

Field-testing the Applicability of Fisheries Co-management Models in Ben Tre Province of Vietnam

Kim Anh Thi Nguyen

The involvement of fisher communities in ensuring the healthy development and exploitation of fishery resources is a prerequisite for achieving sustainable fisheries. With the fisher communities playing vital role in fisheries management, fishers should be integrated into the management systems and treated as key partners in management decisions, and most of all guaranteed appropriate rights to participate in the overall formulation of policies for fishing operations and relevant activities. In Southeast Asia where fishery resources are widely distributed, fisheries co-management or the system by which management responsibility is shared between government authorities and fishing communities constitute a new paradigm in managing the fishery resources. Particularly for Vietnam, the existing co-management approaches were modified and adapted in Ben Tre Province to examine their practicability in real field situations. It is envisaged that the results of this investigation could help policy makers in developing regulations and decisions towards the sustainable development of fisheries through the adoption of co-management approaches.

Co-management implies that administrative responsibilities are shared among administrative agencies and resource users as well as relevant interest groups including the scientific community (Jentoft, 1989). This concept is opposite to the traditional concept of consultancy, where prior to making decisions on operational issues, governments usually conduct public opinion polls among the target groups. In fisheries co-management, resource users are placed in a proactive position, and are empowered to propose, establish, implement, and enforce fisheries-related regulations in cooperation with local authorities (Jentoft, 2004). Moreover, in a co-management system, communities or representatives of direct users share the responsibility in controlling and distributing the benefits that can be derived from the system. Therefore, for fisheries

co-management in particular, although legal delegation of administrative power still lies with the institutions, fishers are considered part and component of the administrative structure. In real situations however, co-management should also continue to promote existing practices as well as customs and traditions of specific fisheries, in which case fisheries co-management could be implemented under both top-down and bottom-up approaches.

Co-management Approaches

Sandersen and Koester (2000) cited that the concept of co-management requires a ‘democratic and flexible mechanism’ to regularly deal with resource-related problems, and that co-management approach should be operated within the principles of democracy, equality and social justice. The adoption of co-management should portray the concerns of relevant interest groups, as well as aim to ensure transparency and liability.

The principle of “decentralization” is also a crucial part of co-management to ensure that decision-making rights are devolved down to the lowest administrative level if possible (McCay and Jentoft, 1996). Furthermore, in the fisheries industry, adoption of co-management should not only promote horizontal cooperation among fishers, but also vertical cooperation among users, fisheries groups and the government. This means that in adopting a co-management approach, the advantages of generating a united front among fisher communities and relevant stakeholders could be taken to the fullest by involving all stakeholders in the management and exploitation of the fishery resources.

This approach could get better results in attaining crucial fisheries management achievements, paving the way for better compliance with management regulations in view of the nature of demand-oriented management,



Meetings in Thanh Phong Commune to discuss the co-management approaches

i.e. management which addresses the real needs of all stakeholders; lower management costs with respect to the efficiency obtained; higher cooperation, involvement and responsibility for sustainable resources use among all relevant stakeholders since resource users are also the resource managers resulting in better conservation of the fishery resources; and positive impacts on marine production and trade activities due to improved conservation of the resources which contributes to higher income and better economic conditions of the fisher communities.

Structure of and Actors Involved in Co-management

Co-management could be structured in various forms, but the best form should work in the respective specific cultural, social, and ecological contexts. As Pomeroy and Berkes (1997) argued, there is no structure or design that dominates any co-management model. However, in order that the implementation of co-management approach would be successful, some basic questions such as those shown in **Box 1** should be addressed. Nevertheless, the way by which the questions are addressed also greatly influences the effectiveness of the implementation of certain co-management systems in specific situations.

Box 1. Main questions to be addressed in implementing fisheries co-management approaches

- Who are the resource users and relevant beneficiaries?
- In which way do they represent themselves?
- To what extent is the co-management mechanism institutionalized at the local, national or regional level?
- How is the asset management mechanism identified and differentiated: the state, private or community assets?
- Which functions are executed by the resource user organizations?

