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In coastal resources planning: Malampaya Sound, The Philippines

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• Introduction

In the Philippines, RRA has been extensively applied in agriculture and forestry but its application in coastal zone planning and management is still limited. In 1990 RRA¹ was used in Malampaya Sound to generate information about problems and opportunities, establish monitoring indicators to determine the impacts of future development and pinpoint subjects for further research. Malampaya Sound was chosen because, although it is Palawan's richest fishing ground, its resource base is threatened. The resource use conflicts between large scale and artisanal fishermen are escalating. Logging and upland agriculture inflict serious environmental damage on the lowland agriculture and downstream fisheries.

• Methods

The RRA team was composed of six technical specialists: an environmentalist, economist, statistician, fishery specialist, agriculturist and civil engineer. (The author served as the environmentalist and team leader). All had background training in RRA and were familiar with the study area. The team first reviewed available secondary information and formulated guide questions and checklists covering biological condition, fishery, agriculture and socio-demographic characteristics. Seven *barangays* (villages) were chosen for surveys using the following criteria: concentration of the population, types

of economic activities, resource use conflicts, topography and navigability by boat.

Field activities

A one-week field trip was conducted to appraise the seven villages. The following routine was more or less followed for every village visited:

- Courtesy call to the *barangay* captain (village headman) and other members of the village council;
- Key informants were chosen with the help of the village headmen to give a broad picture of the coastal village concerned. The team also interviewed other people to ensure a balanced perspective;
- A transect was drawn representing four major resource systems: coastal/marine, lowland, brushland and forest;
- Semi-structured interviews (SSIs) were conducted in three pairs by the six members. Key informants interviewed were grouped as: a) *upland*: upland farmers, forest dwellers, gatherer of minor forest products; b) *lowland*: lowland farmers, traders, students, interest groups; c) *coastal/marine*: artisanal fishermen, large scale operators, middlemen;
- Each evening there was a brainstorming session on the day's work.

After the field trip, a report was prepared consisting mainly of diagrams depicting the coastal resource use, problems and

¹ The survey was funded by the Palawan Integrated Area Development Project Office, a government agency mandated to orchestrate the sustainable development of the province of Palawan.

opportunities in four patterns: space, time, product flows and decision making (following Conway's² approach to agroecosystems analysis).

A validation workshop was conducted for each of the seven villages. The village headmen called a community assembly in either the village hall or public school to discuss the findings. The workshop started by informing the people present of the relevance of the study. Then, the designated members of the team presented the prepared diagrams. After the presentation, an open forum followed which provided the community members with an opportunity to comment on the diagrams.

Network diagram of problem interrelations

From the discussions, a network chart summarising the problems for the entire sound was formulated (Figure 1).

Low income was taken as the main problem caused by four major factors: low fishery production, low prices, low agricultural production and poor health. The declining fishery production is attributed to the destruction of the resource base. Activities like illegal fishing (blast and cyanide) and mangrove cutting have been contributing to habitat destruction. Siltation brought about by forest denudation has likewise damaged the seagrass beds and coral reefs. Low agricultural production is often caused by insect pests like black bug and other plant diseases. In certain villages, the intrusion of salt water into the rice fields has damaged the crops. Moreover, the tilling of untitled lands hampers agricultural production as it gives the farmer no security.

The third contributing factor to the low price issue is price monopoly with traders or middlemen dictating the price of products. Inadequate transportation/communication facilities and the low quality of products (brought about by lack of post-production facilities) have resulted in a pricing scheme unfavourable to the producers. Poor health also leads to low income. A substantial segment of

the population are suffering from malaria and other water-borne diseases. The lack of health services and facilities have aggravated the existing health problems.

Problem and solution matrix

A matrix was compiled listing the main problems, informants' perceived solutions and proposed projects to implement solutions. Table 1 shows an extract from this matrix³.

² Conway, G.R. 1986. *Agroecosystem Analysis for Research and Development*. Winrock International/Agricultural Development Council, Bangkok, Thailand.

³ For more details, see Pido, M.D. et al. 1990. *Rapid Rural Systems Appraisal of Malampaya Sound, Taytay. Final Report*. Palawan Integrated Area Development Project Office, The Philippines.

Figure 1. Network analysis of problem interrelationships in Malampaya Sound (Pido et al. 1990)

