

FACILITATING INTEGRATED COASTAL MANAGEMENT IN INDONESIA
The David and Lucile Packard Foundation
2001-2003

FINAL REPORT: CASE STUDIES



*Training and networking toward
sustainable coastal management in
Southeast Asia*



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Facilitating Integrated Coastal Management in Indonesia
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Acronyms

BCMTP	Broad-based Coastal Management Training Program
BFAR	Bureau of Fisheries and Aquatic Resources
CCMRS	Center for Coastal and Marine Resources Studies (locally known as Pusat Kajian Sumber Daya Pesisir & Lautan or PKSPL)
CEP	Coastal Environment Program (now the Coastal and Marine Management Office)
CMMO	Coastal and Marine Management Office
DA	Department of Agriculture
DENR	Department of Environment and Natural Resources
DKP	Departamen Kelautan dan Perikanan (Ministry of Marine Affairs and Fisheries)
DOST	Department of Science and Technology
GO	Government organization
ICLARM	International Center for Living Aquatic Resources Management (now called The WorldFish Center)
ICM	Integrated Coastal Management
IPB	Institut Pertanian Bogor (Bogor Agricultural University)
INCoM	Indonesian Network for Coastal Management
Jaring Pela	Jaringan Kerja untuk Pesisir dan Laut (Indonesian NGO Network for Marine and Coastal Resources)
NGO	Non-government organization
PCAMRD	Philippine Council for Aquatic and Marine Research and Development
PKSPL	Pusat Kajian Sumber Daya Pesisir & Lautan (Center for Coastal and Marine Resources Studies)
PESUT	Yayasan Pesisir dan Laut (Indonesia Coastal & Marine Foundation)
TERANGI	Yayasan Terumbu Karang Indonesia (The Indonesian Coral Reef Foundation)
TNA	Training Needs Assessment
TNC	The Nature Conservancy
TOT	Training of Trainers
UN-TSC	United Nations Train-Sea-Coast

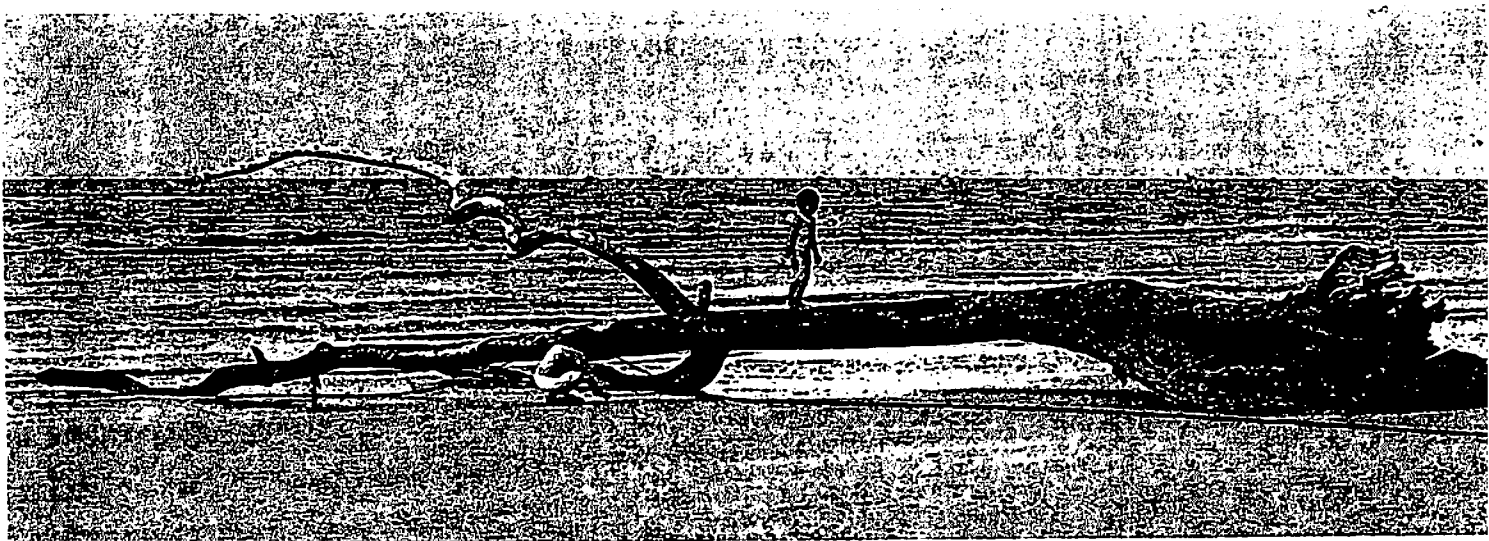
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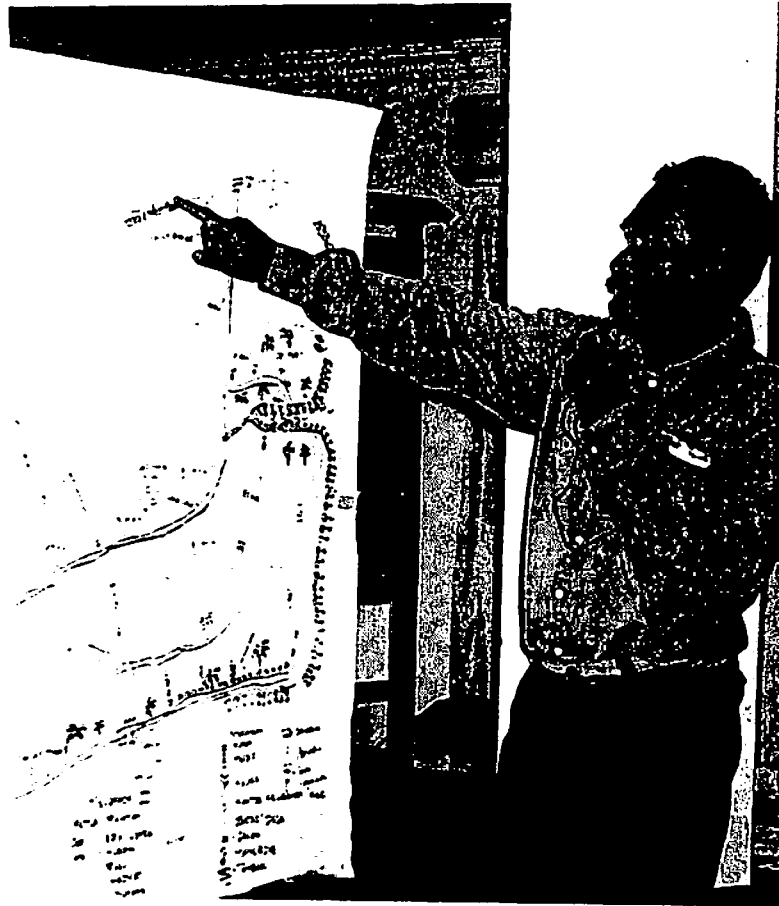
Developing nations in Southeast Asia are experiencing similar problems regarding their nearshore coastal resources. Coastal ecosystems are largely threatened by over exploitation, use of destructive fishing practices, pollution and other development-related pressures. In varying magnitudes, issues common to these countries are: the lack of comprehensive information on the coastal zones, increasing populations, limited ability to ensure sustainable levels of resource use because of, for instance, deforestation, coastal erosion, destructive harvesting practices, urbanization, a lack of investments in environmental management and lack of a management plan. Collectively, these threats have placed 55% of the world's coral reefs at risk (Bryant et al 1998).

Indonesia is considered a "hotspot" in terms of reefs at risk, having high levels of reef fish biodiversity that are under high threat from human activities. Eighty three percent (83%) of its 42,000 square kilometers of coral reefs are at risk. According to World Bank estimates, Indonesia forfeits more than US\$10 million a year in lost productivity, coastal protection, and other benefits through large scale poison fishing alone. Because of the vast reef area, coastal zone policy and management by Indonesia can have major impacts on the global heritage of coral reef diversity regionally and globally.

Specifically, threats to Indonesian reefs and coastal resources include: anchor damage where fishermen unknowingly destroy corals on reefs by dropping anchors on delicate growths (Sogiarto and Polunin (1982); blast fishing (Robinson et al 1981), (Sogiarto and Polunin (1982), Burbridge and Maragos (1985); oil pollution from weathered crude oil and accidental spillage at harbors (Suharsono 1995); the use of drag nets, cyanide (Sogiarto and Polunin 1982) and drive in nets (Muro-ami) (Suharsono 1995); mining and collection of corals for the production of lime (Hardenberg 1939, Umbgrove 1947, Robinson et al 1939 and Sogiarto and Polunin 1982); upland deforestation, agriculture, industry, tourism and recreation (Soekarno 1994) and the development of tourist facilities (e.g., boat harbours and breakwaters) which often lead to reef damage as a result of bad planning. It is quite evident that the proliferation of destructive practices in Indonesia's coastal areas reflects the dearth in skilled personnel and expertise in integrated coastal management.

At the policy level, there is indication that the need for conservation of the coral reefs in Indonesia has been realized and is evident in several policies that promote the





management and conservation of parks and reserves. However, such legislation could not be appropriately implemented without stakeholder capacity for sustainable resource use and management, understanding of coastal resource dynamics, planning expertise and most importantly, coastal management implementation skills.

There is therefore a need to provide operational and implementing capacities for the management of coastal resources by mandated institutions and coastal stakeholders in the Southeast Asian region, specifically in Indonesia where the poor feel the majority of destructive impacts. The Facilitating Integrated Coastal Management in Indonesia project sought to enhance such capacities with the ultimate goal of producing a reasonable number of skilled coastal management practitioners in the country, equipped with training tools focused on addressing Indonesian coastal resource use issues.

This document contains the compiled lessons, experiences and the impacts of the ICM training course developed for the kecamatan of Indonesia presented through the case studies of our Indonesian collaborators and the participants of the ICM training courses. We hope that you find them useful. ○

Acknowledgments

BCMTP-Philippines extends its sincere appreciation to all the people and organizations that contributed to the success of the Facilitating ICM in Indonesia project.

- ▶ To INCoM, for being an excellent partner in this project — it has been a pleasure working and learning with the team;
- ▶ To the David and Lucile Packard Foundation and the Directorate of Coastal Affairs, Directorate General of Coastal & Small Islands, Ministry of Marine Affairs and Fisheries, Republic of Indonesia for their financial and technical support they put in this training course;
- ▶ To the United Nations TRAIN-SEA-COAST and the Rockefeller Brothers Fund, for the timely assistance they have been providing throughout the project;
- ▶ To the Center for Coastal and Marine Resources and Studies-Bogor Agricultural University for facilitating the movement and transfer of funds; and
- ▶ To the communities in Kecamatan Tejakula, Penajam and Kasemen, for opening themselves to BCMTP and INCoM, and to new ideas.

Case Studies: Indonesian Collaborators

Training and Networking for a Positive Change

Denny Boy Mochran
Puter Foundation

Aside from my daily work as an Office Manager, I became a resource speaker for Strategic Planning, Problem Mapping Analysis, Participatory Monitoring and Evaluation during the conduct of ICM training in Indonesia. In Puter Foundation, I managed the day-to-day office activities of the staff. As a collaborator for the *Facilitating Integrated Coastal Management* project, I represent Puter Foundation in the decision-making process and provide inputs for the project together with the *Broad-based Coastal Management Training Program (BCMTP)*.

Puter Foundation actively participates in providing a different color to the spectrum of non-governmental organizations activities and other social services in Indonesia. Puter Foundation's vision is a self-reliant society that has the capacity to determine, develop, and maintain its best quality of life. Puter focuses on community-based planning activities and commits in assisting community-based organizations, non-governmental organizations, the private sector as well as government agencies that share Puter's vision and mission in developing their program and project plans. Puter is supported by skilled and experienced planning facilitators.

I have good relationship with my supervisor and staff as we share and learn from each other and work as a team. I maintain a healthy working relationship with our network. Despite some hesitation from our management on the ICM training program in the beginning, because they believe that this is similar to



other ICM programs of Indonesian NGOs, government and academic institutions, I was willing to join the program. Before the ICM training program, I have collaborated with a parallel program with the kabupaten level as target participants. In 2003, Bogor Agricultural Institute invited me to facilitate and present the topic on *Conflict Resolution on Coastal Management* in their training for Indonesian Coastal Department.

During the Training of Trainers (ToT) I learned some group dynamic exercises for



the ICM training, presentation and developing the training course from training needs analysis (TNA) to its implementation. In the long run, I have developed my skills in planning, facilitation, information system design and environmental education.

At the organizational level, Puter Foundation learned much from this collaboration as we inform and share the similar process in facilitating other organization/NGOs to conduct training or other group facilitation activities. For example, when other organizations requested Puter to help them in facilitating their workshop, we first conduct a TNA. We have now adopted such standard training methodology.

In terms of partnership among other stakeholders, communication must be enhanced. Every time we meet other INCoM members, we discuss the direction of our network and its future. Our relationship with other stakeholders is good, however, there is a need to concretize our plans through a common action.

The challenge is to manage my time with my other work and communicate well among the others members of INCoM. I motivate myself against different issues. I learned to work as a team player since team work is very essential for INCoM to function well.

When we work together as a team, we expect to face many problems, through these we learn to be patient and our negotiation skills are enhanced in order to achieve a common goal. We must trust each other and give positive feedback for others to be motivated.

In context, our collaboration may be adopted to other situations if we consider working with multiple stakeholders. I believe we can work together if we have similar perspective and know the essence of collaboration, which is constituency building. ◉

Trust, Equity and Friendship

*Imran Amin
Telapak Indonesia*

Telapak Indonesia is an independent environmental organization set up in mid-1995 by some young environmental activists in Bogor, West Java. Since January 2002, Telapak has changed its legal entity, Telapak Indonesia Foundation has transformed into Telapak Association. This new form enables Telapak to spread its mission and work to a greater part of the society. Telapak believes that it is about time that individuals and other components in society be directly involved in Telapak activities.

Telapak works for the cause of a just natural resource management -in the interest of people, generations and other living entities of the earth - through: 1) facilitation and capacity building of Telapak and its partners, grassroots groups, NGO networks and local communities; 2) persuading formal and informal leaders, local-national-international NGOs and universities; 3) pressures on big multinational companies and financial institutions; and 4) promoting better natural resources management policies and practices. To effectively achieve the above objectives, Telapak conducts high quality research on key natural resource management issues; translate the result into persuasive policy advocacy at national and local levels, and to work closely with local NGOs and communities to build their own capacities as resource managers and advocates. Telapak sees that renewable natural resources must be utilized wisely and fairly so it can benefit a large number of people who are dependent on these resources for their livelihood.

