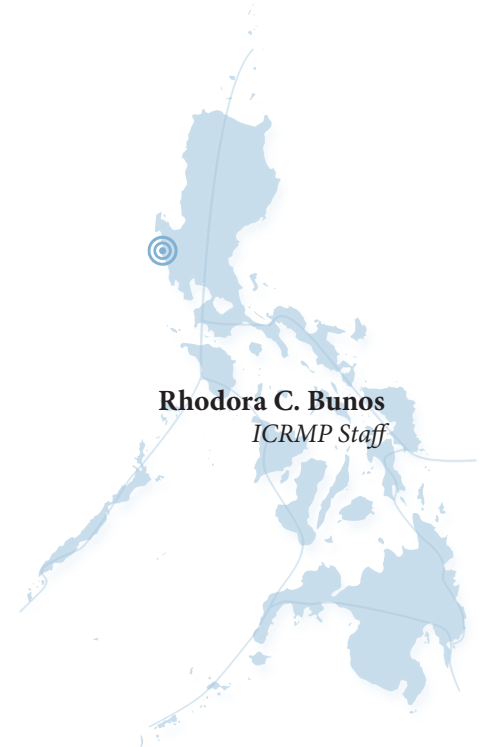


State of the Mangroves in ZAMBALES



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I. INTRODUCTION

The province of Zambales, with capital municipality Iba (15°20'N, 119°59'E), is located along the western coast of Central Luzon facing the West Philippine Sea. It is bounded by provinces of Pangasinan (north), Tarlac (east), Pampanga (east), and Bataan (south). Zambales covers two congressional districts, one city, 13 municipalities and 247 barangays (**Appendix D**). It is the second largest province in Region III, covering a total land area of 373,795 ha, which is 19.8 % of the entire region. The total population of Zambales is 534,443, with 190,120 making up the coastal population (NSO 2010).

The major sources of livelihood in the coastal barangays are fishing, aquaculture, fish processing, fish trading, farming and employment in government or private establishments. Other jobs identified were seasonal labor as carpenters or masons, drivers, contract workers abroad, mango sprayers, gleaners, salt makers and charcoal makers. All the members of the community who are engaged in fishing turn to other occupations during the lean months of fishing.

Importance of Mangroves

Mangroves play a significant role in the life of the community. First, they provide nutrient enrichment for aquatic and terrestrial flora and fauna. They form unique ecological niche and habitats for various marine and terrestrial animals. They play an important role in coastal protection. With the diversity of sub-habitats provided by mangroves, they offer a range of opportunities for recreation and tourism, and also provide a natural laboratory for education. Lastly, they provide sources of livelihood for coastal residents.

II. STATUS OF MANGROVES

Mangrove establishment in the province of Zambales under the Integrated Coastal Resources Management Project (ICRMP) covers an area of 326.5 ha, broken down as follows: 204.5 ha (65 ha rehabilitation and 139.5 ha reforestation) existing plantation and 193.75 ha new mangrove rehabilitation (**Table 5**). Mangrove sites for reforestation and rehabilitation are located in the municipalities of Botolan, Cabangan, Sta. Cruz, Candelaria, Masinloc and Palauig and some of its corresponding barangays.

The province has the following mangrove species: *saging-saging* (*Aegiceras corniculatum*), *tinduk-tindukan* (*Aegiceras floridum*), *piapi* (*Avicennia lanata*), *bungalon* (*Avicennia marina*), *api-api* (*Avicennia officinalis*; *Avicennia rumphiana*), *pototan lalaki* (*Bruguiera cylindrica*), *busain* (*Bruguiera gymnorhiza*), *pototan* (*Bruguiera sexangula*), *gapas-gapas* (*Camptostemon philippinense*), *malatangal* (*Ceriops decandra*), *tangal* (*Ceriops tagal*), *buta-buta* (*Excoecaria agallocha*), *palonapoy* (*Heritiera littoralis*), *tabau* (*Lumnitzera littorea*), *kalapini*, *kulasi* (*Lumnitzera racemosa*), *nipa* (*Nypa fruticans*), *taualis* (*Osbornia octodonta*), *bakawan lalake* (*Rhizophora apiculata*), *bakawan babae* (*Rhizophora macrunata*), *pagatpat* (*Sonneratia alba*), and *tabigi* (*Xylocarpus granatum*).

Table 5: State of mangroves in Zambales (in hectares)

Old Stand	Secondary Growth	Plantation
no data	211	no data

The causes of mangrove degradation in the area are the following: conversion of mangrove into fishponds, reclamation of mangroves for development, pollution and siltation, dikes and structures, sea level rise, pests and diseases, overexploitation, and storms.

III. MANGROVE PROTECTION AND MANAGEMENT

Panglit is the only island sitio in Barangay San Lorenzo, Masinloc. One of the problems that the fisherfolk of Panglit experience is the decreasing fish catch, which eventually resulted in lower income of fishers. To increase the number of fish catch in Panglit, the establishment of a Marine Protected Area (MPA) was deemed necessary. The MPA serves as nursery ground for fishes and other marine species that help enhance biodiversity, maintain genetic diversity, improve the habitat, increase productivity and promote species protection.

