Rugrug, an example of this case was investigated by DENR and the LGU where a violator was reported and documented by the members and officers of the PEPA converting mangrove forest to fishponds. The personnel of the DENR, LGU and other members of the PAMB did not file a case against the offender and considerations to the violator were made. Instead of punishing the offender, a warning was issued and requiring the offender a promissory note not to do it again and an agreement to re-plant/replace the mangroves that have been cut. There were also several instances that law enforcers fail to assert their mandate when the violator was a powerful one, or when the local enforcers were beleaguered or intimidated by local politicians.

Lack of manpower and resources

The DENR does not have its own patrol boat that is why during patrolling, monitoring and enforcement activities, the patrol boat of the Philippine Navy is requested. There were also cases that monitoring and patrolling were not conducted due to fuel un-availability. Similarly, there is also insufficient manpower to successfully control and manage the area to prevent the exploitation of forest resources especially mangroves. Monitoring and patrolling do not only require a one day activity due to topographic characteristic of the island. The PASu does not have its own staff and does not even reside in the area. The person appointed as PASu is also the Coastal Marine Management Sector (CMMS) Chief and Integrated Coastal Resource Management Project (ICRMP) staff, as well. That is why his time is committed to simultaneously perform other work. On the other hand, there are only three CEZA personnel and only one of them is assigned to oversee the management of the

marine area. Due to inadequate manpower and resources, effectiveness and control on the cutting of mangroves and enforcement of laws pertaining to mangroves is insufficient.

Inaccessibility of the administering authority

The island can be reached in 25 minutes thru motorboat or patrol boat. Patrolling, ocular monitoring and enforcement of laws were limited by the unprecedented bad weather conditions that make the area inaccessible to monitor. The geographic features of the island makes it difficult to patrol and sometimes inaccessible. Enforcement is insufficient particularly on the western and south eastern side of the island since the area is difficult to patrol and monitor.

Overlapping institutional roles and confusion in the area of law enforcement and management

Another issue that hampers law enforcement is the confusion of roles by the enforcing authorities. The DENR as the lead agency takes the helm in the enforcement and management as stated in RA 7586. LGU Sta. Ana conducts enforcement since some of the functions of the DENR were already devolved to LGUs (RA 7160 or the Local Government Code 1991, Sec. 17). PN also manages and enforces laws because half of the island is a military reserve under Presidential Proclamation 201. CEZA also manages and enforces laws by virtue of CEZA Act 7922 (an act establishing a special economic zone and Freeport in the municipality of Sta. Ana and the neighboring islands in the municipality of Aparri, Province of Cagayan) to promote the entire economic zone as agri-industrial area and make the environment conducive for business. Likewise, PCG is exercising its functions as stated under RA 5173, an act creating a Philippine Coast Guard prescribing its powers and functions, and PD 601, a decree on the prevention and control of marine pollution. PN also conducts their patrolling and enforcement activities which operational expenses (i.e. fuel) are shouldered by the institution. In this case, PN has more resources in patrolling activities than other institutions. *Andersen et al. (2000)* stated that when institutions have incomparable interests and priorities, it is likely that conflict among them may occur especially when they compete for the same resources.

The community claim that the presence of the PN detachment at the site seems to be useless since they do not apprehend violators but they restrict the people to gather branches of mangroves for fuel wood. The CEZA, DENR and LGU also conducts patrolling, monitoring and enforcement but the resources needed (i.e. patrol boat) depend on PN. When a patrol boat is not available, foot patrolling is conducted.

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The problem of overlapping and duplication of institutional roles in the management might hamper the effective enforcement of laws and prosecution of cases by the authority. According to the PASu, to avoid overlapping, confusion and redundancy of functions, there has to be close coordination between and among the agencies involved in management.

According to *Agdapile (2003)*, some cases are: overlapping administration; inaccessibility to administering authority; lack of community support/involvement; and inadequate resources for the lead agency are the causes of failure in management.

Strategies Implemented in Mangrove Management

Imposition of prohibitions and forest laws

Despite the conflicting laws and policies on mangrove management (i.e. RA 716, Integrated Social Forestry Program under DAO 15) that encourages the utilization, development and management of the resources through the issuance of Fishpond Lease Agreements in mangrove areas, implementation is still pursued. Though, these laws serve as guide for the PAMB, penalties and other forms of punishment stated in the laws and administrative orders were not being imposed and only minimal punishments were made.

Trainings and Provision of Alternative Livelihood and Other Interventions

The provision of alternative or supplemental livelihoods initiated by the DENR, PROCESS LUZON, and LGU to the community of PIPLS can contribute much in coastal resource management by reducing the pressure on the existing resource. Community livelihood such as mud crab culture, catering activities, mangrove rehabilitation, agro-forestry activities, honey bee production, tour guiding, and snorkelling which boost the community's capabilities and capacities to meet their daily needs and to balance the management of the environment. While it is true that there were trainings coordinated in the area, still there were no available livelihood to some members of the community. Opportunities for livelihoods have become exclusive only to members of the people's organization like the PEPA.

Public Education

Public education conducted by DENR to the community people was simultaneous with the start of CEP at PIPLS. This was in the form of seminars, workshops, dialogues and meetings. Public education focused on the importance of mangroves and the sustainable management

and conservation of mangrove resources. The scope of public education also extended to include the conservation and management of the whole protected area. Other institutional stakeholders like BFAR also conducted several public education activities pertaining to the conservation, protection and management of the fisheries sector, climate change related topics, and fishery laws.

Community organizing

PAMB members believed that the success of any resource management projects rest on a well-organized community in which members are empowered to be responsible in managing and protecting their coastal resources. Their shared responsibility in managing the environment for a sustainable level should be enhanced and their sense of ownership on the resource be developed.

SUMMARY AND CONCLUSIONS

The key to successful mangrove management are clear roles, responsibilities and the regular involvement of all institutional stakeholders at all aspects of management. As in the case of PIPLS, the undefined roles in the enforcement and management functions, responsibilities, and un-involvement of some stakeholders could lead to non-participation in all aspects of mangrove management. This could also result to redundancy and overlapping responsibilities in management.

Though collaboration, interaction, and cooperation were observed, a truly strong implementation and enforcement of policies and environmental laws remain elusive. The weak implementation of mangrove laws and policies due to humanitarian considerations might be a way for other community people to follow and eventually allow for more degradation in mangrove areas. This could serve as an impediment in the success and effectiveness of mangrove management. The identified issues and problems could aggravate ineffective management and might constrain the ecological services of the mangrove ecosystem along with other resources therein.

RECOMMENDATIONS

In order to have a sound and effective management, there should be full participation of the different sectors (i.e. government agencies, non-government organizations, and people's organizations) in the society, they must be tapped and included in a comprehensive participatory type of institutional management.

Strong collaboration, cooperation and involvement of all the PAMB members in all aspects of management should

be considered. The roles and functions of the member agency were only stated during the survey and interview of each members, but these should still be subjected to further analysis to come up with a more organized and systematic development of PIPLS. Issues and problems that hamper effective and sound management should be immediately addressed.

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