I have been in charge on handling the PromOLA (Program Monitoring Laut), Telapak's marine monitoring program, since 1997. It was established in 1997 with efforts focused on revealing destructive fishing practices in Indonesia, especially cyanide fishing and bombing/dynamite fishing. The work is designed through collaborative field works with local organizations which have related work on coastal and marine issue. The program itself is located in nine provinces all over the country. It starts with a thorough desk and field investigation, then continues with community organizing and capacity building to the local community which is connected to those destructive activities. At the present, some of the places that we work in have demonstrated some success -- cyanide fishing has not been practiced in our target communities. For other areas, we are still in the process of data gathering and analysis.

It was 1999 , when I first heard of BCMTTP and I was invited to attend one of BCMTTP training courses in Los Baños, Philippines. Months after that, Sheila Vergara (WorldFish Center) and Cristy Nozawa (BirdLife International) came to my office to discuss about the feasibility of having the same program in Indonesia. My first question at that time was why the project is only focusing on training if the program wants to work on ICM issues. There are similar programs that has no useful outcomes. They only focus on how many participants they would have in every training and for me it is useless. I was afraid that BCMTTP will have the same mission as those other existing ICM programs.

I was involved in a similar ICM program when BCMTTP involved me to the project. Our program was mainly concerned with the training output and not the impact of the training. Being involved with BCMTTP's Facilitating ICM in Indonesia project made me realize the improvement needed in our previous training courses. During the project, we discovered the holistic approach of doing ICM training. Focus should not only be on the initial outputs but also on the impact of the training.

Joining the BCMTTP collaboration is proceeding into a new way of running a precision program. The most important thing in this program is we always start the training with a process of needs assessment which was never taken by other training programs. With the need assessment, we are able to identify the needs of the targeted participants so all the modules they get will really be useful.



Trust building, equity and friendship among the members are also the strengths of the collaboration. Based on my experience of being a part of an organization - trust, equity and friendship are good indicators of a good organization. Without these, an organization will sometimes face several problems on interpersonal connection. In Telapak, those things are also the foundation of all activities and programs.

I am still connected with several coastal projects including the ProMOLA itself. BCMTP has a good system on project setup and monitoring using simple tools and methods which I can apply to improve my projects. I hope I can still learn those things in a more detailed process and mechanism. A training on holistic methods to run a project would be useful.

The challenge I and my organization faced from the whole process is working with other collaborators with different backgrounds and way of thinking. I learned how to put myself as part of them, as part of the team. This diversity becomes a challenge when we have to come up with one idea or conclusion. More than the skills needed to facilitate this task, without willingness, it is impossible to achieve it.

Aside from the skills, I also learned from the Philippine collaborators how to work with each other as a team. Back in the 60's and 70's era, the Philippines was one step behind Indonesia. Filipinos studied and learned from Indonesians in Indonesia, but now the Philippines can be two steps ahead of us. Most of the new things we have here has already been done in the Philippines. It is not because we are only walking in the same place, or we are just stagnant in one place, it is because we never look forward and always quarrel with each other even on small details. The practice of sticking to the schedule and process is another thing I learned from the Philippine team; once committed to do something, we do not proceed to another thing unless the first task is finished.

The skills I gained from the ToT are very useful for improving my work and capability. For example, now I know how to do my presentation in the proper and effective way. Also, I overcome my public nervousness. These are just a few examples of what I got from the ToT.

The kind of collaboration we have is a new model in Indonesia. Combining members with different background, views and activities into one group with the same mission. Since it is just new, we run this collaboration the way we learned from the Philippine collaborators. So far, the process is quite good even though we still lack communication and coordination. We are still in the process of developing and improving our collaboration.

PKSPL-IPB is responsible for administering the collaboration and all the collaborators also have their own responsibilities in terms of their areas of specialization. But the problem is in the fact not all of us would like to take the responsibility equally, or maybe it is not clear yet what we supposed to do in term of sharing responsibility.

With this collaboration, I think most all of us were able to establish partnerships with other stakeholders.



We did not have problems working with the government and academe because we always adhere to our mission before proceeding with the action steps. I am a part of a team that will develop a marine and coastal management act together with DKP, a government agency. This team already has the same mission and vision to develop the act with a better process. We are doing several public consultations involving almost all the stakeholders.

My institution (Telapak) and I have been committed ever since the first time we dealt with this program. ICM program has already been internalized in our Marine Program. Next year, we are going to establish an ICM program in Raja Ampat Islands in Western Papua. We will not just deal with ICM training but the whole process of establishing an ICM up to its implementation.

In terms of INCoM, Denny Boy Mochran (Puter Foundation) and Marthen Welly (Jaring Pela/The Nature Conservancy) and I have already committed ourselves to keep this collaboration going. Our commitment is not only limited on the scheduled projects of INCoM, but also beyond the projects we have. So with or without BCMTF funding, we will still try to run the program even if other collaborators decides not join anymore. This is only from the three of us because we already discussed this several times. Upon reading this, we hope that other collaborators will also agree to keep the INCoM agreements, with or without BCMTF support.

So far, we have not yet planned a detailed mechanism for this, but one of our plans is to establish a Training and Information Center for ICM Programs in Indonesia. First, we intend to finish all the training in the nine remaining sites covered by the TNA.

The whole process was very meaningful and useful for me. The TNA, the training of trainers and the three pilot training courses made me more capable and confident to talk about ICM, and the learnings I gained can help me set up my big program next year in Raja Ampat.

The perfect process of how this project was implemented of course is replicable in other situations. A the unique part of the process is the TNA it self because other trainings usually do not start with a TNA. TNA makes the training more useful and applicable in the field.

If someday we will still have a sequel to this project, it should be emphasized that the strength of the project has been the equity among the collaborators, because BCMTF treated Indonesian collaborators as partners, the project become our responsibility. With this sense of ownership and responsibility, the Indonesian collaborators were encouraged to sustain the project. ○

Good Communication for Good Collaboration

Marthen Welly
Jaring Pela/The Nature Conservancy

Background

Jaring Pela (Jaringan Pesisir dan Laut Nasional) is Indonesian NGO Network for Coastal and Marine Resources. It has more than 100 NGOs and 12 individual members throughout Indonesia. Jaring Pela was established in 1998 in Bogor (West Java). Jaring Pela's vision is sustainable community-based coastal resources management through policy advocacy, community organizing and development, education and database management.

In 2001, Sheila Vergara (WorldFish) and Cristi Nozawa (Birdlife International) visited the Jaring Pela national office in Bali to meet with me. At that time, my term as National Coordinator for Jaring Pela was until May 2002. They said that they were exploring the possibility of working with Jaring Pela and other stakeholders in Indonesia to develop an Integrated Coastal Management (ICM) Training Program. Because this initiative was parallel to my main tasks in Jaring Pela, which were capacity building, constituency building, communication management, and monitoring-evaluation, I agreed to work with Broad-based Coastal Management Training Program (BCMTP). In April 2001, BCMTP organized an orientation workshop for the Facilitating ICM in Indonesia project in Bogor (West Java), wherein other coastal management practitioners in Indonesia, including Jaring Pela, participated.

Initial situation

Before working with BCMTP to develop the ICM training curriculum for the Kecamatan level, I already had theoretical knowledge of the ICM process which I learned from several training courses. I was also involved with a project related to community-based coastal resources management in Tejakula sub-district, together with Bahtera Nusantara Foundation. As coordinator for networking on the national level, I was tasked to do policy advocacy for bills on coastal management area and small island management, which is also an ICM-related task.

Jaring Pela has an information-sharing mechanism related with program networking or movement concerns to get feedback from members as important inputs for my decisions. When I shared the idea to run with the Facilitating ICM in Indonesia project, Jaring Pela members gave their full support. To assist the project, Jaring Pela members did the training needs analysis (TNA) on the six sites identified during the orientation workshop. It was likewise very helpful to Jaring Pela because it covered Jaring Pela target areas in Indonesia with minimum time and budget.

This was the first time I worked with other stakeholders from Indonesia. I had hesitations on working with the government, because sometimes NGOs and government organizations in Indonesia have different point of views regarding some issues. There was no trust in working with the government and many doubt their commitment.

During the orientation workshop, as predicted, it was difficult to achieve corresponding views among the NGOs, academic and government institutions. A long debate could not be avoided. Surprisingly, at the



end of workshop, we came up with common decisions on how to develop an ICM training curriculum. We have agreed on the issues that need to be addressed and the target participants for the training. This was also made possible because our partners from BCMTTP gave high regard to cultural sensitivity, team work and demonstrated strong commitment. It inspired us because it was proof that working together was possible. We also learned how BCMTTP prepares and conducts training courses and workshops. We eventually established the Indonesian Networking on Coastal Management (INCoM). There was no problem working with BCMTTP because we have more or less a similar culture and we could communicate using the English language.



In Bali, I was involved in with an ICM-related project at Les village, which is part of the Tejakula sub-district. Work with BCMTTP brought valuable impact in the Les village project. Tejakula stakeholders, which consist of the local government, fishers organization, traditional leader, private and tourism sector, started to recognize the project. Tejakula was identified as one of pilot sites for the ICM training. After the training, Tejakula stakeholders established a Tejakula Community Society that served as a platform for coordination and information sharing of coastal and marine issues. Tejakula Community Society developed a coastal area management plan for their area. This was parallel to Jaring Pela's idea of promoting sustainable coastal resources management with a local institution that consists of local stakeholders dedicated to managing their coastal area.

New knowledge, new skills

During the first pilot training in Tejakula, Bali, evaluation results indicated that I did not have good skills and materials. This was also the case for other members, mainly because it was our first time to implement our new skills and knowledge gained from the Training of Trainers in the Philippines. For the second and third pilot training courses, my performance and materials improved and I got better ratings from the team evaluation.

During the process, I gained significant professional skill on how to develop a curriculum for ICM training. I learned how to work together with NGOs, the academe and the government. I developed facilitation skills for adult people, learned how to effectively use different media (PowerPoint, games and flip-chart) for delivering the modules, how to motivate training participants, and how to evaluate our progress and capability during the training. I was able to practice and develop these skills during the three pilot training courses. INCoM members grew close to each other and learned how to work in rhythm such that every member knows each others' function. Many facilitation skills were shared by BCMTTP, particularly the use of games, teamwork, and systematic administration and documentation. My skills on the preparation and conduct of ICM training for the Kecamatan level were improved.

The outcomes

Several outcomes of our collaboration with BCMTP-Philippines:

1. Established the Indonesian Networking on Coastal Management (INCoM) with PKSPL-IPB as the temporary legal entity for administrative concerns.
2. ICM training course for Kecamatan level in Indonesia.
3. INCoM as pioneer in Indonesia to demonstrate collaboration between NGOs, government and academe in one institution.

INCoM members agreed that Ramli Malik of Pesut Foundation will lead INCoM for six months with support from Denny Boy Mochran of Puter (legal matters), Silvanita Timotius of Terangi Foundation (profile and brochure), Marthen Welly of Jaring Pela/TNC and Imran Amin of Telapak (fund raising and partnership), and Ruddy Suwandi and Amin of PKSPL-IPB (module revision).

To sustain our collaboration, we would like to make INCoM a formal institution. This will make it easier to promote INCoM in Indonesia, particularly to get endorsement from the Fisheries and Marine Affairs Department. INCoM will focus on three aspects, which are: (1) effective communication and administration, (2) fund raising and (3) documentation and publication. Based on the INCoM members' TNA, we still have 25 sites for ICM training. This will be part of our future plans. As learned from BCMTP, we will conduct an impact evaluation for every ICM training conducted for the remaining sites.

The ICM training course developed through this collaboration is highly effective. The training participants from the Kecamatan communities did not know ICM before but after the training, they had the capability to implement it.

Lessons learned

The principal lesson learned from this collaboration is, strong motivation and commitment to work together towards developing useful things, promotes bigger chances of success despite differences in culture, institution, skills, communication language and behavior. Communication is one of the important tools for success. INCoM and the ICM training course for Kecamatan level in Indonesia was made possible because of the good communication system established by the INCoM and BCMTP members.

It is possible to adopt this to other cases and other sites with different situations. One of universal things that is replicable to other sites is the spirit of sharing experiences with high culture sensitivity. ●

Quality Training Development

Nilfa Rasyid

Directorate of Coastal Affairs

The Directorate General of Coasts Affairs and Small Islands Affairs

The Ministry of Marine Affairs and Fisheries Republic of Indonesia (MMAF)

The Directorate of Coastal Affairs is a government organization that aims to improve the quality of coastal environment and to develop a clean, healthy and productive coastal ecosystem through the following strategies/priority activities:

1. establishing integrated coastal management and empower coastal areas towards a better condition,
2. coastal ecosystem rehabilitation,
3. marine pollution control and natural disaster through developing policies and models,
4. enhancing the capacity of human resources and institutions,
5. developing guidelines, laws and government regulations on coastal management,
6. implementing utilization models on coastal resources use,
7. developing rehabilitation models and restocking coastal ecosystems,
8. developing models on disaster mitigation of coastal area,
9. improving data and information system and building models, pilot project and field study,
10. establishing a coastal ecosystem database and to carry out coastal management coordination.

When I participated in the Facilitating Integrated Coastal Management in Indonesia project, I was a staff of the Directorate of Coastal Affairs, The Directorate General of Coasts Affairs and Small Islands Affairs, The Ministry of Marine Affairs and Fisheries Republic of Indonesia (MMAF). I am a Chemical Engineer and I graduated from Bandung Institute of Technology on 1991. I worked for the Government Agency for Waste Management from 1996 - 2002 and then supported the Directorate of Coastal Affairs after. I am also involved in Marine and Coastal Development Project and Marine and Coastal Resources Management Project (MCRMP).

ICM is a part of the Marine and Coastal Development Project and MCRMP building a capacity program for 43 Kabupatens (district) in Indonesia. The training provided a good venue and the ICM technique can be implemented.

As a Government Institution, we have relationships and partnerships with stakeholders and other Indonesian institutions. The Directorate of Coastal Affairs allocate budgets for various activities/projects of the NGO, private





sector and universities. Networking and partnerships with stakeholders and other Indonesian institutions are maintained.

The training was very useful and I hope BCMTTP can develop and facilitate a bigger network between coastal management practitioners in Phillipine-Vietnam-Thailand-Indonesia-and other countries in the future.

The training modules based on the results of training need assessments, using a combination of lecture-discussion, case analysis and participatory activities are efficient. The Directorate of Coastal Affairs can adopt the methodology to improve their ICM training (at the Provincial, Kabupaten or Kecamatan levels).

The training of trainers improved my skills and knowledge on facilitation, communication and coordination of ICM training, and developing effective networking. I gained knowledge on how to effectively manage an ICM training.

INCoM, the Indonesian Network on Coastal Management was formed and it is a good partnership among MMAF, NGOs and the academe. MMAF tries to acquire budget for the activities related to ICM training and plans to conduct a workshop to further develop skills and knowledge of INCoM members.

