Development of the Locally based Coastal Resource Management through Decentralization: Case of Thai Fishing Communities

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- Concepts of coastal resource management (Literature review)
- Study framework and methodology
- Decentralization and institutional structure
- Participatory mechanism for coastal resource management by local organizations
- Recent challenges toward local institutions on coastal resource management
- Local management practice for coping with uncertain change
- Alternative institutional arrangement for effective coastal resource management
Introduction
Evolution of decentralization approach in coastal resource management

- Coastal resource tends to decline drastically since last several decades (FAO, 2005).
- The management approach currently prevailing is based on the intervention of central government, which aims at organizing the utilization of resources for solving any issues (Sen and Nielsen, 1996).
- Greater participation from resource users in management is increasingly concerned.
- Decentralization approach has been adopted worldwide in most of governance system.
Present situation of Coastal Resource Management in Thailand

- Many measures have been implemented for coastal resource management during the recent decades.
- Some measures got successful cooperation with people but some failed.
- Government tried to find out practical approach to implement the measures on coastal resource management.
- Decentralization of authorities to manage coastal resource has been done to secure greater people’s participation.
Research Questions

- What kind of local organizations can take responsibility for coastal resource management?
- What process do they need for future devolution to make locally-based organization?
- What kind of institutional arrangement are necessary to manage coastal resource on a local basis?
Objectives of study

1. To investigate the mechanism of people’s participation in management process
2. To analyze the strengths and constraints of existing local organizations, mainly Ao.Bo.To., on coastal resource management
3. To assess the capacity of local organizations to recover coastal resource management under the uncertain situation like Tsunami 2004
4. To develop an appropriate institutional arrangement for coastal resource management based on the local organizations of Thailand
Concepts of Coastal Resource Management (CRM)
Management Approaches

- Both centralized management system and community-based management system have the limitations within their own to get efficiency in managing the coastal resource.
- The centralized system faces the incompliance of management measures from resources users.
- The community-based management system are inadequate for dealing with problems arise from outside community.
- Co-management is considered as the efficient approach to deal with the resource management problems by the cooperation among partners.
People’s participation on CRM

Participatory management approach offers a number of advantages (Kapoor, 2001)

- expanding the information available to the management process by considering local knowledge
- increasing the representation of the community or stakeholders as away to build legitimacy
- contributing in conflict resolution
- encouraging accountability and compliance among the participants

Typology of participation (Pretty and Hine, 1999)

- The degree of participation increase from the Passive, Consultation, Bought, Functional, Interactive and Self-mobilisation
Decentralization and CRM

In both decentralization and co-management, the central government acts to transfer power and authority to local-level institutions.

Elements of decentralization (Pomeroy and Berkes, 1997)

1. De-concentration- under supervision of central gov.
2. Delegation- central gov. can take the power back
3. Devolution- without reference back to central gov.
4. Privatization- transfer to private enterprise

Various type of decentralization can be used by government to establish conditions that are conducive to co-management.
Institutional arrangement of CRM

- Institution as sets of formal and informal rules and norms that shape interactions of humans with others and nature. It means the body of rules, regulations and processes that guide management (Agrawal and Gibson, 1999; Kalikoski et al, 2002).

- Another approach is to include organizational structure in the definition of an institution (Hayami, 2001).

- Institutional arrangement has been described as ‘the composite of laws, customs, organizations and management strategies established by society to allocate scarce resources and competing values for a social purpose, such as to manage a nation’s coastal resources and environments’ (Sorensen et al, 1984).

Past experiences of CRM in Thailand

**Project**

- SSFDP
- LBCRM-PD
- FRPP
- BOBP

**Objective**

- Concern coastal management for sustainable resource use
- Improve living standard

**Target activities**

- Promote self-rule management
- Raise capacity of human resource
- Enhance coastal resource
- Introduce alternative income’s source
- Form fisher’s group
- Provide infra struc.

**Participation Level**
Study Framework and Methodology
Decentralization refers to the systematic and rational dispersal of power, authority and responsibility from central government to local level; it needs an institutional arrangement to support in each process (Pomeroy and Berkes, 1997; Noble, 2000; Jentoft, 2004).