Generally, the participating players in co-management should include the government, market and community, with each player having varied roles usually influenced by their respective levels of competence. The role of government normally focuses in formulating relevant and basic regulations to ensure that common principles are observed and common rights such as social equity are respected. Moreover, critical functions such as law promulgation and enhancement of the legitimacy of co-management can only be discharged by the government (Pomeroy and Viswanathan 2003). This leads to the issue on which specific management functions should be handled by the government and which should be entrusted to user groups including the fisher communities.

In this regard, Pomeroy and Berkes (1997) posed the question on whether the government's role should only be limited to "enabling legislation to authorize and

legitimize the right to organize and to enforce institutional arrangements at the local level". Karlsen (2001) also argued that the government cannot delegate their entire role to the communities. Instead, governments should take charge of the overall responsibility, encourage participation from the grassroots level, and generally monitor the progress of the adoption of co-management approaches. Hara (1998) prescribed that governments should also consider providing financial and technical research support to ensure that co-management initiatives provide equal opportunities to all parties concerned.

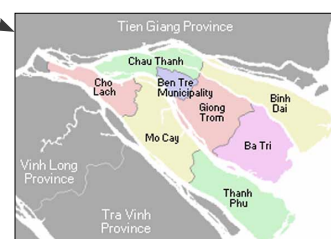
One of the most interesting co-management approaches being practiced to date is the fish producer cooperative system in Japan, where aside from serving as legal owners of the rights to exploit the resources, the cooperative associations also take over the management responsibilities on behalf of the concerned fisher communities (Yamamoto, 1995). However, even if specific co-management mechanisms vary in many countries, it has become evident that the key variables in determining the success of any co-management approach could include site specific organizational structure, operational conditions, rules, social relations, procedures, and results.

Case studies in Ben Tre Province, Vietnam

Following the frameworks for implementing the various co-management approaches, fisheries co-management models were modified and adapted in two districts of Ben Tre Province in Vietnam (**Fig. 1**) to assess their impacts on the fishing communities. Participatory co-management



Fig. 1. Map of Vietnam showing Ben Tre Province, and Thanh Phu and Binh Dai Districts



of fishery resources was introduced in Thanh Phong Commune in Thanh Phu District which is located in the southeastern part of the province, while integrated coastal co-management model was field-tested in Thoi Thuan Commune in Binh Dai District which is in the northeastern part of the Province.

Co-management model in Thanh Phong Commune

Prior to the adoption of the participatory co-management of fishery resources in Thanh Phong Commune, poverty rate at 13% reflects a difficult life in the Commune. In addition, with 2380 households and total population of 9511, Thanh Phong Commune included a high percentage of people who were either redundantly employed or unemployed with 212 households having no production inputs. Coastal fishery resources have been degraded due to overfishing and/or from using destructive fishing gear, *i.e.* practice of electrofishing and use of small mesh-size nets. Farming of clams and oysters that could generate high economic returns had been considered at risk of severe conflict of interest, *e.g.* annual occurrence of cases of “oyster plundering”. Meanwhile in agriculture, production of major economically-important species of plants and animals remained stagnant with no significant change in terms of output levels.

In an attempt to mitigate the impoverished situation of Thanh Phong Commune, Thanh Phu District of Ben Tre Province, a co-management model was formally implemented in October 2008 after consultation with the People’s Committee of Thanh Phu District. In Thanh Phong which is a coastal commune, economic activities if properly managed could be highly productive, such as clam production and harvesting, fishing, aquaculture, and management of species for special uses and protective forests. In view of such circumstances, the fisher community of Thanh Phong and the management board for special-uses and protective forests of the Commune worked collaboratively to develop a scheme of participatory management for the whole community. Under such scheme



Women-fishers harvesting clams in Thanh Phong Commune

which mainly aims to restore and conserve the historical aspects of coastal fisheries in Thanh Phong Commune, the local government shares the power with the fishers in managing and directing the exploitation and development of the coastal fishery and forest resources.