The unique lesson I learned is on how the NGO's are trying to implement the bottom up training planning system while government institutions are trying to bridge the gap between the bottom up and top down system. ●

Lessons from Philippine Friends (BCMTP) on the ICM Training Process

*Ramli Malik
Pesut Foundation*

Coastal and marine issues affect the quality of life of human and natural resources in Indonesia. Those belonging to the marginalized sector, like fisher folks, were deprived of their rights, values, democratic participation and empowerment in the community. These issues encouraged a few coastal and marine activists to establish an alternative institution other than the government. In May 2000, Yayasan Pesut Indonesia or Indonesia Coastal and Marine Foundation was established in Balikpapan, East Kalimantan. The foundation's name was inspired and motivated by the dynamism of the village communities in coastal and marine areas in Indonesia as a symbolic expression of the empowerment of their culture and values.

These values always gave soul, spirit, inspiration and motivation that clearly guide all the actions of Pesut Foundation in institutional collaboration. These values gave integrity to Pesut Foundation's name. Pesut Foundation's value and spirit is in all aspects biased towards community empowerment to serve coastal and marine communities in Indonesia.

Pesut Foundation's goal is to organize, assist, and develop relationships among functional dynamic stakeholders such as universities, government institutions, private sector, NGOs and other development institutions that have a parallel vision and mission with our organization. Our organization envisions a prosperous coastal community through integrated coastal zone management. To attain this vision, Pesut's missions include: (1) increasing community awareness on the importance of coastal resource management; (2) empowering local communities and other stakeholders through training and participation to manage their coastal areas; (3) promoting the community-based coastal management approach to policy makers; (4) conducting research, policy studies and information dissemination about coastal resources in East Kalimantan; and (5) developing efforts for environmental and economic sustainability of coastal communities. To effectively achieve our mission, Pesut formed four main programs: (1) Coastal Community Development; (2) Assessment and Research; (3) Training and Campaign; and (4) Education and Environmental Awareness.

Pesut Foundation conducted some projects related to ICM. Since 2001, Pesut facilitated a Community-based Assistance and Management for six coastal villages around Center of Supply Base and Lawe-Lawe Terminal of UNOCAL Indonesia Company in Penajam Sub District, Penajam Paser Utara, East Kalimantan Regency. The program aimed to: (1) increase socioeconomic opportunities; (2) increase community knowledge on technical development planning for the villages; (3) increase efforts in protecting coastal and marine areas through community participation; and (4) increase skills and capacity of the community in conducting participatory monitoring and evaluation. The program has significantly increased in terms of community involvement towards protecting coastal and marine resources, especially for mangrove and coral reef conservation. The project technically developed a village plan, and community assistance and participatory monitoring and evaluation are still in process for each village.

In 2001, Pesut Foundation encountered the Broad-based Coastal Management Training Program (BCMTP) during the Training Needs Assessment (TNA) Workshop in Bali, Indonesia. In 2002, I was invited to attend the Training of Trainers (ToT) and Writeshop in Los Baños, Philippines. At that time, there was discussion in terms of Pesut's collaboration but this was justified because NGOs outside Java were also involved. Together with other NGOs involved in the project, we gained knowledge and skills related to ICM principles that we are still applying now.

Pesut Foundation has similar initiatives with BCMTP. Community assistance through community-based coastal management approach is presently facilitated in Penajam Sub-district. To empower communities, we conducted various training courses related to ICM issues, such as team building, participatory planning, conservation and education, using environment-friendly fishpond training and institution building for coastal villages. We used training modules arranged by the experts unlike the one we prepared with BCMTP. Before, Pesut focused on the output of training and community assistance and did not give enough consideration on the training impact. With the UN-TRAIN-SEA-COAST process introduced by BCMTP, Pesut realized the importance and purpose of the training impact evaluation after an ICM training course.

Despite my staffs' background on coastal and marine conservation projects, none of us have experience in training development involving TNA. We usually design a training course in a programmatic manner. Through our collaboration in the Facilitating Integrated Coastal Management in Indonesia project, we acquired new skills especially in creating modules that are useful to the target participants.

Our organization had no doubts in collaborating with BCMTP's Facilitating Integrated Coastal Management in Indonesia project. The ICM training in Balikpapan benefited us because this complemented our program in Penajam District. Capacity building of our partner communities using ICM as an approach was achieved.

Pesut Foundation takes pride with the trust of other Indonesian institutions, allowing us to facilitate and organize the ICM training course. It was Pesut's first time to collaborate with organizations having different background and activities but with similar objectives; this is a new model of collaboration in Indonesia. The process of collaboration is running well, although at times, we encounter miscommunication and lack of coordination in information sharing. This experience is a good lesson for other similar future collaborations.

Upon the formation of INCoM (Indonesian Network for Coastal Management), PKSPL-IPB was tasked as convener while other collaborators share their own institutional responsibilities. We encountered problems related to finances. In dealing with this issue, not only a few, but all the collaborators must be equally committed to address the problem.

With the ICM approach, we can build trust, friendship, and cooperation with other stakeholders (government, NGOs, private sector, etc.) related to coastal and marine conservation in Balikpapan and Penajam.

Pesut Foundation commits its vision and mission in coastal and marine programs. We now focus on mangrove management and capacity building for coastal communities in Penajam. We must admit that we learned lessons from BCMTP in facilitating our program in Indonesia. BCMTP has a good system of designing training tools and methods to monitor the program. We will be applying the method for the next four months of our



monitoring and evaluation activity. We still hope that the relationship among other Indonesian collaborators will be sustained in the future.

Knowledge and skills are not the only keys to a successful program. Another important thing we observed is how the Philippine collaborators work as a professional team. Their commitment in implementing the program until the goal was achieved is a good value we have learned from them. The preparation of good quality training documents is also a good model to follow.



The training of trainers, ICM training course preparation, which involves arranging modules for the appropriate target participants, tips to become a good training facilitator, arranging an effective presentation, were helpful in improving our skills.

The challenging part of the training was the actual implementation in the field. After the conduct of the training course, there must be a tangible output such as an actual coastal and marine management plan. Pesut believes that partnerships among institutions or collaborators with different background will enable us to share information in improving each others capacity. Stakeholders must understand each other's effort and action in implementing ICM.

Organizationally, there is a significant change in Pesut Foundation. The process, outcome and impact of a program became our first priority in designing a strategy for coastal community empowerment while quantity of output became our baseline support in applying ICM approach. A few of our field officers have now started to use the ICM approach in their area of work.

In establishing partnership among other stakeholders, Pesut forged partnerships with the rest of the collaborators as well as other stakeholders in the area. Pesut worked with government agencies such as DKP in the Sylvofishery and Marine Protected Area Program and Mangrove Conservation in cooperation with the Fishery Department of Penajam District. Partnership with private sector includes Unocal Indonesia Company (UIC). Until now, our cooperation with the agencies mentioned is still running. Non-government organizations including KEHATI, WWF and other development agencies were also considered partners in various ICM projects.

Because coastal and marine environment is the soul of Pesut, we integrated ICM in our program in Penajam District. Our commitment does not end in conducting ICM training; we need to assist the community and other stakeholders in the area. We believe that ICM training is a tool to open up knowledge for stakeholders for sustainable coastal and marine resources management.



Pesut does not have any detailed mechanism for ICM planning; we shall integrate this in giving public consultation with the local government to advocate ICM in their area.

Many lessons were learned in the process. We can say that the program improved our knowledge and views on ICM, increased our technical skills in facilitating the training course (TNA, ToT, Pilot Training and Impact Evaluation), built trust and networking with national and international institutions with ICM program, facilitated an easier and effective field work and improved capability of Pesut in ICM. We believe this could be replicable with and among other institutions. We will use the training methodology of BCMTP in our coastal community programs in Penajam District. The TNA and ToT are unique concepts. With such tools, we can prepare and implement the program. The training process introduced was quite new in Indonesia. We believe that it is applicable in other situations and is useful in designing the next ICM program. ●

Pioneering & Empowering the Capacity Building of Coastal & Marine Resources Management in Indonesia

Ruddy Suwandi

*Center for Coastal and Marine Resources Studies - Bogor Agricultural Institute
(locally known as Pusat Kajian Sumberdaya Pesisir dan Lautan -
Institut Pertanian Bogor/PKSPL - IPB)*

I have been working with the Center for Coastal and Marine Resources Studies - Bogor Agricultural Institute (CCMRS-IPB) since 1993. Two years later, I got involved in CCMRS-IPB's education and training program. From 1995 to 2003, I have been a resource speaker/trainer or facilitator in more than 20 training programs involving integrated coastal management (ICM) such as: (1) integrated coastal zone planning and management; (2) environmental management; (3) mangrove forest environmental and shrimp pond management; (4) training of trainers on integrated coastal zone management; (5) mangrove forest sustainability management; (6) fishing port and fishing base operational and management training; (7) information system and environment sensitivity index and geographical information system; (8) strategic planning development; (9) zonation development; (10) ICM training for kecamatan; and (11) ICM networking socialization program. As a professor, I have acquired knowledge and skills through various training courses in Indonesia and abroad involving: Integrated Coastal Zone Planning and Management; Environmental Impact Assessment, Future Search Conference Material Adapted for Integrated Use of Method in Coastman Kick-off Meeting; Training of Trainers Workshop for Coastman Partners in Asia; COASTMAN- International Network on Training for ICZM (Integrated Coastal Zone Management); Training Needs Assessment (TNA) Presentation and Curriculum Development Workshop; Module Developers' Write-Shop and Training of Trainers (ToT); and Regional Milestone and Training Workshop.

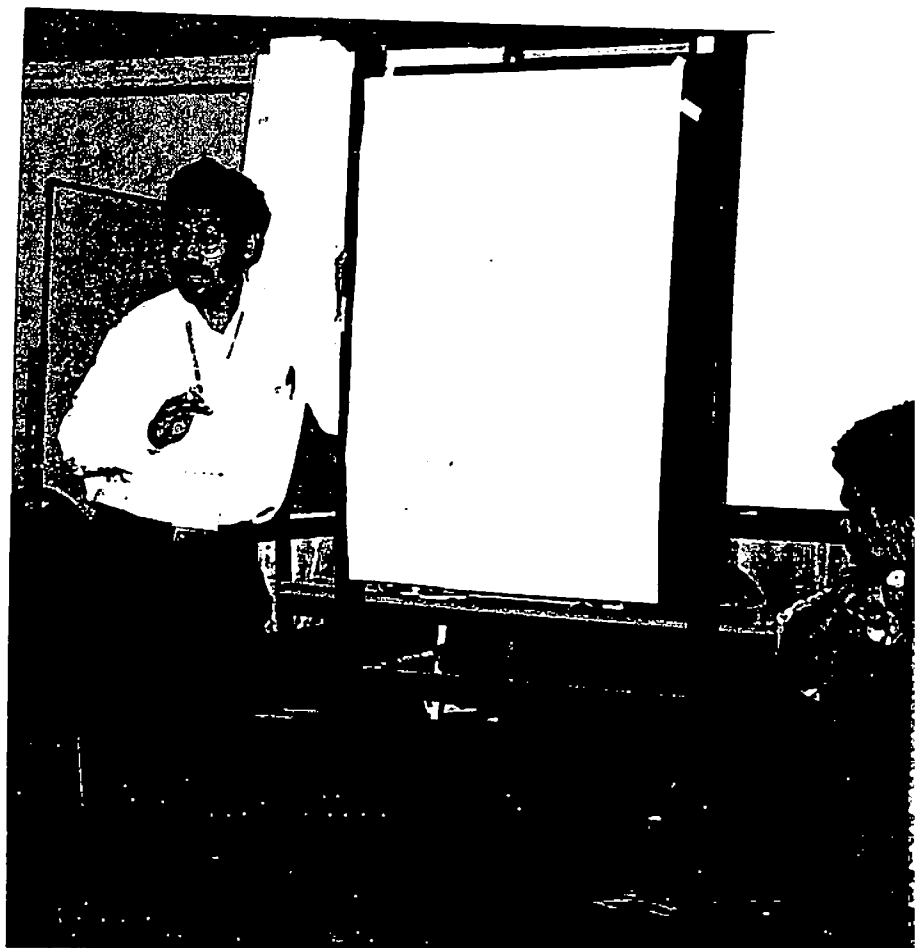
My knowledge and skills on ICM have been integrated through training, studying national and international courses on ICM and ICM implementation at the grassroots level. Prior to the establishment of CCMRS, I was one of the training organizers under the supervision of Dr. Rokhmin Dahuri. At present, my commitment as a trainer continues, as Head of Training and Educational Program (under the directorship of Dr. Ir. Tridoyo Kusumastanto and the late Abubakar, CCMRS-IPB's vice-director). I was involved in establishing the Coastal Management Graduate Program of CCMRS. Initially, my training staff were part-time as they were requested from the division or department of CCMRS. Currently, Aminuddin, Isdahartaty and Arief are designated as permanent training staff.

Before the Facilitating Integrated Coastal Management in Indonesia project of the Broad-based Coastal Management Training Program (BCMTP), I have had formal and informal relationships with some of the supervisors and staff of DKP (Ministry of Fisheries and Marine Affairs locally known as Departemen Kelautan dan Perikanan), Ditjen Bangda (Directorate of Regional Development of Ministry of Internal Affairs), WorldFish Center and InWent (formerly CDG). For CCMRS, I was appointed to collaborate with this program without my objection and took this as a challenge in my professional career as trainer.

The Coastman Program of the CDG (known now as InWent) was the initial point of the CCMRS's ICM training program towards a broader spectrum at the regional and international level. Several months after the Facilitating Integrated Coastal Management in Indonesia project was initiated, I was given the opportunity to facilitate ICM knowledge (especially the andragogy technical methods) to the grassroot communities. I learned a lot on how the Philippine collaborators implement training management (e.g., curriculum and materials development, publication, etc.). Personally, I my skills in writing training proposals and training modules, particularly at the regional level, were improved. The most challenging task in the Facilitating Integrated Coastal Management in Indonesia project was to compose the ICM training modules using the English

language. Writing the English version of training modules was also a new skill that I acquired. The ability to deliver training modules using andragogic methods supplemented by the InWent's program, Abubakar and Agus training experiences, and the Philippine collaborators was another thing I gained from the project.

The key institutional changes that were adopted and implemented brought about by the project is on organizing ICM training courses for local communities through our collaboration as part of the Indonesian Network on Coastal Management (INCoM). I was tasked to convene the new institutional arrangements (with the supervision of the CCMRS's director) and future plans include the institutionalization of the government-NGO-academe partnership. So far, the relationship among INCoM members is working well.



To sustain the ICM training initiative program in Indonesia, we must create a fund-raising mechanism to gather support from other institutions, such as Indonesian government agencies or foreign NGOs. In Anyer, Indonesia, we discussed and planned on this and I hope this will be realized for the training in Sinjai.