The role of government in establishing conditions for co-management is the creation of legitimacy and accountability for the local organizations and institutional arrangements.
**Study Framework**

**Central Government**

**Manager**

**Coastal resources**

**Resource User**

**Community**

**Decentralization Mechanism**

**Designated management institution in local level for co-management**

**Sustainable Use of Coastal resources**

**Institutional Arrangement**

- Organization reform
- Law revision
- Greater people’s participation
- Enhancing organization’s capacity
- Systematizing organization’s rebuilding capacity for uncertain change

**Present regime**

**Proposed regime**
Methodology

Data collection
1) Primary data
   - interviewing leader and people by structured questionnaire
   - having group discussions with community and local organization
2) Secondary data
   - coastal development policy
   - related law or regulation
   - implemented project

Data analysis
1) Descriptive statistics; frequency, mean and percentage were used for analyzing the household data on the attitude of fishers in several issues
2) Inference statistics; Using non-parametric analysis by Yate’ corrected Chi-Square test (Continuity Correction) for testing hypothesis
Study Areas

- KhaoThong
- AoLukNoi
Analysed topics

- Level of people’s participation in decision making process
- Strength and weakness of the local organizations
- The effects of uncertain environment on fishing communities
- Dynamic capability of the organization and people to deal with uncertain environment
- People’s opinion on the local organization’s performance
Decentralization and Institutional Structure of Coastal Resource Management
Scheme of decentralization

Central Government

- Share responsibility
- Problem identification
- Making self-rule management
- Monitoring and evaluation

Local Levels
(Sub-District Administrative Organization, Village Council)

- Institutional arrangement
- Raise capacity of people
- Devolve authority
- Legal support
**National Level**
- Legislation
- Right

**Provincial Level**
- Demarcated area
- Registration
- Licensing

**Local Level**
- Set up self-management plan

**Legal Framework**
- Fisheries Act
- Regulation and Activities

**Organization**
- Ministry
- Provincial Government (Government agency)
- Designated management body
- Sub-District Administrative Organization?

Source: modified from Yamao (2003)
De-concentration of authority on setting of demarcated zone

1. Information, discussion and debate
2. Draft proposal to provincial committee
3. Proposal for consideration and approval
4. Promulgation of the demarcated zone
Delegation of authority on licensing of fishing gear

- Delegation authority
- Approval & Submission
- Application for license
- Issuing Licenses
- Policy implication
- Information & Approval
- Fishers
- District Fisheries Office
- Provincial Fisheries Office
- DOF
Devolution of authority by establishing Sub-District Administrative Organization (Ao.Bo.To.- in Thai)

- Autonomous organization
  - primary government unit
  - formulate their own development plan
- Democratic organization
  - Council members selected from the election of local people
- Local need based organization
  - Council members are responsible for solving local problems
  - Regulate rules to control activities
Participatory Mechanism for Coastal Resource Management by Local Organizations
Fisheries resources status in Andaman Sea Coast

Source: Department of Fisheries, 2006
Small-scale fisheries status in Andaman Sea Coast

Catch of marine fishes by group of fishing gear

- Gill net and entangling nets
- Mobilnet
- Fishing gear with light luring net
- Hook
- Stationary gear

Source: Department of Fisheries, 2006
## Distribution of mangroves in Andaman Sea Coast

<table>
<thead>
<tr>
<th>Province</th>
<th>Mangrove area 2000</th>
<th>Mangrove area 2004</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ranong</td>
<td>170,334.80</td>
<td>162,953.19</td>
<td>-7,381.61</td>
</tr>
<tr>
<td>PhangNga</td>
<td>262,736.48</td>
<td>276,884.87</td>
<td>14,148.39</td>
</tr>
<tr>
<td>Phuket</td>
<td>11,724.86</td>
<td>10,504.20</td>
<td>-1,220.66</td>
</tr>
<tr>
<td>Krabi</td>
<td><strong>219,338.38</strong></td>
<td><strong>225,649.07</strong></td>
<td><strong>6,310.69</strong></td>
</tr>
<tr>
<td>Trang</td>
<td>223,676.91</td>
<td>191,317.17</td>
<td>-32,359.74</td>
</tr>
<tr>
<td>Satun</td>
<td>245,821.59</td>
<td>222,284.09</td>
<td>-23,537.50</td>
</tr>
<tr>
<td>Total</td>
<td>1,133,633.02</td>
<td>1,089,592.61</td>
<td>-44,040.41</td>
</tr>
</tbody>
</table>

Source: NACA Secretariat Office, 2005
Remark: 1 Rai = 1600 m²
Coastal resources combine with many aspects; fisheries, mangrove and coastal tourism. Many activities within the same area raise conflict of coastal resource utilization. Co-management of coastal resource needs more participation of people, but there are many types of participation (Pretty & Hine, 1999). Effective coastal resource management is dependent upon the strength of the local organization and its ability to command respect from its members. Success is often simply due to the leadership of the local organization (Pomeroy, 1995).
Type of participation in community development planning and CRM
(modified from Pretty and Hine, 1999)

(I) Receiving information
People get information about the development or management project.