As specified in the scheme, fishers would be allowed to use the coastal alluvial land and natural clam resources including the sea grass beds located six nautical miles from the shore. This is meant to generate employment and improve profit distribution according to the law, rules, conventions, and activities agreed upon by the community provided that such efforts would promote stabilization and improvement of the living conditions of local farmers and fishers in the specified area. The progress of the development of the co-management scheme in Thanh Phong Commune is shown in **Box 2**.

In general, the idea of developing a co-management scheme for the Thanh Phong Commune received consensus from the participating stakeholders. A number of meetings with farmers and fishers as participants were convened to publicize the scheme and to consult with the farmer and fisher communities about the coordinating regulations. Comments obtained from relevant units in Ben Tre Province about the rules, regulations, and activities of the proposed Thanh Phong fisheries cooperatives were taken into consideration.

Regular meetings of the provincial and district co-management Steering Committee and technical training courses were organized to support the model in terms of building their capacity in planning, financial and accounting management, development of sustainable aquaculture practices, and adoption of Good Aquaculture Practices (GAP) and Better Management Practices (BMP) in intensive and semi-intensive shrimp farming. As a result, awareness of the local people and staff in community development and co-management concepts had markedly improved.



Fishers working in clam tidal flats in Thanh Phong Commune

Box 2. Process of developing co-management scheme in Thanh Phong Commune (2008-2010)

2008: Investigation of the capacity, demand for co-management, consensus from the people, and needs for support. This was followed by developing the organizational plan and proposing a work plan, and organizing technical training/workshop on the establishment of a co-management model.

2009: Further investigation of the capacity, co-management objectives and consensus of the community, and conduct of a local referendum on the structure of community organizations, recruitment criteria and draft regulations of the co-management organizations. Training workshops on preparing a management plan, system of reporting, and enhancing financial and accounting knowledge and skills were also conducted. This was followed by conducting a survey to gather the views of the community about highly feasible careers for the local people and organizing training on career switch as well as educating local people on rare plant and animal species, their habitats and ways to protect them. Finally, planning was also carried out for the establishment and operation of a co-management scheme in 2010.

2010: Co-management scheme for Thanh Phong Commune was proposed after completing the draft regulations on coordination among agencies involved in the co-management and on the cooperative system. The community continuously conducted opinion polls on co-management organizations and their activities, to enhance their support in setting-up of the management board for co-management. The management board introduced the detailed plans, suggested power and authority delegations, and organized training courses on planning and financial management/accounting, sustainable aquaculture techniques, intensive and semi-intensive shrimp farming following the GAP, and developed plans for joint activities in 2011 and beyond.

Co-management model in Thoi Thuan Commune

In Thoi Thuan Commune, Binh Dai District of Ben Tre Province, the integrated coastal co-management model was adapted with the involvement of many agents, such as the entire community living in five (5) hamlets of Thoi Thuan; government agencies involved in implementing the model, *i.e.* Ben Tre Province People's Committee, Binh Dai District People's Committee, Thoi Thuan Commune People's Committee, Department of Agriculture and Rural Development, Department of Natural Resources and Environment, Department of Justice, Department of Tourism and Culture, Department of Industry and Trade, Department of Planning and Investment; border guards, police, district and commune military forces; as well as other departments and organizations, namely: Division of the Department of Capture Fisheries and Resource Protection (DECAFIREP), Division of Aquaculture, Breeding Centers, Division of Rural Development, Provincial Fisheries Associations, Farmers Associations, Women's Associations, Youth Union, Veterans' Organizations, Fatherland Front, and Ben Tre Center for Transferring of Technology and Services, and the Fisheries-Agriculture Center of Development (FACOD) of the Vietnamese Fisheries Society.