Institutionally, I learned how NGOs commit themselves in facilitating the ICM program to complement the work of government agencies. Such lesson, in my opinion, is replicable in other situations. From a government worker's point of view, one thing that can be highlighted in our collaboration is how NGOs facilitate the bottom-up planning system (or perhaps with others who come from government institutions) and my role as a bridge to link two different approaches - between the bottom-up and top-down system. The challenge is to move forward and sustain the facilitation of the ICM program for local coastal communities with good governance. ○

Sharing Valuable Lessons

*Silvianita Timotius
Yayasan Terangi*

As the Coral Reef Policy Program Manager of The Indonesian Coral Reef Foundation or Yayasan Terangi, I am responsible in researching past and present experience in policy implementation in order to support related stakeholders and to develop and implement future coral reef resources management. Terangi was established in 1999 and the pioneer environmental organization that focused exclusively in coral reef conservation issues.

Terangi works across six interdependent programs: (1) coral reef education and training; (2) coral reef resource and management; (3) coral reef clearing house; (4) coral reef science; (5) coral reef policy; and (6) coral reef public awareness. A coordinator who directly reports with the Director handles each program.

In September 2001, Terangi participated in the Facilitating Integrated Coastal Management in Indonesia project in cooperation with different government, non-government and academic institutions. I have no worries in forging partnership with my fellow Indonesians. The only source of hesitation I have is whether my knowledge and experience on coastal management was sufficient enough to share to other stakeholders given my background in marine biology.

Prior to our participation to the said project, we previously collaborated with other groups, most of which were international agencies. At the national level, we coordinated with the Indonesian Biodiversity Foundation (Yayasan Keanekaragaman Hayati Indonesia or KEHATI) and Yayasan Rumsram to conduct coral



reef participatory mapping in Papua; partnership with the Coral Reef Resource and Management Planning (COREMAP) and John Hopkins University to develop student coral reef education database; setting up of booth with Indonesian Coastal Resources and Management Project (CRMP) Jakarta for the 9th International Coral Reef Symposium in Bali, Indonesia (2000) as a public awareness program to present information on coral reef management in Indonesia and establishing special publication such as posters, brochures, stickers, pins, bookmarks, etc. As a Program Manager, I was involved in developing management tools for ornamental coral utilization and developing and maintaining communication process among stakeholders in Seribu islands.

My involvement in INCoM (Indonesian Network on Coastal Management): This was a learning process and requires thorough reading of materials and discussion with other collaborators to clearly know the issues. I believe that my organization and I benefited from the Broad-based Coastal Management Training Program (BCMTP). Personally, my knowledge and skills were enriched in terms of ICM topics. Organizationally, I have learned to work together with other institutions both at the national and regional level and develop appropriate training modules for kecamatan level and networking with other agencies.

There was a time when a conflicting issue occurred among NGOs and the private sector regarding the ornamental coral utilization and management. Through the skills acquired as an adult educator, we have facilitated communication and developed a working group build on trust. It has been two years since we started to develop a mutual communication and keep things working together.

When I arrived earlier than other Indonesian collaborators in the Philippines to attend the Training of Trainers (ToT), I witnessed how our Philippine collaborators managed to prepare the training program well. Through the ToT, I acquired skills on presentation techniques and developing a solid team who manages the training until the process documentation of training activities.

Through INCoM collaboration, we have developed partnership and trust building among Indonesian institutions. We discuss issues together concerning the future direction of the training program. In parallel, Terangi established the Indonesian Coral Reef Working Group that consists of government, non-government, private sector, and university. The program deals with working with stakeholders including the Marine Park Authority, Kabupaten level government, local community organizations, schools, and NGO in Seribu islands. We made efforts to develop and maintain communication and conduct participatory activities with the stakeholders. For example, Terangi together with the public schools, developed a local curriculum for high school students. The knowledge and skills contributed by the BCMTP was integrated in my work including strategies such as coral reef management. The essence of our ICM training initiative is keeping in touch with each other and sharing valuable information and lessons. ●

Case Study: Impacts of the Training

Impact Evaluation of Integrated Coastal Zone Management Training at the Kecamatan Level in Indonesia

*by Ramli Malik¹, Marthen Welly² and Mahfud Syah Fude³
Edited by Robert Charles Capistrano⁴ and Audrey Marie Serrano⁵*

1.0. Background

The project "Facilitating ICM in Indonesia" was pursued to enhance capacities for the management of coastal resources in Indonesia. Its ultimate goal is to produce a reasonable number of skilled coastal management practitioners in the country, equipped with training tools focused on addressing Indonesian coastal resource use issues, with an underlying cause for conservation. Initial activities of this project include initial meetings to establish a working relationship with each of the collaborators; put together a situational analysis to generate information on existing coastal management-related projects and programs from government and non-government organizations; generating commitments from organizations and coastal-focused networks and to pursue agreements between and among them; and establish the operational processes to determine the mode of operations in recognition of cultural, socioeconomic, institutional and biophysical considerations and define objectives of the project vis-à-vis commitments to activities.

The Broad-based Coastal Management Training Program (BCMTP) - Philippines facilitated an orientation workshop last March 2001 in Bogor, West Java, Indonesia for several Indonesian key stakeholders concerned with coastal and marine issues. The orientation workshop provided potential partners with a venue to generate mechanics of working together and they were oriented with the TRAIN-X/UN-TRAIN-SEA-COAST course development process. Among the participating institutions were: The Nature Conservancy (TNC) Coastal and Marine Program, WWF Wallacea Program, Jaring Pela, Yayasan Telapak, Yayasan Puter, Coastal and Marine Resources Studies - Institut Pertanian Bogor (CCMRS-IPB), and Department of Fisheries and Marine Affairs. After the orientation workshop, CCMRS-IPB, Jaring Pela, TNC, Yayasan Puter, and Yayasan Telapak jointly conducted the Training Needs Analysis survey to some intended kecamatans in 13 sites to determine the training needs of the target population.

In September 2001, the BCMTP-Philippines facilitated the Training Needs Assessment (TNA) Presentation and Curriculum Development workshop in Bali, Indonesia. The workshop aimed to: (1) present and evaluate the TNA results and (2) from the TNA results, design the curriculum and identify the modules. The Indonesian collaborators agreed on five major modules: (1) Community Organizing Related to ICM; (2) ICM Program Planning; (3) ICM Program Management; (4) ICM Program Implementation; and (5) ICM Policy and Regulation. The collaborators also modified the target population by focusing the training on the kecamatan

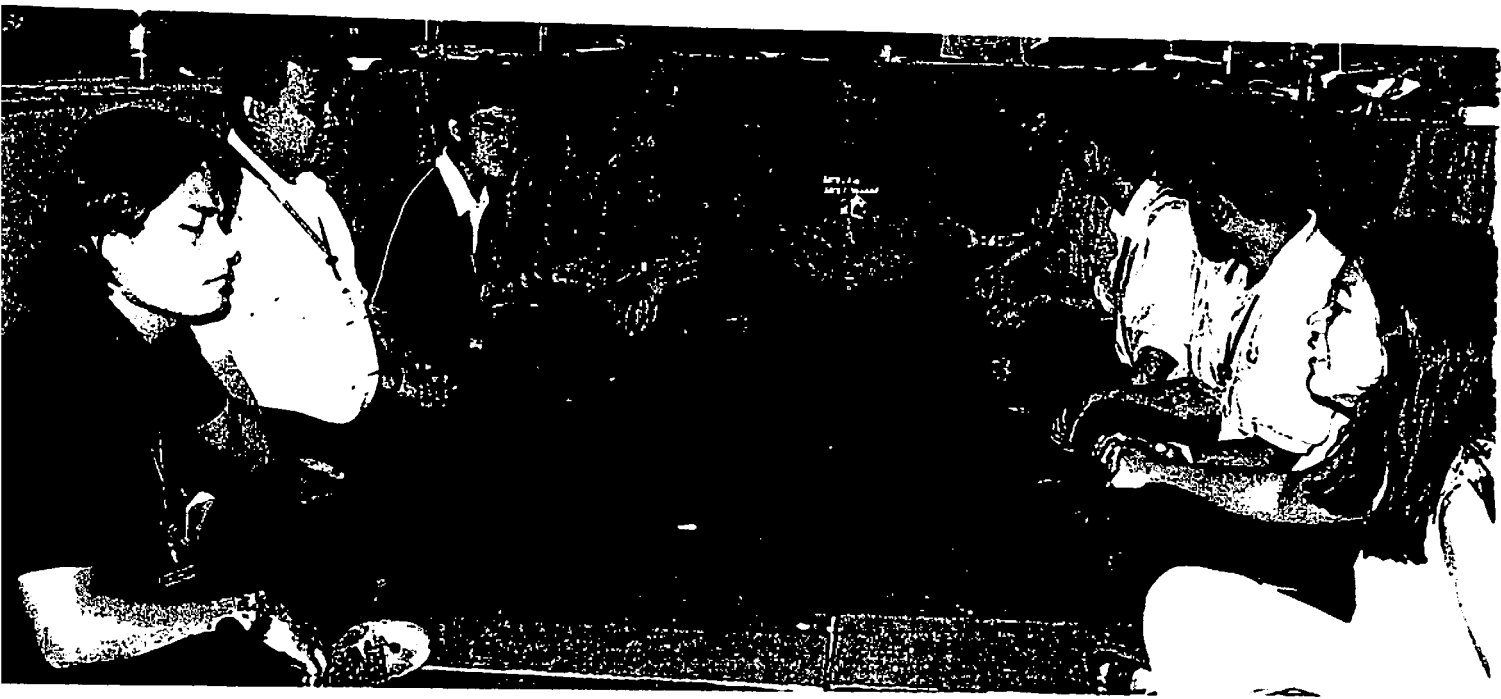
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level (subdistrict). In addition, it was agreed that members of the kabupaten (district) or higher should be invited to the training workshops to be informed of the interests, strategies, issues and concerns at the kecamatan level.

Such participatory decision-making process was agreed by eighteen (18) Indonesian partners from TNC - Coastal and Marine Program, WWF - Wallacea Bioregional Program, Yayasan Telapak, Jaringan Pela, Yayasan Puter, Proyek Pesisir Lampung, CCMRS-IPB, Bahtera Nusantara, Indonesia Coastal & Marine Foundation/Yayasan PESUT, The Indonesian Coral Reef Foundation (Yayasan Terumbu Karang Indonesia-TERANGI), Department of Marine Resources Utilization (Bogor Agricultural University), Directorate of Coastal Affairs, Directorate General of Coastal and Small Islands, Ministry of Marine Affairs and Fisheries, Republic of Indonesia, and one observer from KEHATI/TERANGI.

1.1. Strengthening Institutional Partnership

In April 2002, BCMTP-Philippines facilitated the Module Developers' Writeshop and Training of Trainers for Coastal Management in IRRi, Laguna, Philippines. Among the items accomplished were: (1) the draft Indonesia ICM training modules for the ICM curriculum for the kecamatan level; (2) the organization of the Indonesian Network on Coastal Management (INCoM) a partnership among TNC-Coastal and Marine Program, Jaringan Pela, Department of Fisheries and Marine Affairs, Yayasan Telapak, Yayasan Puter, Bahtera Nusantara, CCMRS-IPB, Terangi, Pesut, and WWF Wallacea; (3) identification of the first five kecamatan pilot training sites (sub-district levels of Tejakula, Penajam, Kasemen, Sinjai and Sape); and (4) revised budget and schedule for the duration of the project.

Progressively, INCoM implemented the pilot trainings for the sub-district levels of Tejakula (December 2002), Penajam (May 2003) and Kasemen (September 2003). Bahtera Nusantara Foundation, with support from Mr. Marthen Welly of TNC hosted the pilot training for Tejakula. In Balikpapan, West Kalimantan, twenty-four (24) participants from Penajam attended the training course with Yayasan Pesut Indonesia as the lead organizer. Twenty-five participants from Sinjai attended the training course with Yayasan Puter as coordinating agency.

2.0. Scope and Limitations

Developing the capability of partners was a primary concern of the project. Thus, a systematic evaluation of the training course delivery and impact was conducted, from which validated recommendations were consequently incorporated. Haribon Foundation and the Department of Science and Technology - Philippine Council for Aquatic and Marine Research and Development (DOST-PCAMRD) facilitated an evaluation of each training module to improve and refine module delivery. To determine the extent by which the training courses have contributed to the participants' and their organizations' enhancement of ICM activities, an impact evaluation was accomplished. The results of the evaluation were compiled into a report that will be used to further improve the course and mode of collaboration. The impact evaluation which is a post-course activity, will complete the ICM training process (Figure 1) and determine the extent of adoption/adaptation of ICM practices in the participant's work and institution. Such evaluation also identified factors that facilitated or hindered the adoption/adaptation of ICM in their area of work.

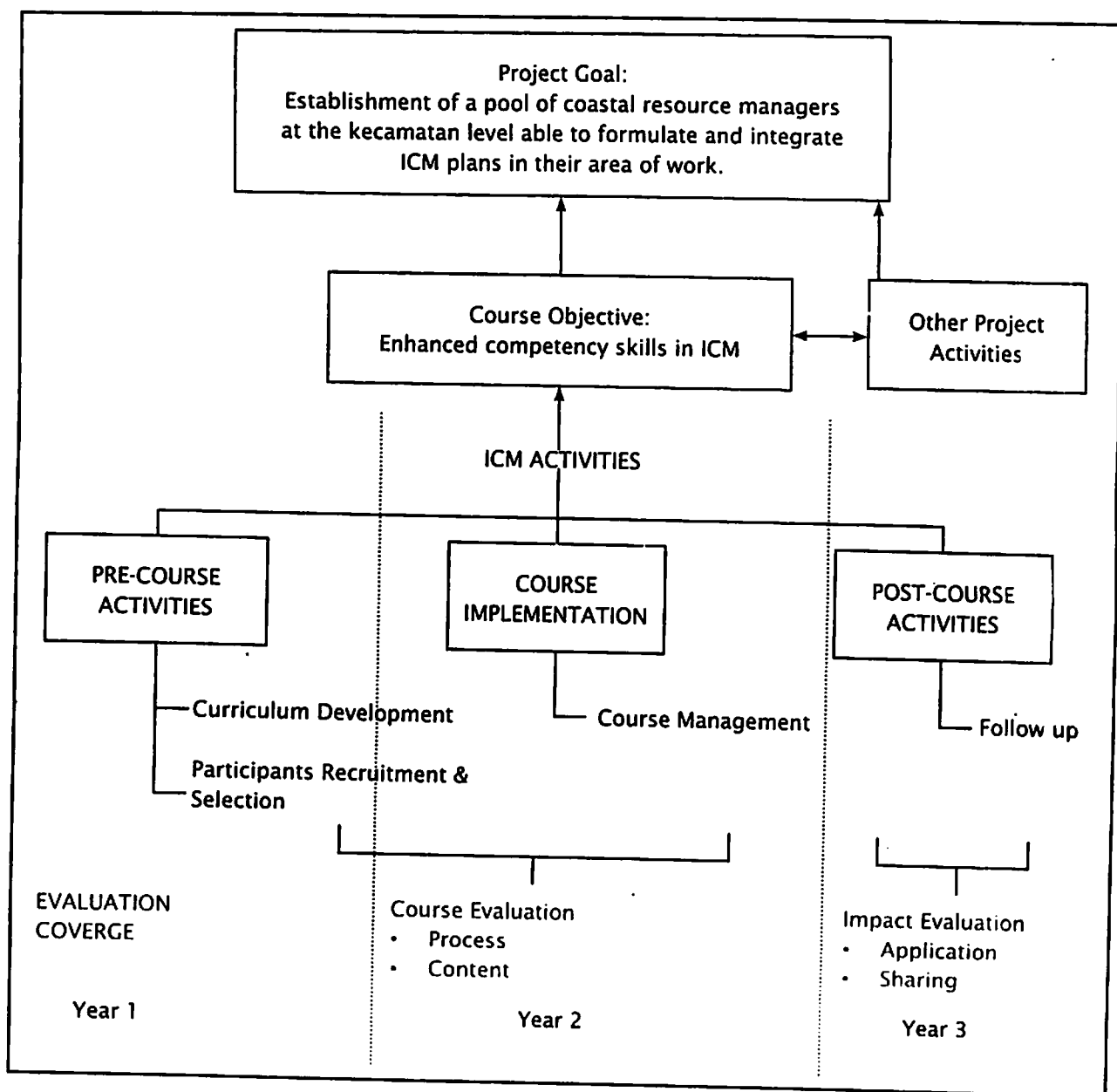


Figure 1. Evaluation Coverage

Ideally, impact evaluation is conducted not less than six months to one year after participation in a training course. Haribon Foundation and INCoM facilitated a focus group discussion in September 9, 2003 in Anyer, Indonesia to make arrangements for the impact evaluation. INCoM decided to conduct two (2) on-site impact evaluation surveys for kecamatan Tejakula and Penajam with Bahtera Nusantara and Yayasan Pesut Indonesia as lead agencies, respectively. In addition, two (2) case studies are to be written by the participants per kecamatan.