The Panglit MPA was established on 3 April 2007 after consultations and meetings with the concerned stakeholders and the passing of Barangay Ordinance No. 02-06 approved by the Sangguniang Barangay. The LGU of Masinloc manages the Panglit MPA. A subsequent legislation, Barangay Ordinance No. 02, Series of 2011, was approved in June 2011 entitled “Ordinance Approving the Expansion of Marine Protected Area in Sitio Panglit,

San Lorenzo, Zambales,” which expands the total area of Panglit MPA to 115.5 ha. Through this ordinance, the MPA was subdivided into four zones: (1) core/no-take zone – 22.6 ha, (2) mangrove reserve zone – 8.79 ha, (3) seagrass bed zone – 15.61 ha, and (4) buffer zone – 68.5 ha.

Mangrove Rehabilitation

The province of Zambales is one of the seven provinces with an Integrated Coastal Resources Management Project (ICRMP) in the Philippines. ICRMP aims to manage coastal and forest resources sustainably, and to uplift the socio-economic conditions of people living in the coastal and upland areas surrounding marine and forest biodiversity corridors of national and global importance as identified in the Philippine Biodiversity Conservation priorities. One component of the project is Biodiversity Conservation wherein mangrove reforestation is one of the major activities.

ICRMP assisted in the Mangrove Establishment Project of the province of Zambales, which covered a total area of 204.5 ha, comprising 64 ha rehabilitation and 139.5 ha reforestation areas.

A total of 11 POs from the municipalities of Sta. Cruz, Candelaria, Masinloc, Palauig, Botolan and Cabangan were recipients of the mangrove reforestation and rehabilitation projects under ICRMP (Table 6).

Table 6: List of mangrove reforestation and rehabilitation project under Integrated Coastal Resources Management Project (ICRMP)

PO Name	Area (ha)	Location
Small Fisherfolks of the Municipality of Palauig	13	Palauig
LGU of Barangay Sto. Tomas	17	Palauig
Mangingisda at Magsasaka sa Palauig	24	Palauig
Samahang Mangingisda ng Panglit	7.5	Masinloc
United Palauig-MPC	33	Palauig
Samahang Magsasaka ng Libaba	23	Palauig
Samahang Mangingisda ng Candelaria	8	Candelaria
Samahang Mangingisda ng Panglit	34	Masinloc
Burador Fisherman's Association	10	Sta. Cruz
Samahang Pangkaunlaran ng San Salvador	15	Masinloc
Panan Fisherfolks Movement Association	10	Botolan
Kalipunan ng Liping Cabangan	5	Cabangan
Parel Union for Water Environmental resources and Social	5	Botolan
Total	204.5	

The ICRMP Composite Evaluation Team monitors and evaluates the site preparation, planting, maintenance, and protection activities conducted by the contractor (i.e., the POs). The evaluation employs statistical sampling and inspection to ascertain the amount and quality of work accomplishments of the POs. **Table 7** shows the survival rates of mangroves under the various POs handling the ICRMP.

Impacts of Mangrove Rehabilitation

The mangrove rehabilitation projects have resulted to increases in fish catch. These projects have also provided employment for the members of the POs living near the site and increased the awareness of the communities on nature conservation, especially on mangrove protection and conservation. Moreover, these projects have promoted shoreline stability, clearer waters and the reduction of organic pollution.

Table 7: Status of mangrove reforestation and rehabilitation projects under the Integrated Coastal Resources Management Project (ICRMP)

PO Name	Survival rate of mangroves (%)
Small Fisherfolks of the Municipality of Palauig	80–90
LGU of Barangay Sto Tomas	82.1
Mangingisda at Magsasaka sa Palauig	86.6
Samahang Mangingisda ng Panglit	80–87
United Palauig-MPC	83
Samahang Magsasaka ng Libaba	86.6
Samahang Mangingisda ng Candelaria	85.4
Burador Fisherman's Association	87
Samahang Pangkaunlaran ng San Salvador	82
Panan Fisherfolks Movement Association	80
Kalipunan ng Liping Cabangan	65.6
Parel Union for Water Environmental resources and Social	100%

IV. SUMMARY AND RECOMMENDATIONS

Mangrove forests have been exploited by excessive wood gathering, fishpond operation, mining, and development of coastal areas, among others. Effective mangrove management and restoration can be achieved through the following activities:

- Intensify local people's awareness on mangrove protection and conservation;
- Promote sustainable utilization and management of mangrove forests;
- Conduct more research on the mangrove ecosystem;
- Strengthen collaboration with institutions and other agencies in the management of mangrove resources;
- Conduct mangrove rehabilitation and reforestation projects; and
- Strengthen coastal law enforcement.

V. REFERENCES

ICRMP Plans (Sta. Cruz, Candelaria, Masinloc, Palauig, Iba, Botolan, Cabangan, San Antonio & Subic)

Panglit MPA Plan 2011

PCRA Reports (Sta. Cruz, Candelaria, Masinloc, Palauig, Iba, Botolan, Cabangan, San Antonio & Subic)

Zambales Reforestation Plan 2012-2016. (n.d.)