The long-term goal of this endeavor is to build a successful scheme and effectively implement a stable and sustainable development of an integrated coastal co-management model in Thoi Thuan Commune. Specifically, implementation of the model was also meant to achieve increased community participation in the management of local fishing activities; enhanced community's awareness and knowledge in the factors crucial to management and co-management, such as the environment, resources, economy, society, science and technology; better coordination among the stakeholders involved in the management of fisheries and increased participation of citizens in the fisheries management processes together with enhanced self-governing capacity of the community; increased awareness in protection of the fishery resources and other natural resources in the area; and betterment of stable livelihoods and incomes of the community. The coastal area of Thoi Thuan Commune is part of a coastal estuary ecosystem that includes mangrove systems. The water surface area of Thoi Thuan Commune embraces clam culture areas, mangroves and fishing grounds.

Specifically, the clam culture area in the Commune which is directly managed by the Rang Dong Cooperative is around 1,200 ha stretching from the tail of Mt. Muoi dune to Ba Lai estuary which longitudinally extends about 10



Members of the Management Board of Rang Dong Cooperative, Thoi Thuan Commune



Harvesting of Clams in Thoi Thuan Commune



Bountiful clam harvest from Ben Tre clam fisheries which had been certified by the Marine Stewardship Council

km. The fishing area from the boundary of the clam culture areas is about 4.0 nautical miles (about 7.408 km) from the shoreline. Therefore, the main production activities in the community include exploitation of natural resources, aquaculture, and services derived from fisheries and the mangrove areas.

Prior to the adoption of the integrated coastal co-management model, the clam resources of Ben Tre was well managed based on a cooperative model coupled with a co-management mechanism since 1997. For such reason, Ben Tre's clam fisheries had been certified by the Marine Stewardship Council (MSC) in 2009 for having attained the maximum sustainable development criteria, the first model in Southeast Asia to receive such certification. Thus, the management model of the Rang Dong Cooperative in Thoi Thuan Commune was not only beneficial to the clam resources but has also protected the mangrove ecosystem.

However, exploitation of the fishery resources of the offshore waters of Ben Tre and specifically in the community is yet to undergo a well-rounded supervision under a sustainable co-management mechanism. Nonetheless, the process of development of the co-management scheme in Thoi Thuan Commune is summarized in **Box 3**.

Box 3. Development of co-management scheme in Thoi Thuan Commune (2009-2010)

2009: Conduct of research and investigations on the characteristics of the natural conditions, current status of basic socio-economic activities, and status of fishing activities. The conditions, capacity as well as the commitment and consensus of the community and stakeholders to implement the pilot model were assessed while the legal basis system, and system of community organizations, mechanisms, and policies were also established to support a stable operation and sustainable development of the integrated coastal co-management model.

2010: Implementation of a zoning system for clam resource management, fishing, and protection of environment and mangrove ecosystems. Activities for co-management model were organized including protection from banned/destructive fishing; persuading the fishers in the community to improve the system; and putting in place a legal framework to support the operation of the model.

Box 4. Achievements of the implementation of co-management model in Thoi Thuan Commune

- The community clearly understood the problem, and unanimously agreed to formulate an integrated coastal co-management model, for the local inshore fishery and exploitation of clam resources.
- The community committed to collaborate and to perform activities to conserve the natural resources, including:
 - Protection of the environment,
 - Sustainable exploitation of wild species, and
 - Promotion of good aquaculture practices.
- The community agreed to form a natural resource exploitation group and nominated members for the group, which would be under the management of the Rang Dong Cooperative, and proceeded to enhance the management of natural resources and use of the resources for sustainable fisheries.
- Groups in the fishing community were committed to sustain the sustainable integrated coastal co-management model.
- High level agreement and consensus among local governments, Rang Dong Cooperative and the natural exploitation communities was reached especially in moving towards integrated management of the natural resources and environmental protection of the mangrove ecosystem.
- Assistance was sought by the communities from the local government during the first period to prevent violations of the resources use regulations in view of frequent perpetration of people from outside the model's area of responsibility, and to promote environmental protection of the area.
- Assistance from management agencies and relevant stakeholders was also sought by the community, in addressing livelihood-related problems.
- Brave commitment was exhibited by the community to share the burdens and difficulties, and to seek assistance from various agencies in improving their model.