3.0. Methodology

The method employed in this impact evaluation was descriptive. Bahtera Nusantara and Yayasan Pesut made revisions to the questionnaire designed by Haribon Foundation (see Annex B). Both organizations translated and revised the survey questionnaire in Bahasa Indonesia to include small group discussions and one-on-one interview since participants could confidently express their opinion and ideas orally rather than the traditional use of a survey questionnaire. Importantly, views and concerns of the training participants were validated to achieve fairness and objectivity. The questionnaire was useful in gathering quantitative results.

Questions for the case studies were formulated to guide the participants in writing their experiences related to integrated coastal management training. The questionnaire tried to glean the following information:

- successes and challenges of kecamatan involved in the training in managing their own resources;
- kecamatan learning from and sharing with each other and effectively participating in networks; and
- kecamatan furthering ICM not only as a strategy for economically and environmentally sustainable resource management, but also as a strategy for achieving positive social change

Participants who committed to write their case studies were encouraged by the evaluators (Bahtera Nusantara and Yayasan Pesut Indonesia) to write and ensure that their presentation will: (1) use language that is accessible for them; (2) be a personal exchange; (3) be appropriately brief for delivery; and (4) be translated by INCoM in the English language.

3.1. Activities Conducted in Implementing the Impact Evaluation

In conducting the impact evaluation, a time schedule was established to guide the evaluators of Bahtera Nusantara and Yayasan Pesut Indonesia (Table 1).

Table 1, Schedule of Activities in Conducting the Impact Evaluation

Activities	Time Table	
	Bahtera Nusantara	Yayasan Pesut Indonesia
Translation of survey questionnaire and case study	2nd week of September 2003	2nd week of September 2003
Draft cover letter	2nd week of September 2003	2nd week of September 2003
Distribution of questionnaire to the participants	1st week of October 2003	1st week of November 2003

Activities	Time Table	
	Bahtera Nusantara	Yayasan Pesut Indonesia
Interview with the participants (1 week)	2nd week of October 2003	2nd week of November 2003
Observation and field visit the participants activities for the participants from local government (1 week)		3rd week of November 2003
Assisting the participants who have activities refers to ICM in village (1 week)		November - December 2003
Focus group discussion in village (2 day)	4th week of October 2003 (1 day)	3rd week of December 2003 (2 days)
Compiling field data	1st week of November	4th week of December 2003
Data analysis and case study writing (2)		1st week of January 2004
Report writing	4th week of November	1st week of February 2004

The initial stage was the conceptualization of evaluation questionnaire. After translating the questionnaire in Bahasa Indonesia, the evaluator distributed the questionnaires to the participants from kecamatan Tejakula and Penajam. Through direct interview, the evaluators guided them to critically reflect on their experiences. Afterwards, the evaluator gave the participant time to fill-up the questionnaire.

The middle stage was the actual gathering and collection of questionnaires from the participants. This gave the evaluators an opportunity to observe the participants' activities at the local level. In consolidating the data, focus group discussions were conducted in a few places at village.

When the participants were asked to write two (2) case studies related to integrated coastal management, the evaluators took down notes as the participants comfortably expressed their views orally because they had difficulties in writing their own stories. In this manner, the evaluators collected information and wrote for them giving due credit to the participants. The final stage was the analysis and validation of findings.

4.0. Objectives of the Impact Evaluation

The impact evaluation aimed to determine the extent to which the training program contributed to the participants and their organizations enhancement of ICM activities. Specifically, the impact evaluation was conducted to:

1. determine the extent of adoption and/or adaptation of ICM practices in the participant's work and organization; and
2. identify the factors that facilitated or hindered the adoption and/or adaptation of ICM in their area of work.

5.0. Data Analysis

The data collected from the questionnaire were analyzed using percentage rate. This is the formula used in analyzing the data:

$$P = \frac{Fq}{N} \times 100\%$$

Wherein:

- P = Percentage
- Fq = The Frequency of Item
- N = Total Participant

6.0. Results and Discussion of Impact Evaluation in Kecamatan Tejakula

Table 2 shows the distribution of participants from kecamatan Tejakula based on age and gender. During the evaluation, the 26 respondents were still working under the same organization involved in coastal management as when they attended the ICM pilot training in December 2003. Such condition was good in order to provide more accurate results since there were no changes in relation to participant's work.

Table 2. Distribution of Respondents According to Age and Gender in Kecamatan Tejakula.

Age	Gender		Total
	Male	Female	
20-25	3	2	5
26-31	1	-	1
32-37	10	-	10
38-43	7	-	7
44-49	2	-	2
50-55	-	-	-
56-61	-	-	-
62-67	1	-	1
Total	24	2	26

Twenty-four (92%) of the participants perceived the usefulness of the ICM training in Tejakula in relation to their area of work. Participants expressed that they have gained wider knowledge related to coastal management including beach and coral protection. Participants were more confident with their job. Only two participants (a housewife and village office staff) said the training had no impact with respect to their job or responsibility at the kecamatan level. Table 3 highlights the distribution of respondents according to the occupation or institution in kecamatan Tejakula.

Table 3. Distribution of Respondents According to Occupation/Institution in Kecamatan Tejakula

Occupation/Institution	Participants
Fishers	12
Kecamatan staff	5
Village staff	3
Private sector	1
Fisherman Wife	2
Youth	3
Total	26

6.1. Quality of Training Offered in Kecamatan Tejakula

With regard to the quality of training, 100% of participants said that ICM training for Tejakula is good and met their expectations. Twenty-five participants (96%) would recommend the training to other stakeholders at the community level or village government. However, there was one participant (4%) who would only recommend the training if the quality of trainers will be improved.

Majority of the participants said the training modules were very useful for them. However, 10 participants (38%) expressed that the ICM Overview and Monitoring and Evaluation modules provided limited contribution in enhancing their capacity on coastal management issues.

6.2. Relevance and Contribution of the Course to the Participant's Competencies

Table 4 describes the participants' self-assessment on the new skills learned and application in their area. Based on the assessment, one participant (with 95% assessed confidence level acquired through training) was able to apply knowledge in developing traditional rule related to ICM while 9 participants (with greater than 75% assessed confidence level) found the training useful in implementing marine protected area and alternative livelihood. Sixteen participants (with less than 75% assessed confidence level) were able to develop partnership or (fishers) organization or traditional community group such as Mina Bhakti Soansari, Fishermen Tejakula Group - Segara and Coastal Tejakula Society. The participants experienced limited time and financial support in implementing ICM.

Table 4. Self-Assessment of New Skills and Application of ICM by the Participants in Kecamatan Tejakula

No. of Participants	Self-assessment (%)	Application of ICM
1	95%	Develop Traditional Rule/Ordinance related to ICM
9	>75%	Initiative Marine Protected Area, Initiative Alternative Livelihood
16	<70%	Develop Fisherman Organization

n= 26 participants

Only 13 participants (50%) said they have developed a network in their area related to coastal management. In rating the modules that contributed in increasing ICM competencies of participants, the most relevant modules cited were: (1) Constituency (Partnership Building); (2) Strategic Planning; (3) Selected Coastal Management Techniques; (4) ICM Framework; and (5) Environmental Assessment in ICM.

Table 5 gathered the participant's perception on the relevance of each module for course developers to further enhance or improve the content. The general response of the participants indicated that previously acquired competencies were greatly enriched by the training course.

Table 5. Participant's Perception on the Benefits of ICM Modules in Kecamatan Tejakula

Module	Title	Benefit for Participants		
		Yes	No	Limited
Module 1	Community Organizing Related to ICM (Pengorganisasian Masyarakat)			
Module 1a	Advocacy (Advokasi)	✓		
Module 2	ICM Program Planning			
Module 2a	Overview of ICM Program	✓		
Module 2b	Constituency Building	✓		
Module 2c	Component, Steps and Activity of ICM Planning			✓
Module 3a	ICM Program Management (Manajemen Dalam ICM)	✓		
Module 3b.1	Spatial Planning and Zonation of Resources (Perencanaan Spasial dan Penzonasian Pemanfaatan Sumberdaya)	✓		
Module 3b.2	Participatory and Spatial Mapping for Marine Resources	✓		
Module 3d	Conflict Resolution (Resolusi Konflik)	✓		
Module 3e	Alternative Income Generation (Menciptakan Pendapatan)	✓		
Module 3e.1	Fish Handling and Processing (Penanganan dan Pengolahan Ikan)	✓		
Module 3e.2	Fish/Other Product Development (Pengembangan Produk Pengolahan Ikan)	✓		
Module 3e.3	Mariculture	✓		
Module 3e.4	Marine and Coastal Tourism (Ekoturisme Pesisir)	✓		
Module 3f	Community-based and Cooperative Management	✓		
Module 3g	Watershed Management	✓		
Module 3h	Marine Protected Area Management (Daerah Konservasi Laut)	✓		
Module 3i	Fisheries Management	✓		
Module 3j	Mangrove Degradation and Management	✓		
Module 3k	Coral Reef Degradation and Management (Pengelolaan Terumbu Karang)	✓		
Module 3l	Erosion, Sedimentation and Abrasion (Erosi, Sedimentasi dan Abrasi)	✓		
Module 3m	Marine Pollution (Pencemaran Laut)	✓		
Module 4	ICM Program Implementation	✓		
Module 4a	Project Implementation	✓		
Module 4b	Monitoring and Evaluation	✓		
Module 4c	ICM Practice in Indonesia			
Module 5	ICM Policy and Regulations	✓		✓
Module 5a	Law and Regulations Related to ICM (Hukum dan Perundangan yang Berhubungan dengan ICM)	✓		
Module 5d	Law Enforcement (Penegakan Hukum)	✓		

6.3. Constraints in Implementing ICM in kecamatan Tejakula

Table 6 indicates participants' constraints in implementing ICM including (according to rank): (1) limited financial support; (2) limited time; (3) lack of will to encourage the community; (4) limited skill and knowledge of the community; (5) lack of confidence by the community; and (6) confusion experienced by the participant from where to begin initiating ICM.

Table 6. Constraints in Implementation of ICM in kecamatan Tejakula

Reasons	Rank
Financial support	1
Limited with time	2
Limited knowledge and skill of the community	3
Lack of will power by the participant	4
Lack of confidence by the community	5
Confused where to begin initiating ICM	6

Based on the results, there is still a need to strengthen the leadership skills of the participants in order to empower the community. Organizational development plays a key strategy for Tejakula to work collaboratively at the kecamatan level. Emphasis should likewise be given to the important functions of a coastal manager who addresses the goals of integrated coastal management. A coastal manager must be keen in planning, which means (a) identifying the goals of the organization/community; (b) translating these goals into strategic objectives and its corresponding action steps or tasks; (c) identifying the right people to do each task; and (d) projecting the amount of resources needed for the implementation.

7.0. Results and Discussion of Impact Evaluation in Kecamatan Penajam

Table 7 indicates the distribution of participants from kecamatan Penajam based on age and gender. The age bracket with the greatest number of respondents was 32 - 37 years old (29%), followed by age bracket between 38 - 43 (25%), 26 - 31 (20.8%), 44 - 49 (17%). Few participants came from the age range of 22 - 25 and 50 - 55 with 1 participant each. There were 17 (71%) male and 7 (29%) female participants. Compared with the training in kecamatan Tejakula, there has been significant increase in participation of female participants.

Table 7. Distribution of Respondents According to Age and Gender in Kecamatan Penajam.

Age	Gender		Total	Percentage
	Male	Female		
22 - 25	-	1	1	4
26 - 31	2	3	5	21
32 - 37	6	1	7	29
38 - 43	5	1	6	25
44 - 49	3	1	4	17
50 - 55	1	-	1	4
Total	17	7	24	100

Table 8 describes the distribution of respondents by institution during the ICM training in comparison with their distribution during the conduct of evaluation. Participants came from BAPPEDA, Fishery Department, Sub-district government, Village government, NGO, and community groups.

Table 8. Distribution of Respondents According to Institution during the ICM Training and Conduct of Evaluation in Kecamatan Penajam

Institution	During the Conduct of ICM Training		During the Conduct of Evaluation		Percentage Difference*
	Frequency	Percentage (%)a	Frequency	Percentage (%)b	
BAPPEDA	1	4.17	1	4.17	0.00
Fishery Department	1	4.17	1	4.17	0.00
Sub-District government	1	4.17	1	4.17	0.00
Village government	4	16.67	4	16.67	0.00
NGO	4	16.67	4	16.67	0.00
Community Group	13	54.17	13	54.17	0.00
Total	24	100%	24	100%	0.00

* (computed as $(B - A) / A \times 100$)

Table 9 shows that most (20.83%) of the participants are entrepreneurs. Other participants' jobs are village government staff (16.66%); NGO staff (16.66%), fisherman (12.5%), youth (8.33%), Bappeda staff (4.16%), Fishery Department staff (4.16%), sub district staff (4.16%), and Health Department staff (4.16%).

All the 24 participants (100%) still work under the same job during the ICM training and during the conduct of evaluation. This condition is good to make a more accurate impact evaluation because there is no change in the participants' job.