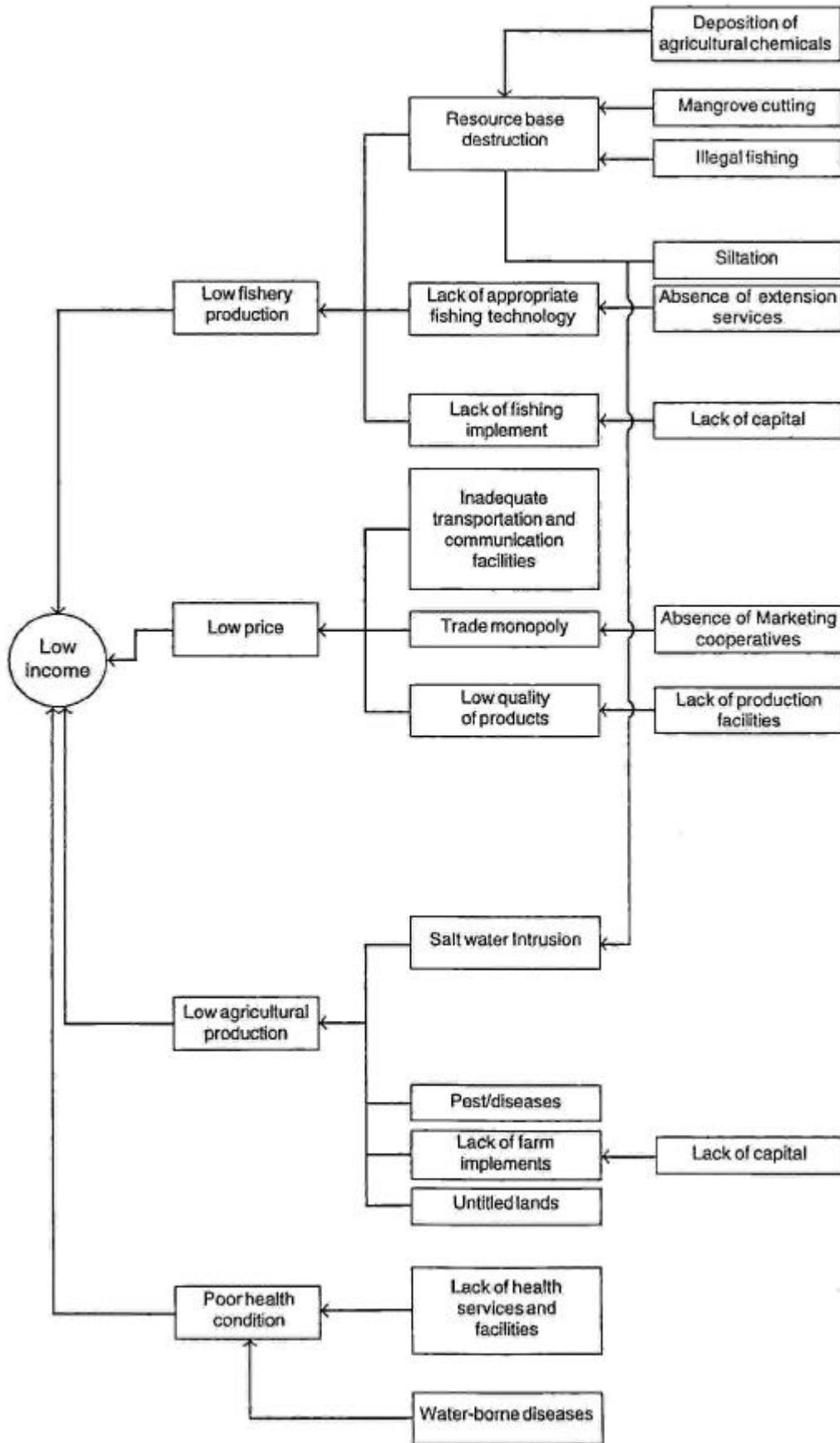


Table 1. Extract of matrix of problems, informants' perceived solutions and proposed projects for Malampaya Sound (not prioritised)

Problems	Perceived Solutions	Proposed Projects
Siltation	Forest protection	Integrated social forestry and riverbank protection
Tenurial status	Land titling	Land survey and titling; stewardship contract
Illegal fishing	Review and enforcement of existing fishery laws	Patrol boats; environmental education; communal fishing ground management

• Lessons learned

RRA in the coastal zone. The coastal zone, as the transition zone between land and sea, is more complicated than a typical land-based agricultural system. It is an area in which environmental processes, coupled with diversified human activities, are most intense. Although the typical RRA 'tool box' was found useful in identifying the problems and opportunities of Malampaya Sound, modified or new RRA tools have to be developed for application to the coastal zone.

Field activities. A RRA field trip is very exacting, both mentally and physically. Day time fieldwork and the nightly brainstorming take their tolls particularly on patience. Hence, the team must devise ways of relaxing. Changing interview partners is a good idea during the field work. Also by switching interviewees, eg. a farmer in the morning, fishermen in the afternoon, a trader the following day, we kept a high level of interest.

Data management/report writing. We were careless about keeping all the drafts of the questionnaire and checklist used in the field. Although most of these have been incorporated in the final report, the form and substance have been diluted. We also failed to note the names of all informants we interviewed. The significance of this is only realised now when the experiences and lessons are being documented.

Cost-effectiveness. The RRA was very cost-effective. The team only spent about 150,000 pesos (US\$6,000), which covered both the

salaries and field expenses of six members. The RRA document is currently used as a useful reference. In the past, PIADPO has had costly surveys which were never fully analysed or used at all.

An RRA study becomes more exciting when participated in fully by the community. It was very touching to find people more than enthusiastic to talk to us because they had never met government extension workers in their entire lives.

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EDITOR'S NOTE

There is a fledgling network for participatory research methods for coastal resource management being coordinated by the Bay of Bengal Programme for Fisheries Development. Write to: R. Roy, BOBP, Post Bag 1054, Madras 600 010, India.