(II) Giving comments
People have chance to discuss and give comment to set up development or management project.

(III) Involving in activities
People participate in implementing activities of development project.

(IV) Making decision
People participate in joint analysis and make decision on project.

(V) Monitoring and Adjustment
People share responsible to monitor and adjust project.
Methodology

Population and Sample:
1) cluster random sampling of people in six villages of khaoThong Sub-district
2) sample size: 102 respondents (10% of the population)

Variables
1) Position of people in their community
   Based on economical and non-economical quality like honour, prestige or religion
   The position of people in community are Leader of village, Member of Ao.Bo.To. Council, Head of occupational group, Leader of religion.
2) People’s Participation in development project planning
Analysis

◆ Descriptive statistic; frequency, percentage about people participation
◆ Using non-parametric analysis by Yate’ corrected Chi-Square test (Continuity Correction)

\[ \chi^2 = \sum \left( \frac{|O_{ij} - E_{ij}| - 0.5}{E_{ij}} \right)^2 \]

◆ \( H_0 = \) the position of people in community are independent from the chance to participate on community development
◆ \( H_1 = \) the position of people in community are dependent from the chance to participate on community development
Type of position in community by percentage

- No position: 69%
- Ao.Bo.To. Member: 11%
- leader of village: 7%
- assistant of leader: 4%
- committee of village: 6%
- head of occupation group: 2%
- leader of occupation group: 1%
- leader of religion: 2%

No position is the most common position, followed by Ao.Bo.To. Member and leader of village.
Percentage of people’s participation by group

<table>
<thead>
<tr>
<th>Type</th>
<th>(I)</th>
<th>(II)</th>
<th>(III)</th>
<th>(IV)</th>
<th>(V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No position &amp; No par.</td>
<td>98.6</td>
<td>81.7</td>
<td>78.9</td>
<td>69.0</td>
<td>69.0</td>
</tr>
<tr>
<td>No position &amp; Par.</td>
<td>100.0</td>
<td>93.5</td>
<td>80.6</td>
<td>74.2</td>
<td>71.0</td>
</tr>
<tr>
<td>Position &amp; No par.</td>
<td>0.0</td>
<td>18.3</td>
<td>21.1</td>
<td>31.0</td>
<td>29.6</td>
</tr>
<tr>
<td>Position &amp; Par.</td>
<td>1.4</td>
<td>6.5</td>
<td>19.4</td>
<td>25.8</td>
<td>29.0</td>
</tr>
</tbody>
</table>

(I) (II) (III) (IV) (V)
The value of test lead to reject the null hypothesis of the last type with significant at probability 0.05 level position of people in community have relationship with participation in monitoring of development plan
Process of coastal area management

Local people & Local stakeholders
- Group of Fishers
- Group of Mangrove conservation
- Group of Tourist agency

Public

Consensus (I)
Adjustment (II)
Approval & Issue (III)

Ao.Bo.To.

Inform
Implement & Monitoring (IV)

Development Plan & Rule
Multi-purpose of utilization and zoning map

- Illegal fishing
- Free entrance
- Concession of edible nest
- Fishing ground
- Tourism
- Set Net
- Man grove area
- KhaoThong Sub-District Land Boundary
Community's protected mangrove

Signboard informs marking point
The regulation of Sub-District on Community’s Protected Mangrove (CPM)

- **Conserved as the nursery ground**
  - area 0.9 km² of CPM

- **Some prohibited rules**
  - motorized boat passing in this area
  - cutting any tree for any purpose; except for re-arrangement mangrove area by the committee
  - collecting any wild flower and tree

- **Monitoring team**
  - CPM committee has been set up to monitor the activities in its area
Recent Challenges toward Local Institutionalization on Coastal Resource Management
Existing local organizations and their authorities

- **Sub-district Administrative Organization**
  
  This organization is the primary local government unit that has responsibility for community development and people’s welfare within a sub-district area.

- **Village committee**
  
  The village committee consists of the people who are selected as the representative of village. They have traditionally duty in village governance, with the police function by law to protect the village society peacefully.