Table 9. Distribution of Respondents from Kecamatan Penajam According to Job Position during the ICM Training and Conduct of Evaluation

Field of Work	During the Conduct of ICM Training		During the Conduct of Evaluation		Percentage Difference*
	Frequency	Percentage (%)a	Frequency	Percentage (%)b	
BAPPEDA Staff	1	4.16	1	4.16	0.00
Fishery Department Staff	1	4.16	1	4.16	0.00
Sub-District government Staff	1	4.16	1	4.16	0.00
Village government Staff	4	16.66	4	16.66	0.00
NGO Staff	4	16.66	4	16.66	0.00
Fisherman	3	12.5	3	12.5	0.00
Fisherman Wife	2	8.33	2	8.33	0.00
Entrepreneur	5	20.83	5	20.83	0.00
Youth	2	8.33	2	8.33	0.00
Health Department Staff	1	4.16	1	4.16	0.00
Total	24	100%	24	100%	0.00

* (computed as $(B - A) / A \times 100$)

7.1. Usefulness of ICM Course for Kecamatan Penajam and its Application

Participants were asked to identify the most useful knowledge and skills acquired through the ICM training in relation to their work at the coastal area (see Table 10). Majority (54%) of the participants identified the improvement of their knowledge and understanding about ICM as the most useful learning acquired from the training. Sharing knowledge to the community related to managing and conserving coastal area was the second most useful skill.

Table 10. Knowledge and Skills Acquired by Kecamatan Penajam through the ICM Training in Relation to the Participant's Work

Response	Frequency	Percentage
Improving knowledge and understanding about ICM	13	54
Sharing knowledge to the community related to managing and conserving coastal area	4	17
Improving knowledge in environment-friendly fisheries management	2	8
Improving knowledge in conducting participatory community planning for coastal area	2	8
Applying participatory to enhance coastal community's in improving socio-economic and environment integrity	2	8
The training is very useful and good related to my job in government planning agency (Bappeda)	1	4

Note: Majority of participants provided multiple-answers (n=24).

In terms of the participant's perception through interpreting the usefulness of the training in identifying problems in their workplace, 22 participants (92%) said that the training acquired was useful in addressing their issues in their area and only two participants (8%) felt limited in applying the skills.

Table 11. Respondent's Perception from Kecamatan Penajam on the Usefulness of Training in Identifying Issues in their Workplace

Perception	Useful	Limited Use
Through issue identification can conduct planning	3	
I gained the skill to identify project priorities	2	
I gained the skill in participatory problem and need identification	6	
ICM training is very useful related to my job	3	
ICM training was conducted in a participatory method	8	
I have no means to implement it in the area		2
Total	22 (92%)	2 (8%)

When asked regarding the participants' perception on the usefulness of the training in identifying issues in their region (area), 23 participants expressed that they can implement training in their region and 1 participant had no response (Table 12).

Table 11. Respondent's Perception from Kecamatan Penajam on the Usefulness of Training in Identifying Issues in their Region

Perception	Useful	Limited Use	No Response
During training, we were able to identify our problem and need	3		
We can directly present our issues in our own regions	12		
There are still damaged environment in my location especially in coastal area	2		
We can control development planning from sub district	2		
Bottom-up development can be more effective and efficient	4		
No response			1
Total	23 (96%)	0	1 (4%)

Note: Majority of participants provided multiple answers.

In order to implement relevant ICM activities, the participants must be able to adopt or adapt the training in their profession. Table 12 presents how participants specifically adopted/adapted the different knowledge and skills acquired through each particular module. The following responses were ranked in order of the application of lessons: (1) environmental assessment; (2) selecting coastal management techniques; (3) strategic planning; (4) constituency building. Only 1 participant (4%) expressed that he has not applied his learning to his work.

Table 12. Adoption/Adaptation of Knowledge and Skills Acquired in the Different ICM Modules by Kecamatan Penajam

Adopted	Activities	During the Conduct of Evaluation	
		Frequency	Percentage
Environmental assessment	<ul style="list-style-type: none"> • Rehabilitate and manage mangrove (establish seed mangrove, plant mangrove, and silvo-fishery demonstration plot) • Coral reef advocacy • Public awareness for environment-friendly management 	10	42
Selecting coastal management techniques	<ul style="list-style-type: none"> • Establish conservation group; women's group • Establish friendly fishpond • Fish processing (shrimp chip) 	7	29
Strategic planning	<ul style="list-style-type: none"> • Design participatory planning in village planning Board (LPM) • Design a plan on how to protect beach from abrasion 	4	17
Constituency building	<ul style="list-style-type: none"> • Giving information to community about how to manage coastal resources • Socialize ICM in workplace 	2	8
Have not applied any ICM practice		1	4

The knowledge and skills learned from the ICM training were shared to the following: (1) immediate family members and community organization (92%); (2) people in the coastal community (83%); (3) co-worker (46%); (4) woman sector (33%); (5) government sector (29%). For details, refer to Table 13.

Table 13. Stakeholders Coordinated by the Respondents from Kecamatan Penajam in Sharing ICM Training

Stakeholder	Frequency	Percentage (%)	Rank
Immediate family members, community organizations	22	92	1
People in the coastal community	20	83	2
With a co-worker	11	46	3
Women's sector	8	33	4
Government sector	7	29	5

Note: Majority of participants provided multiple answers.

7.2. Quality of Training Offered in Kecamatan Penajam

Participants from the sub-district of Penajam gave a very good rating to the quality of ICM training (Table 14).

Table 14. Respondent's Rating from Kecamatan Penajam on the ICM Training Quality

Rating	Frequency	Percentage (%)
Excellent	6	25
Very Good	17	71
Good	1	4
Satisfactory	-	-
Poor	-	-
Total	24	100

Similarly, the expectations of the participants at the start of the training were met as shown in Table 15.

Table 14. Respondent's Rating from Kecamatan Penajam on How Well the Training Met Their Expectations

Rating	How well did the training meet participant's expectation	
	Frequency	Percentage (%)
Excellent	5	21
Very Good	18	75
Good	1	4
Satisfactory	-	-
Poor	-	-

In terms of the training's usefulness, 23 participants (96%) will recommend the training to other stakeholders including: colleagues, other fishers, local community, village government and district government so they can enforce policies to implement ICM in the region.

One participant said that he will only recommend the training course to other people if the training quality will be improved in the future, citing the following suggestions: (1) course duration should be longer; (2) training course management should be improved; (3) resource persons' skills should be upgraded; and (4) training venue must be located near the coastal area.

Table 15 shows the different reasons to recommend the training to other stakeholders. In building constituency for integrated coastal management, the training course offered friendship and cooperation among the participants.

Table 15. Respondent's Reasons from Kecamatan Penajam for Recommending the ICM Training to Other Stakeholders from Kecamatan Penajam

Reason	Frequency	Percentage
Increasing human resource in understanding ICM and coastal and marine ecosystems importance to the community	23	96
Improving self-confidence	22	92
Witnessing different experiences in coastal management	20	83
Acquiring valuable knowledge and skills	8	33
Providing time for critical reflection	3	13

Note: Majority of participants provided multiple-answers

Most identified increasing human resource in understanding ICM and marine ecosystems importance to the community (96%), improving self-confidence (92%) and witnessing different experience in coastal management (83%) as there reasons for recommending the ICM training to other stakeholders. Other reasons were acquiring valuable knowledge and skills (33%) and providing time for critical reflection (13%).

In adapting/adopting ICM in one's work, participant's rated the benefit of course (Table 16). In general, the training modules were very useful to participants. Only 3 participants (13%) stated that the module on participatory mapping and coastal zonation have limited benefit and contribution on adopting them to their job. Four participants (17%) expressed that community-based management and co-management module provided limited influence in carrying out on coastal management issues.

Based on information (Table 16), participant's perception on the relevance of each module will guide the course developers to further enhance or improve the module content. The general response of the participants indicated that previously acquired competencies were greatly enriched by the training course.

Table 16. Respondent's Perception from Kecamatan Penajam on the Benefits of ICM Modules in their Work

Modules	Benefit for Participants		
	Yes	No	Limited
ICM overview	✓		
Fishery and coral reef management	✓		
Fishery management	✓		
Community advocacy and conflict resolution	✓		
Coastal and marine pollution	✓		
Community-based and co-management			✓
Coastal ecotourism	✓		
Fishery and development of other products	✓		
Participatory mapping and coastal zonation			✓
Implementation of ICM program	✓		
Monitoring and evaluation	✓		
ICM: Laws and regulations	✓		
Policy dissemination and law enforcement	✓		
Others : Mangrove and fishpond management	✓		

Table 17 highlights the learning insights of participants in improving one's knowledge, skills and attitude after attending the training course. About 22 participants (92%) articulated that the course provided them with a better understanding in the planning and implementation of ICM.

Table 17. Respondent's Learning Insights from Kecamatan Penajam After Attending the ICM Training Course

Learning Insights of Participants	Frequency	Percentage
It provided better understanding in the planning and implementation of ICM	22	92
It has given me the confidence and capability to tackle coastal resource management activities	20	83
Increased knowledge in project implementation	12	50
Enabled sharing at the community level	4	17
Development of CRM Planning Strategy Formulation	3	13
Others	2	8

Note: Majority of participants provided multiple-answers.

Other learning insights shared by participants:

- Encouraged them to share knowledge among stakeholders in Penajam Paser Utara and to support the management of coastal area in Penajam Sub-district
- Deeper understanding about coastal resource use
- Provided better understanding on the concepts and objectives of ICM towards conservation and development of coastal resources that can implement at Penajam.

7.3. Relevance and Contribution of the ICM Training in Kecamatan Penajam

Participants were asked to identify reasons in attending the ICM Training Course. Table 18 shows that majority of the participants believed that participating the course will equip them with the knowledge and skills on ICM (96%). While to know the objectives of the ICM become the second reason (83%). Feedback from participants such as participating in preparation for some future projects on or related to coastal resource management (63%), awareness of new management approaches/schemes on ICM (33%), preparing an ICM plan (25%) and applying the strategies in managing the coastal resources (17%) were also identified as important responses. One of the participant said that she attended the training because she was invited.

Table 18. Respondent's Reason from Kecamatan Penajam for Attending the ICM Training

Reasons for attending the ICM Training	Frequency	Rank
To be equipped with the knowledge and skills on ICM	23	96
To know the objectives of the ICM	20	83
To prepare for some future projects related to coastal resource management	15	63
To be aware of new management approaches/schemes on ICM	8	33
To learn the preparation of an ICM Plan	6	25
To apply the strategies in managing our precious coastal resources	4	17
Others; (because invitation)	1	4

Note: Majority of participants provided multiple-answers.

When participants were asked on the significance of the training course in their job, 20 participants (83%) responded that the ICM training addressed or supported their needs as a coastal management

practitioner. Based on the direct interview, knowledge on ICM is necessary because their means of living is directly linked with coastal resources. However, 13% still indicated that the course was not relevant but interesting.

Table 19. Respondent's Perception from Kecamatan Penajam on the Relevance of ICM Training to their Job

Response	Frequency	Percentage (%)
No	-	-
Not Relevant but gained their interest	3	13
A little	1	4
Extremely significant	20	83
Total	24	100

Reasons cited by participants in terms of the significance of the training were as follows:

- The main target of the community development program is the coastal community. As such, the ICM approach was very useful.
- ICM program was interesting, particularly on protecting beach from abrasion.
- It upgraded my knowledge for my job especially in implementing ICM at the micro-level.
- The training was suitable for my profession as fisherfolk.
- Geographically, Penajam is a coastal area surrounded by mangrove and beach ecosystems.
- ICM may be linked to our job in fishponds. At one side, fishponds cause mangrove damage. With assistance from Yayasan Pesut, we have implemented ICM and managed the mangrove area. We now have silvofishery fishpond (empang parit).

Table 20 indicates the participants' self-assessment on the new skills learned as applied in their area. The results of the assessment showed that nine (9) participants (with 95% assessed confidence level acquired through training) was able to apply their knowledge in mangrove conservation and environment-friendly aquaculture and three (3) participants (with 90% assessed confidence level) were able to design beach protection program against abrasion. The said anti-abrasion proposal submitted to the government is still in budget negotiation and funds will be disbursed this year. Other participants attributed 80-85% impact attributed through training were applied in developing community organizations. The seven (7) female participants in the village initiated an income generating project related to fish processing.

Table 20. Self Assessment of New Skills and Application of ICM by the Participants in Kecamatan Penajam.

No. of Participants	Level of Impact (of ICM Training)	Application of ICM
9	95%	Mangrove conservation (establish mangrove seed and planting); Establish environment-friendly fishpond and silvofishery fishpond in Sungai Parit and Sesumpu village
3	90%	Design beach protection program against abrasion in Saloloang
5	85%	Develop fishers organization in Kampung Baru, Pejala and Saloloang villages
7	80%	Initiative alternative income generation; Develop women's group for fish processing (shrimp chip) in Penajam, Sungai parit, Sesumpu, Saloloang, Pejala villages

n= 24 participants

7.4. ICM-related Policies Initiated in Kecamatan Penajam

Policies initiated must be effective, efficient, and relevant to ICM activities. In order of rank, Table 21 shows that organizational development (83.33%) tops the list of policies initiated by the participants followed by establishment of marine protected area (MPA) or fish sanctuary (20.83%) and initiating sustainable livelihoods (16.67%). Other policies initiated in sub-district Penajam were beach protection program (12.50%), coastal zoning (8.33%) and fisheries ordinances (4.17%).

Table 21. Policies Related to ICM Initiated by Kecamatan Penajam

Policies Initiative by Participant	Frequency	Percentage
Organizational Development (i.e., Creation of Management Council)	20	83.33
Establishment of marine protected area or fish sanctuary	5	20.83
Sustainable livelihood for fisherfolks	4	16.67
Design beach protection program against abrasion in Saloloang	3	12.50
Coastal zoning	2	8.33
Design coastal management program and zonation for district level	2	8.33
Ordinance/s related to fisheries management	1	4.17
Collection of Fees/Fines and penalties against fishers who use destructive means of fishing	1	4.17

Note: Majority of participants provided multiple-answers.

7.5. Constraints in Applying ICM

Major constraints were encountered by participants limiting the application of knowledge acquired in the ICM training. Most of the participants provided multiple-answers to the question. In order of frequency, Table 23 indicates reasons given by the participants which include: (1) funding constraints; (2) logistic support; (3) political situation in the area; (4) lack of awareness; (5) community support in the coastal area; (6) time constraint; (7) difficulty in advocating change in coastal management (8) shortage of project funds to apply learning; (9) limited knowledge of community related to ICM; (10) difficulty in recruiting qualified technical personnel to complete the program staff ; and (11) shift in responsibilities the in the next few months after the training.