Implementation of the model has achieved encouraging results after two years of development, as shown in **Box 4**. In summary, the awareness, attitude and actions of the community have been promisingly positive, and the community expressed readiness, willingness and preparedness to implement the co-management model at their respective localities.

Impacts of the Implementation of the Co-management Models

The impacts of the implementation of the co-management models in two communes of Ben Tre Province, Vietnam are summarized in **Box 5**. While benefits have been gained from the implementation of the models, limitations also existed that seemed to impede the effective endeavors of the communities in undertaking their respective responsibilities towards the successful implementation of the models. While taking into account the limitations, the Provincial and District Co-management Steering Committees have been requested to continue supporting the policies and measures in order to practically and effectively sustain the implementation of the models.

Box 5. Impacts of the implementation of co-management models in Ben Tre, Vietnam

Thanh Phong Commune: co-management of fishery resources

The benefits

- Gained very enthusiastic support from the leaders of the People's Committee and other departments of Ben Tre Province.
- Human resource support was ensured from leaders of the Provincial Department of Agriculture and Rural Development and Thanh Phu District People's Committee for the implementation of the model.
- Financial and technical support from the FSPS II program of Ben Tre Province through DANIDA was assured.
- Participation of the People's Committee and people at hamlets of Thanh Phong Commune was very active and enthusiastic.
- A 254 ha for clam area along the Commune Beach was assigned by Ben Tre Province People's Committee to Thanh Phong Cooperative for the cooperative to manage and exploit the resources.

The limitations

- Co-management which is still a new concept in Vietnam, was also completely new to Thanh Phong Commune, thus:
 - Awareness and understanding of co-management concept by many people, including officers of various agencies involved (even at the provincial level) had been low which oftentimes led misleading interpretations;
 - Impatient desire for instant cooperation among members despite their lack of knowledge; and
 - Concerns about the sustainability of co-management were raised considering that each member works for his own interest while individual members have also been encountering certain hard times.
- Since the people of Thanh Phong Commune used to participate in three groups of activities (agriculture and inland aquaculture/fishing /exploitation and aquaculture clam and other mollusks), merging of the activities into a single model resulted in many challenges and obstacles, thus, the quality of life of farmers in the village remained low and complicated.
- The anchor of the co-management model is the Thanh Phong Cooperative, which derives its main income from the exploitation of clams and other mollusks. Although clams were rare in 2007 and 2008, but clam broodstock started to appear more frequently starting in 2008, but because of weaknesses in management and security mechanisms, the Cooperative failed to protect the resources from incidence of "clam plundering", resulting in massive degradation of the natural resources.
- Infrastructures, especially the poor traffic system significantly affected the economic development of the community.
- Irremediable and time-consuming problems persist, such as:
 - Generally low academic background of the people in the Commune (education level mainly stops at primary and secondary schools, with only a small number of people completing high school);
 - Weak and primitive management skills at the Commune-scale;
 - Acute sense of dependence for external support lingers among the minds of the people; and
 - Local people, who are still novice in terms of co-management activities, need regular, practical and effective help from the government to ensure the successful implementation of any co-management schemes.