- **Fisher’s organizations**
  
  The purposes of establishment are to deal in production and marketing problems and promote coastal resource conservation.
Methodology

Population and Sample
1) random sampling of people in three coastal villages of KhaoThong Sub-district
2) sample size: 50 respondents

Variables
1) People’s opinion on village committee’s performance
2) People’s opinion on Ao.Bo.To.’s performance

Data management
1) A five-point scale was rated the opinion as “strongly agree/very good”, “agree/good”, “neutral/moderate”, “disagree/poor”, and “strongly disagree/very poor” with a corresponding score of “5”, “4”, “3”, “2”, and “1” respectively.
2) The score were added together to categorize the level of people’s opinion into three levels: less favorable, moderate favorable, and highly favorable.
The level of people’s opinion on performance of village committee

<table>
<thead>
<tr>
<th>Level of people’s opinion (possible score)</th>
<th>Frequency</th>
<th>Percent</th>
<th>Descriptive Statistics of observed score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Min</td>
</tr>
<tr>
<td>Less favorable (1-14)</td>
<td>0</td>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td>Moderate favorable (15-28)</td>
<td>24</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>High favorable (29-40)</td>
<td>26</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>
The level of people’s opinion on performance of Ao.Bo.To.

<table>
<thead>
<tr>
<th>Level of people’s opinion (possible score)</th>
<th>Frequency</th>
<th>Percent</th>
<th>Descriptive Statistics of observed score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less favorable (1-20)</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Moderate favorable (21-40)</td>
<td>20</td>
<td>40</td>
<td>Min 19      Max 60  Mean 43.6  SD 7.8</td>
</tr>
<tr>
<td>High favorable (41-60)</td>
<td>29</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>
The organization which be trusting to manage coastal resource

- Village level: 64%
- Sub-district level: 18%
- District level: 6%
- Provincial level: 6%
- Cooperation among all level: 6%
Important characteristics of Ao.Bo.To. to support community development

1. People-participated governmental organization
   The members of Ao.Bo.To. Council are elected as the representatives of local people in their villages.

2. More flexible governmental organization
   Ao.Bo.To. is the autonomous organization in the allocation of budget and realizing the sub-district’s development plan.

3. Self-regulated organization
   Ao.Bo.To. has authority to formulate its regulations that gives a legal status for enforcement within its jurisdiction.
The constraints of management capacity of Ao.Bo.To.

1. Administrative capacity
   It lacked clarification about the scope of authority on natural resource management.

2. Planning capacity
   The Ao.Bo.To.’s staffs may not consider much about the sustainability of natural resource.

3. Implementing capacity
   The capacity to implement development projects on their initiative was severely restricted by inadequate revenues.

4. Monitoring and enforcement capacity
   The law of proclamation sea boundary do not directly concern about coastal resources.
Local Management Practice for Coping with Uncertain Change
Statement of Issues

- After the Tsunami disaster, fishers lost income and lack of new source of investment
- The activities concern for resource management and community development were stopped, people were busy to recover their occupation activities
- The Coastal Resource Management (CRM) was unstable during this recovering period
- There was feasibility to modify fishing technique to get more catches without sustainable resources concern
- The capacity of local organizations to handle the uncertain change is the important factor of recovery
### Major effects by Tsunami

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Rank</th>
<th>Percentage of people’s opinion</th>
<th>Aquaculture</th>
<th>Capture</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Income of fishing activities</td>
<td>Income of fishing activities</td>
</tr>
<tr>
<td><strong>Economic</strong></td>
<td>1</td>
<td>Income of fishing activities</td>
<td>100% (decrease)</td>
<td>80.6% (decrease)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Price of harvested fish</td>
<td>86.5% (decrease)</td>
<td>Expenditure for fishing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>70.6% (increase)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Use of loan and other credit</td>
<td>75.0% (increase)</td>
<td>Household expenditure</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60.8% (increase)</td>
</tr>
<tr>
<td><strong>Social</strong></td>
<td>1</td>
<td>Nervous to next disaster</td>
<td>91.9% (increase)</td>
<td>Nervous to next disaster</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Mutual help among people</td>
<td>43.2% (increase)</td>
<td>Mutual help among people</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>34.8% (increase)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Being member of people's group</td>
<td>33.3% (increase)</td>
<td>Time spend for community meeting</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>32.3% (increase)</td>
</tr>
<tr>
<td>Aspect</td>
<td>Rank</td>
<td>Aquaculture</td>
<td>Capture</td>
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</tr>
<tr>
<td>---------------------</td>
<td>------</td>
<td>-------------------------------------------------</td>
<td>----------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Environment</td>
<td>1</td>
<td>Fishery production 67.5% (decrease)</td>
<td>Fishery production 69.5% (decrease)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Size of caught fish 38.9% (decrease)</td>
<td>Size of caught fish 43.4% (decrease)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Fishes in mangrove area 27.0% (decrease)</td>
<td>Fishes in mangrove area 39.1% (decrease)</td>
<td></td>
</tr>
<tr>
<td>Institution</td>
<td>1</td>
<td>Supported facilities from Sub-district level 41.7% (increase)</td>
<td>Supported facilities from Sub-district level 35.3% (increase)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Utilization of small-size fish 21.6% (increase)</td>
<td>Utilization of small-size fish 23.2% (increase)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Replantation of mangrove trees 38.9% (increase)</td>
<td>Enhancement of fish larvae 20.3% (increase)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Linkage among effects to sustainable CRM