Table 23. Constraints in Implementation of ICM by Kecamatan Penajam

Reasons	Frequency	Percentage
Funding constraints	24	100
Logistical support	20	83
Political situation in the area	18	75
Lack of awareness	16	67
Community support in the coastal area	15	63
Time constraint	12	50
Difficulty in advocating change in coastal management	10	42
Shortage of project funds to apply learning	7	29
Limited knowledge of community related to ICM	6	25
Difficulty in recruiting qualified technical personnel to complete the program staff	4	17
Shift in responsibilities in the next few months after the training	3	13

Note: Majority of participants provided multiple-answers.

7.6. Response to Hindrances by the Participants from Kecamatan Penajam

The participants had several responses to challenges or constraints encountered in applying ICM. The most cited answers were: (1) providing information and educating the community and other stakeholders on ICM; (2) collaboration and networking with other stakeholders; (3) fund raising; (4) capacity building of stakeholders; (5) Meeting and dialogue with stakeholders; (6) Strengthen strategic planning related to ICM; (7) Establishing group approach in the implementation of ICM. Apparently, these responses validate how participants applied the knowledge, skills and values learned from the training modules including constituency building, strategic planning, coastal management techniques and environmental assessment, etc. (Table 24).

Table 24. Participant's Response from Kecamatan Penajam to Challenges in Implementing ICM

Response	During the Conduct of Evaluation	
	Frequency	Rank
Providing information and educating the community and other stakeholders on ICM	23	96
Collaboration and networking with other stakeholders	18	75
Fund raising	17	71
Capacity building of stakeholders	14	58
Strengthen strategic planning related to ICM	12	50
Meeting and dialogue with stakeholders	10	42
Establishing group approach in implement ICM	8	33

Note: Majority of participants provided multiple answers.

7.7. Resource and Information Sharing

The material-based features of the ICM manual enabled the participants to effectively apply the lessons learned during the training. Table 25 shows how participants shared their knowledge through giving orientation at the grassroots level, sharing the handouts provided in the training, giving lectures, and getting the involvement of co-workers in ICM.

Table 25. Medium Used in Disseminating Information by the Participants of Kecamatan Penajam

Response	Frequency	Percentage
Giving orientation to fisherfolks and other stakeholders	8	33
Sharing the handouts provided in the training	6	25
Giving lectures	5	21
Getting the involvement of co-worker in ICM work	4	17

Note: Majority of participants provided multiple-answers

Other ways of conveying their messages as described by participants were the following:

1. Informal discussion with community group
2. Informal discussion with Fishery Department of Penajam
3. Sharing ICM principles to community in the area
4. Discussing proposal on ICM program in district level

7.8. ICM Partnership Established by Participants from Kecamatan Penajam

In terms of establishing new partnerships or networks in their respective area, Table 26 shows that 20 participants (83%) were able to collaborate with other institutions, programs or activities and only 4 participants (17%) were not able to forge partnerships with other agencies.

Table 26. Distribution of Participants from Kecamatan Penajam in Terms of Establishing Partnerships Related to ICM

Response	Frequency	Percentage (%)
Yes	20	83
No	4	17
Total	24	100

Participants were able to initiate institutional partnerships with the private sector as the main target, particularly the Union Oil Company of California, popularly known as UNOCAL, as the said company is located in the area. Another agency which has an agreement with the community is Yayasan PESUT. This NGO facilitate community-based coastal resource management activities in the area in order to empower coastal communities. Yayasan PESUT facilitates organizational activities like mangrove conservation, silvofishery aquaculture, marine protected area and community training.

The Agriculture Department provided budget for the community to conserve about 60 hectares of mangroves. At the local level, the district or village government supported all programs through policies. With Yayasan PESUT, coastal communities designed a program to address coastal abrasion in Saloloang village. The group initiated an Integrated Sub-District Development Area Program. From this program, it was evident that skills in implementing management plan were acquired by the group.

8.0. Conclusion

In realizing the goals of ICM, participants must have a conscious effort in motivating the community towards the attainment of the goals of coastal management. This effort should be realized and be in effect from planning up to implementation and evaluation. The ICM pilot training both for Tejakula and Penajam Sub-district had significant positive impacts in terms of raising awareness and knowledge towards coastal management. As a result, the local policies initiated were derived from the training includes establishment of marine protected area, alternative livelihood, improvement of traditional practices related coastal management, networking and developing community (fishers) organizations.

Selecting and recruiting the participants before the training was very important part. It would be better that background or job of participants be analyzed such they would be able to practice the lessons learned when they come back to their area of assignment or work. For Penajam, an increase in number of female participants directly addressed the issue of women as a marginalized sector through setting up of alternative livelihoods in the area.

The training courses were good and participants' expectations were met. Most participants would recommend the ICM training for other stakeholders because this will enhance human resources in understanding ICM. Participants were empowered as they were exposed to the experience of other coastal communities. While the participants would recommend the training, there is a need to enhance the quality of the training in terms of the following: (1) better training and time management; (2) upgrading of knowledge by trainers; and (3) longer duration of training



Generally, all modules were very useful in relation to their job. In Tejakula, the module on ICM overview and monitoring and evaluation have limited use for the participants. Also, there were two modules that the participants of Penajam found difficult to implement such as participatory mapping and coastal zonation and co-management. These must be noted to avoid implementation of modules that are not useful or replacing those with the more relevant modules. Modules presenting ICM tools that were found useful by the participants were environmental assessment, selecting coastal management techniques, strategic planning, and constituency building. The ICM overview module provided was important as the concept appears to be new to the group.

Funding constraints, logistic and financial support and political situation in the area are among the major challenges for the participants. The context of kinship is very visible among the Indonesians as they share their knowledge and skills to their immediate family members and community organizations. Establishing networks, information sharing and informal discussion with other stakeholders were used to build constituency for integrated coastal management. ◉

Case Studies: ICM Training Course Graduates

Using Environment-friendly Fishing Method

Nengah Artiawan

*Sea Ornamental Fisherman Organization - MINA BHAKTI SOANSARI¹
Les Village, Tejakula, Buleleng District, Bali*

Biophysical and Socio-Economic Situationer

With a two-kilometer coastline, Les Village is located at Tejakula Subdistrict, Buleleng District, North-Coast of Bali Province. More than 200 fishers live in the area and may be categorized either as pelagic fishers or sea ornamental fishers.

Pelagic fishers still use traditional method to manage fishery resources and apply the simple market system. However, these fishers still deal with middleman who are also residents of Les village. Such situation occurs due to the lack of information, education and political will on fisheries management. The other problem is financial support as there is no capital support to fishers. Several fishers directly sell their product to the market with the help of their wife, particularly when involved in fishing at night.

In the 1980s, sea ornamental fishing became a trend in Les village. In the beginning, sea ornamental fishers used net for fishing. Several years after, the fish stock slowly decreased and eventually disappeared in the market because of there was no net production from the industry. Later on, cyanide fishing was introduced replacing traditional fish gathering. Around 150 sea ornamental fishers and 6 middlemen were engaged in illegal fishing practice.

It was in 1986 when exporters introduced cyanide fishing to villagers. Unfortunately, there were cases when fishers collapsed due to poisoning. One fisher died because of malpractice on the use of compressor while others suffered from decompression sickness. There could be more victims if the problem is not solved.

Several years later, law enforcers started to hunt illegal fishers who used cyanide because there is a policy prohibiting destructive fishing activities including cyanide fishing. These destructive fishing activities resulted to damaging coral reefs and killing huge amount of juvenile fishes. Fishers from Les village who were imprisoned spent about 10 to 20 million Indonesian rupiah (US\$ 1,250-2,500) for their release and to get back their boat. However, fishers still use cyanide for fishing because they did not have any alternative livelihood.

Les fishers earn enough money through sea ornamental fishing which is their primary occupation. They must, however, take the risk of facing the consequences of criminal cases filed by police officials and local government in using cyanide as fishing method.

¹ Mina Bhakti Soansari or Sea Ornamental Fisherman Organisation was established in 2001 at Les Village with the purpose of fisheries use reform and strengthening fisherfolk economics through alternative income. With 90 members, Mina Bhakti Soansari adheres against cyanide fishing.

Community's Response

The situation became worse when fishers coming from another place encroached the area. Because of this, some sea ornamental fishers decided to shift work as pelagic fishers.

At that time, there were no existing government or non-government organizations (NGO) in Les Village until Bahtera Nusantara Foundation came to address coastal and marine issues, particularly sea ornamental fishes, coral reefs and traditional law related to coastal management.

In 2001, Bahtera Nusantara introduced the use of barrier net as an alternative to cyanide fishing. Barrier net is environment friendly compared to cyanide. Full of hope, sea ornamental fishers were very enthusiastic to learn the new method from Bahtera Nusantara.

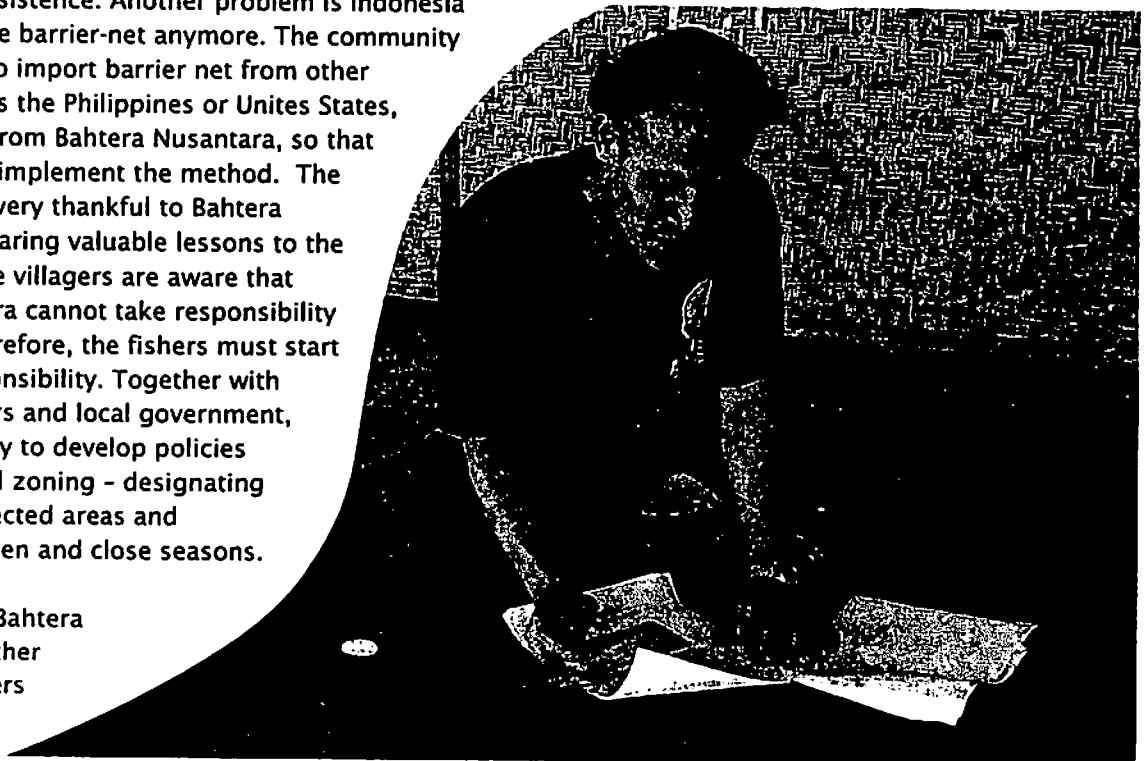
As soon as cyanide fishing was replaced by barrier-net method, coral reef colonies started to grow and fish stock gradually increased. Fishers can easily find sea ornamental fish that they want to capture selectively. Barrier net has high selectivity just right for the target species compared to cyanide, which has very low selectivity. Barrier-net provided an opportunity for juvenile fish species to grow and reproduce. This condition will impact the lives of the fishers in the future. If cyanide fishing continues, all the fish will die including non-target fish. Fish stock will dramatically decrease and fishers who use pole and line method will find difficulties in capturing fish.

The decentralization policy made a negative impact to the fishing grounds of Les village because fishers exploited the resources in other islands or adjacent coastal areas in Indonesia. Fishers had a wrong perception regarding the decentralization policy, thinking they have the autonomy or control over the resources. This resulted to limited fishing ground for other communities.

Lessons Learned and Challenges

The implementation of the use of barrier net in Les village by Bahtera Nusantara was a challenge for the fishers daily subsistence. Another problem is Indonesia does not produce barrier-net anymore. The community is now hopeful to import barrier net from other countries such as the Philippines or Unites States, with assistance from Bahtera Nusantara, so that all fishers could implement the method. The community was very thankful to Bahtera Nusantara for sharing valuable lessons to the Les villagers. The villagers are aware that Bahtera Nusantara cannot take responsibility all the time. Therefore, the fishers must start to take the responsibility. Together with traditional leaders and local government, the fishers will try to develop policies related to coastal zoning - designating fishing and protected areas and implementing open and close seasons.

In 2002, Bahtera Nusantara and other Indonesian trainers provided





assistance to the villagers Les fisherman, particularly for the sea ornamental fishers through the coastal management training. Bahtera Nusantara shared valuable knowledge on marine biodiversity such coral reef and fish condition that were exploited due to cyanide fishing. Fishers were trained to practice safe diving - particularly those who use compressor or hookah for fishing.

Cyanide fishing should not be viewed as a single source of coral reef damage. Deforestation resulted to sedimentation from upland to the seascape during heavy rain fall and pesticides used by farmers flow directly to the mainstream river. Unpredictable change in temperature, air pressure and season brought about by global warming has also had an impact to coral reef damage.

Evolving Partnerships

There is a planned collaboration among Bahtera Nusantara, Marine Aquarium Council (MAC)² and Mina Bhakti Soansari to develop a program called "Collecting Area Management Plan" (CAMP) at Tejakula District. CAMP's main objective is to regulate fishing grounds and implement integrated management along Tejakula District's coastline To implement CAMP, the organizations involved must undergo a process. As a first step to developing CAMP, a coastal area monitoring was done in two representative monitoring sites on each village in Tejakula District Area.

MAC is a joint industry/conservation initiative to ensure that businesses applying good standards in the collection, holding and handling of marine livestock are easily identified and rewarded by the buying public. It is intended that the fish sold through inspected and certified businesses and chains will carry a yet to be designed logo. As consumers (including aquarium keeping hobbyist) become "greener" in their outlook, the industry will be able to gain strength from the scheme as it employs independent certifying experts to monitor the scheme.

Together with Bahtera Nusantara Foundation, the traditional village leaders, formal village leaders and private sector developed a business company called PT. Bahtera Lestari, which focuses on sea ornamental fish trading. In the future, Mina Bhakti Soansari will have a sharing capital majority in PT. Bahtera Lestari.