Thoi Thuan Commune: integrated coastal co-management

The benefits

- Whole-hearted concern, close guidance and active support demonstrated from the central administration, ministries, as well as from province to district, commune, and village levels.
- Close-knit cooperation and assistance provided by local departments in the process of implementation of the model.
- Achievements and experience from the implementation of previous resource management schemes, for example, the existence of an effective and sustainable clam resource management model, served as basis for achieving sustainable co-management in coastal areas.
- Community unity and consensus attained in establishing the model of integrated coastal co-management at Thoi Thuan which include commitments in making good use, and sustainable development of resources, protecting the environment and ecology.
- Unions, agencies, organizations and research institutes, universities, non-governmental organizations have been considerably interested and willing to actively support the local people in the implementation of the co-management model.

The limitations

- In terms of legal framework, a well-established regulation on resource exploitation remains inadequate (regulations were supposed to be developed in 2011 and combined with regulations for clam resource management)
- Financial mechanisms are lacking to support the livelihoods of communities (short- and long-term) since funds to continue supporting the communities after FSPS II program ended, have not yet been sourced.
- Solutions to address product output in exploitation activities as well as the impact of natural conditions have not yet been established, especially in mitigating the impacts of climate change and severe weather conditions which lead to many difficulties in the deployment and sustainable implementation of the integrated coastal co-management model at Thoi Thuan Commune.
- The implementation of the integrated coastal co-management model of Thoi Thuan was behind schedule due to certain obstacles encountered by the community, such as delayed organization of a congress to elect delegates for the Cooperative Management Board.
- The recognition received by the Ben Tre clam fisheries industry through the MSC certification resulted in rapid increase in clam prices and cooperative sales that lead to conflicts in terms of market and resource shares, and outsiders coercing the cooperative members to disregard the management authority during price negotiations.
- Concerns about the financial management of the Cooperative Management Board further delayed the conduct of surveys that led to information diffusion while community mobilization could not be pursued. All these factors made it impossible to effectively implement the integrated coastal co-management model at an earlier date as planned

Meanwhile, the Department of Agriculture and Rural Development as well as the Management Board of Ben Tre FSPS II (second phase of the Fisheries Sector Programme Support to Vietnam by Danish International Development Agency (DANIDA)) were also asked to consider providing

financial support for the capacity and technical knowledge building of managers and fishers in management skills, career change and new career training, pilot demonstrations on modern techniques in aquaculture, farming and animal husbandry, development of agricultural production.

Box 6. Experiences that could be drawn from the two co-management models in Ben Tre Province

Thanh Phong Commune: co-management of fishery resources

- Fishery Cooperative should take the central role in implementing the model for fisheries co-management. With models related to natural resources, especially coastal fisheries resources, co-management organizations on the whole social scale, are undoubtedly important. The Management Board of the Cooperative should also be strengthened and the regulation for specific activity should also be established, especially in terms of democratic regulation, financial management and widespread regulations to protect the fisheries and coastal resources.
- Connection and coordination among members in handling co-management organization problems must be presented through combined regulations to allow all the members to benefit from their efforts to protect the aquatic and natural resources, and receive support from other members participating in the implementation of the co-management model.
- In principle, the government (the People's Committees at all levels) and the unions of communes should not be directly involved in the Co-management Board but their support in the early stages is indispensable as this plays a decisive role in the successful development of the co-management model. The support, supervision and acceleration of program activities advice of provincial/district governments in decision-making (through the Co-management Board at the province/district levels), Department of Agriculture and Rural Development as well as the Province Management Board of FSPS II Program have also been very important in the implementation of the co-management model.
- Increasing awareness about co-management requires continuity and regularity to encourage people and local officers to reduce and eliminate dependency expectations, manage their assigned natural resources, develop sustainable production systems, and improve their living conditions

Thoi Thuan Commune: integrated coastal co-management

- Formulation and establishment of the fisheries co-management model had been relatively stable and initially achieved good results. Based on the model adopted by the Cooperative on clam management and exploitation under the sustainability principle, Thoi Thuan Commune is looking forward to the integrated coastal co-management model to attain sustainable use of their natural resources in general.
- Ben Tre Province has issued regulations on the legal framework to exploit and protect its natural resources, including regulations on the adoption of co-management model.
- Community activities (propaganda, training, seminars, workshops) with participation from the community and other stakeholders before and during the implementation of the co-management model facilitated the collection and identification of the needs, capabilities, advantages and disadvantages, as well as establishment of consensus and commitment of the community and stakeholders, while adhering to the community's understanding of the co-management concept and their aspirations.
- Since there is no route or long-term strategy to support the model after FSPS II program ended, the local people had been encountering difficulties in designing a strategic plan for sustainable development of the model after the completion of FSPS II, such as financial support mechanism for career conversion (livelihood), livelihood sponsors, supplements, and perfection of the legal mechanism. Although the local government can integrate some of the activities to help the people, but such assistance could be limited because the objectives of the activities set at the beginning did not include integrative plan for co-management.

Conclusion and Suggestions

In the case studies on the implementation of co-management models in Ben Tre Province, “the bottom-up” approach achieved success mainly due to the support of the people so that activities were carried out in a cost-effective manner. As the local people directly draft and develop the rules, the regulations generated are considered by them as reasonable, effective and inexpensive. Moreover, the rules are developed consistent with the local level of awareness, which could be adapted to the actual conditions of the communities. Therefore, it could be assured that such rules and regulations are not in conflict with any longstanding practice.

As a result, the people tend to abide by the rules which had emanated from the inside rather than regulations imposed from the outside that often require higher implementation costs, could easily stimulate conflicts, and are less efficient in terms of protecting the resources (Acheson, 2003). The lessons learned and experiences gained from the implementation of the models in Ben Tre Province are shown in **Box 6**.

Box 7. Suggestions for sustained implementation of co-management approaches

- Support should be continued for the improvement of regulations to ensure strengthened involvement of community members of cooperatives and associations in the implementation of co-management models while strengthening of the cooperatives and associations should be continued.
- Training on alternative and career conversion should be pursued, while awareness of locals should be raised for the consumption of local fishery products and products' brand name should be developed.
- The criteria for evaluation of the model should be completed and for implementation in relevant coastal areas.
- Review of the entire model should be carried out for possible dissemination nationwide.

Finally, the suggestions shown in **Box 7** could be considered to ensure the sustained implementation of co-management approaches in the future.

Specifically for the integrated coastal co-management model implemented in Thoi Thuan Commune, the suggestions in **Box 8** could also be considered.

Considering therefore the experience gained from the implementation of the co-management models

Box 8. Improving the integrated coastal co-management model implemented in Thoi Thuan Commune

- Research on chemical and physical elements of the environment, biology, aquatic fauna and fisheries should be continued to effectively manage the natural resources.
- Existing programs and projects such as fisheries strategy towards 2020 should be integrated with other programs such as climate change, marine-economics, and new programs on rural development.
- A mechanism for collaboration with neighboring provinces should be established for the implementation of the model in order to avoid conflicts in resource use by community groups in and outside the province.
- Integrated livelihood models (short-term livelihood) should be developed to enable the communities to improve their socio-economic well-being through the conduct of new livelihood training sessions (long-term livelihood, including eco-tourism).

Box 9. Considerations to ensure successful implementation of co-management models

- Active guidance and support from the central to local government levels with strategy to educate widely, continuously and regularly the community and stakeholders.
- Close cooperation and assistance from all departments and related organizations inside and outside the province (professional associations, institutes, universities, NGOs).
- Development of a strategic route and long-term plans including basic researches on co-management.
- Identification of needs and issues that require attention now and in the future (natural resources, ecology, environment) as these form the basis for building stable and sustainable co-management models.

in two communes in Ben Tre Province, Vietnam, the considerations shown in **Box 9** should be taken note of as these could be crucial for the successful implementation of co-management models in the region.

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About the Author

Dr. Kim Anh Thi Nguyen is Senior Lecturer from Nha Trang University, 2 Nguyen Dinh Chieu Street, Nha Trang, Khanh Hoa Province, Vietnam.