Mina Bhakti Soansari shared knowledge to fishers around Bali regarding alternative fishing for aquarium fish. This organization develops coral farming toward coral restoration as well. Mina Bahkti Soansari is now developing 1,000-mother colony for coral transplantation, marine ecotourism activity and sea

²MAC is an international, not-for-profit organization that brings marine aquarium animal collectors, exporters, importers and retailers together with aquarium keepers, public aquariums, conservation organizations and government agencies. MAC's mission is to conserve coral reefs and other marine ecosystems by creating standards and certification for those engaged in the collection and care of ornamental marine life from reef to aquarium.

ornamental fish trading to USA and Canada.

The ICM training became a venue for the formation of Tejakula Coastal Community Society. Through this, training participants can share experiences, discuss and disseminate the results of ICM training to other communities. Much has to be done in implementing the goals of the organization for the future. The ICM training's impact can be strengthened if more villagers were involved as trainees, so additional courses are recommended.

Coral reef condition, including other coastal resources like seaweed culture, has improved by 50% in Les Village Seaweed disappeared in Les village since some fish species feed on it. The neighboring village developed a new method for seaweed culture. They use net to protect seaweed area so that fish cannot consume them. The community was very successful in employing such method in Sambirenteng and Tembok village.

At present, the pressure on coastal resource use decreased although natural causes of destruction, such as beach erosion occur between December-January on rainy and wet seasons, annually. There are no cases of dynamite fishing anymore in Les village. A 90% decrease of cyanide fishing cases occurred since Bahtera Nusantara and members of Mina Bhakti Soansari came to the village.

The community is now aware on the importance of protecting the coastal area for the future generation. Barrier net is one environment-friendly technology introduced by Bahtera Nusantara in response to illegal fishing practices. Bahtera Nusantara also introduced marine species protected by law and coral transplantation for coral restoration. After the training from Bahtera Nusantara, all members of Mina Bhakti Soansari acquired skills in coral transplantation.

Since ornamental fish depend on coral reefs, coral transplantation was useful for their reproduction toward sustainability. Coral reefs are nursery and feeding area for marine animals, particularly reef fishes. Coastal area monitoring is an important process and must be sustained to assess changes in condition of coastal resources because caused by beach erosion or sedimentation. ●

Developing Collaboration Among Stakeholder Towards Coral Reef Protected Area

Nyoman Suda¹ and Arimbawa²

Sambirenteng Village, Tejakula , Buleleng District, Bali

Sambirenteng village has a coastline of about 2 kilometers with coral reef and sea ornamental fishes. During the early '90s, the coral reef condition began to decline due to anthropogenic pressures. Five years ago, collaboration among the local community, private sector, village leaders and local government for coral reef protection and rehabilitation was initiated.

With the support and collaboration among leaders and community members in the area, the rate of coral reef recovery was 75% against its condition 10 years ago. Informal leaders concerned with coastal issues gave significant contribution as well. The main catalysts were the fishers themselves who were previously practicing illegal fishing methods such as dynamite fishing and the use of sodium cyanide. An alternative environment-friendly fishing method is now being employed.

Three months ago, there was a pressing issue in Sambirenteng village about mariculture. People had opposing views on the said fishing practice. In response, the group tried to facilitate meeting among the community, informal leaders (came from the community itself but have certain capability to influence the entire community) and village leader (or formal leader belongs to the local government who has duty to lead one village) to anticipate and develop a mutual agreement to prevent resource-use conflict between the community and the private sector.

Through this coordination meeting, the private sector became aware and closed their mariculture area. Such consultations were intense, with more than five formal meetings between the private sector and community, excluding informal meeting between the villages themselves. The community conducted information campaigns on coastal resources conservation through developing traditional law. Bali is one of Indonesia's islands where culture and traditional law strongly influence community and influence their daily life. As such, the local community has strong power to control their resources because they have traditional law.



¹Sambirenteng villager

²Les villager

The village government and traditional institutions such as informal leaders were helpful in initiating discussions and finding solutions to problems relevant to coastal and marine issues. Until now, everything works well in terms of decision-making mechanism at the village level. The village government, traditional institution and community have parallel ideas and focus in defining sustainable development for community welfare. Should there be a problem - the village government and traditional institutions always collaborate to address issues and other conflicts in the area.

After the ICM training in Bali last December 2002, the village government, fisher folk and other sectors collaborated to eliminate destructive fishing practices. The community became aware that sodium cyanide and dynamite fishing could damage the coral reef and others marine organisms. The community is now setting up marker buoys for boats and developing coral transplantation.

In addition, the community initiated collaboration with Alamanda Resort to develop coral reef protected area, which has multiple benefits for the community. Alamanda purchased an old vehicle and converted it into an artificial reef. The resort owner rents the boat for monitoring the artificial reef. With these efforts, fish stock dramatically increased. In order to raise funds and enhance ecotourism in the area, Alamanda resort offered boats and diving equipment for rent. ●

Managing and Conserving Mangrove Ecosystem in Sesumpu, Kecamatan Penajam Kabupaten Penajam Paser Utara

*Nurdin and Mirwan
(Translated by Ramli Malik and Mahfud)*

Overview of Sesumpu

Before, Kelurahan Sesumpu (Sesumpu Sub-District) was densely covered by forest, particularly mangrove forest. With the population increasing every year while income generation sources are becoming minimal, the forest has been changed as brackish water pond and field rice. Beside, some of the area changed becomes coconut garden.

Conserving and protecting mangrove is a new concept in the community of Sesumpu. Information on mangrove conservation and the ICM Training in Balikpapan has changed their views on protecting and conserving their mangrove forest.



Mangrove, especially in the east of Sesumpu, was very thick according to the informal leaders. However, due to lack of awareness of the community on the importance of preserving the environment, cutting of mangrove forest for wood fire and charcoal became rampant. Also, abrasion occur due to strong waves.

Destruction of mangrove at shoreline and river has severely affected the natural resource resulting to abrasion and sedimentation. This has affected the fish catch of the fishers of Sesumpu.

Mangrove Conservation Initiative

In order to protect and conserve the mangrove forest, a few fishers established a conservation group called "Tunas Lestari". The group's main activity is mangrove conservation. At first, strengthening the capacity of the organization was difficult. The challenge of conserving mangrove forest was likewise a struggle.

Moreover, when the leader was trained in ICM at Balikpapan, he started to gradually transfer knowledge gained through the training on how important the mangrove forest to the community and members of the conservation group.

The first initiative was the establishment of mangrove seeding area. The seeding area is not too large, but can accommodate more than 30,000 mangrove seeds (local name: tongke) of *Rhizophora* sp. and *Avicennia* sp. The organization used poly bag for the seeding. However, because it is very expensive, plastic bottles were used as alternative for the seeding. With the small boat, the bottles were laid on the shoreline in Balikpapan and Penajam. By using plastic bottles, they feel that they have been protecting the beach by recycling or reusing the plastic that is difficult to dispose.

The second initiative was finding a common schedule to work together in mangrove because aside from the conservation activity of the group, the subsistence of the family must be considered. The group work together at least twice a week and gather mangrove seeds around Sesumpu river and far away places.

After gathering mangrove propagules, the group started to plant the mangrove along the beach in order to counter the impacts of abrasion. Aside from the beach, the group plant along the river and fishponds. There was an agreement that every fisher should bring at least five mangrove seeds for planting.

The group started to campaign in Sesumpu to conserve the mangrove. With Yayasan Pesut facilitating the process, the group started to develop as a professional conservation group.

Change Process

The conservation initiatives of "Tunas Lestari" resulted to a high level of awareness of the community to conserve mangrove forest. This was seen in the different areas; including women and children participate actively in mangrove planting. The different stakeholders, particularly the Sub-district government, supported this positive change. They feel this mangrove conservation program was helpful towards sustainability. "Tunas Lestari Group" was assisted by Yayasan Pesut in partnership with the Penajam Government (Agriculture Department). The government assisted the organization in mobilizing funds for mangrove rehabilitation of 40 hectares in Sesumpu.

Fishpond groups who were just active in developing aquaculture also realized the need to conserve mangroves. All of these were built naturally without forcing others to believe. This made Sesumpu known as a sub-district with a high motivation towards mangrove conservation.

Impact

The changes happened made a positive impact towards Sesumpu society. Among the positive impacts were: (1) high motivation from the community to conserve mangrove; (2) progress in community awareness about the usefulness and importance of protecting mangrove. The mangrove forest improved sustainable fish catch; (3) community groups have broader perspective on the environment - this indicated that the community started to become aware and empowered in the environmental process that cannot be done separately but collaboratively; and (4) the mangrove forest area expanded along Sesumpu beach which is expected to restore its natural abundance in the area.

All stakeholders should have moral responsibility to produce a positive change. The regional government, technical institutions, NGOs and community should come together to plan and organize an effective mangrove forest conservation initiative.

With the ICM training, the stakeholders who participated deeply understand about integrated coastal management including the Farming Department and Kecamatan Penajam.

Lesson Learned

A few lesson learned from this process are :

- Building awareness and high motivation to mangrove conservation become a main factor in doing conservation work
- Institutional building as a place to achieve the vision in conserving coastal environment is the first important step
- Increasing the knowledge about the ICM through trainings and information is mainly supporting factor



- Coastal community support is needed to build a common vision in environment and community empowerment
- Support and guidance from the local government in nature conservation, especially mangrove forest is needed to help community sustain environmental initiative
- The role of stakeholders, such as government, NGO and donor agencies is helpful to coastal community in protecting the natural resources

From the lesson learned, this is expected to replicated in other place. Sustaining the coastal ecosystem, such as mangrove will bring positive impact for the environment and communities. ●

Silvofishery, an Integrated Mangrove Forest and Aquaculture System in Sesumpu, Kecamatan Penajam Kabupaten Penajam Paser Utara

*Edy Londa and Sanusi
(Translated by Ramli Malik and Mahfud Syah)*

Background

Two main sustainable alternatives to coastal aquaculture pond development within or associated with mangroves are silvofisheries and marine culture. Silvofisheries is a form of integrated mangrove tree culture with brackish water aquaculture. It is a form of low input sustainable aquaculture. This integrated approach to conservation and utilization of the mangrove resource allows for maintaining a relatively high level of integrity in the mangrove area while capitalizing on the economic benefits of brackish water aquaculture. Further extension of aquaculture to meet the needs of the rural poor may be tolerable provided it is carried out in a controlled manner outside those areas heavily exploited and environmentally sensitive in an integrated program of conservation and utilization, such as silvofishery methods.



There are a variety of designs of silvofishery systems that attempted to balance the conservation and utilization issues while maximizing economic opportunity. Different models have been proposed for rehabilitation/reforestation of previous mangrove areas that were converted to brackish water ponds that are not in use or of very low productivity.

In Sesumpu, most of the people are working in fishpond. Shrimp and fish are their major products. Fishponds in Sesumpu occupy a large area. They have around 5-20 hectare (has.) of fishpond. They usually use chemical materials in their pond like in preparing the pond. People do not think that this can damage and reduce the productivity life of fishpond. In opening the pond, they cut mangrove and never plant it again. They feel that if mangrove are retained in their pond or around the pond, this would result in low productivity because mangroves become a place for carnivore or competitor of their fish and shrimp. They harvest 5-50 kg shrimp with population 10,000-20,000 shrimps and 50-100 kg of milkfish for 5 has. of pond. The harvest is few considering the fishpond size. Due to extreme resource extraction, mangrove around the area becomes thin.

Environment-friendly Pond and Silvofishery

Realizing this situation, a few people that work in aquaculture formed a group called Kelompok Tambak Almawaddah (Almawaddah means affection). With the assistance of Yayasan Pesut Indonesia, they

conceptualized an environment-friendly pond. At first, this was difficult since many people were skeptic about the idea. The group exerted extra-effort for the people to realize that such pond would yield a sustainable harvest.

First, they used environment-friendly material in their fishpond. Toxic chemicals particularly those that would kill carnivorous fishes were avoided. They try to used tea seed (local name: saponin) to kill carnivore fish. In constructing the pond, the group decided to help each member and schedule our work every Saturday. Mangroves were planted (species: *Rhizophora* sp.) around the pond. Planting mangrove around the pond will make the structure stronger.



With the assistance Yayasan Pesut Indonesia and DKP, the group made a silvofishery demonstration plot. The plot is around 0.8 ha, and they use empang parit model. An Empang Parit model represents the greatest level of reforestation or maintenance of existing forest to pond area. It essentially consists of a mangrove planted raised central pond bottom (80% of total pond area) that alternates between being flooded and exposed as the water of the pond is raised or lowered. This raised pond bottom is surrounded by a canal that runs adjacent and parallel to the pond dikes.

The canal is 6 m. wide and 80 cm. below the central raised pond bond bottom. The seedbed is 12 m. and has 5 canals and 3 seedbeds. In the seedbed, they planted mangrove (species: *Rhizophora* sp.) and the range for each mangrove is 2 m. After which, we cultivated the shrimp (1000 shrimps) and milkfish (2000 milkfish) were cultivated.

The Change Process

The existence of Kelompok Tambak Alkawaddah in Sesumpu influenced everyone in proper cultivation of shrimp and milkfish in pond. Most of them now follow the environment-friendly process of building their ponds. The community in Sesumpu now practices using environment-friendly material for pond and mangrove is the first priority in establishing cultivation in pond. Most of the community in Sesumpu grows mangroves in their pond dikes. Other stakeholders such as the Agriculture Department were enthusiastic to follow the same method in other place.

Training courses on how to manage mangroves, especially for ponds, opened the minds of the community members in Sesumpu to manage ponds in a sustainable manner. Among the training courses participated by the community that brought positive impact includes participatory planning training, environment-friendly pond training and the ICM training organized by INCoM. Knowledge gained from these were applied in the community.

Significantly, the community realized the importance of mangrove ecosystem toward milkfish and shrimp culture.

Support from the different stakeholders is expected from the government, private sector, NGOs, and donor agencies especially in designing mangrove management program and increasing public awareness in in Sesumpu.

Effects in the Community

Capacity building of the organization influenced in: (1) Educating the community and raising public awareness and; (2) Designing silvofishery as a sustainable fishing technology both for managing mangrove and cultivation of fishpond. The demonstration plot using empang parit method became a model in managing mangrove forest and cultivation to increase community participation in Sesumpu, especially for pond operators.

Those outcomes must be further supported by stakeholders in order to sustain the productivity of mangrove forest and consequently realizing community development.

Lesson Learned

Among the lessons learned from this process are:

- Public awareness campaigns in managing coastal zone and use of the demonstration plot as model were necessary because people in the coastal zone have low educational attainment. It was easier for them to follow the program when they have seen the sample.
- Silvofisheries have the potential of capturing some of the economic benefits of the mangrove areas within a sustainable livelihood framework. Improvement in the economic return from this system was a key factor for wider acceptance of silvofishery methods as an economically viable activity in the mangroves.
- Silvofisheries can also provide an alternative economic activity for rural communities and reduce pressure on the extraction of mangrove forests. Therefore, this must be considered in an over-all development strategy for the coastal zone management and its sustainable use. ●