- Low income
- High expenditure

Economic

- Catch small-size fish
- Use mangrove tree
- Reduction of fishes in mangrove
- Low production

Institution

- Support help
- Replant mangrove

Social

- Conflict among users

Environment

+ Increase mutual help
+ Strengthen community network
AoLukNoi
Cage culture
Situation of the cage culture

**Pre-Tsunami**
- System of employing cage culture as who come first who reserve the place first
- Normally, reserved the place of culture in front of house that convenient to work
- They adjusted the place of cage to avoid conflict with other
- Individually operated in culturing process

**Post-Tsunami**
- Gradually set up the cage with small number since lack of source investment
- Set up cage at the same place as it was before
- Some fishers who cannot afford to reinvest new cage, but they still have the same place to set up cage
- Group operation in culturing process
People establish an aquaculture group for self-help

Before crisis

- Selling fish, buying feed

After crisis

- Reconstructing new cages with collected equipments
- Selling fish together to reach demand of market
- Buying feed for fish together to reduce the price and cost of transportation
- Exchanging information to solve confronted problems

Cage fishers

Cage fishers group
Khao Thong
Shallow water set net
Situation of shallow water set net

**Pre-Tsunami**
- Set net was installed along the coastal area of sub-district
- They adjusted the place of set net to avoid conflict with other fishing gears
- Some fishers had license of set net but they did not install
- They preferred to earn income by other fishing gear

**Post-Tsunami**
- Rapidly re-install set net with the mutual help among fishers
- Many fishers want to install set net since they fear to go out for fishing
- Fishers make agreement to control number of set net by allowing only who have license to install in the same place
- Not allow to expand the area of installing set net
The CRM activities during recovery period

- Reduce the critical of investment cost
  - Promoting alternative job to fishers’ family
  - Promoting money savings

- The mutual help and network among people was strengthened to solve the faced problem

- Protect natural resource for long term utilization
  - Planning to replant mangrove trees in Sub-district area to increase the nursery ground of aquatic animals
  - Enhancing fish larvae to mangrove area

- Ao.Bo.To. as the facilitator
  - Finding source of relief help to solve both economic and coastal resource management
Alternative Institutional Arrangement for Effective Coastal Resource Management
Conclusions

Capacity of existing organizations

- Each organization has advantages and disadvantages in regards of ability.
- Ao.Bo.To. has autonomous authority to allocate budget for sub-district development.
- Leader and committee of village has power to govern people and their police function authority supported the monitoring mission.
- Fishers group who directly involves in coastal activities has knowledge and up-to-date information about resources that is important for management planning.
- Decentralization on coastal resource management by delegating clear function and authority can enhance management capacity of local organization.
Conclusions (Ctd.)

◆ People’s participation

- People prefer to manage the local resource by village and sub-district level.
- Consensus among people needs legitimate support.
- People are encouraged to join in making decision and implementation process on community development plan both at village level and sub-district level.
- The position of people in community has relationship with the participation in monitoring and surveillance mission.
- Ordinary people do participate in monitoring mission as bay-watching volunteer.
Conclusions (Ctd.)

**Related legislations**
- The Constitution of Thailand supports the decentralized authority of natural resource management to local level.
- The Ao.Bo.To. has authority to regulate sub-district rule for self-management.
- Comprehensive knowledge about existing law could apply to local resource management.

**Dealing with uncertain situation**
- Social network is the important link among local people to solve economic problems that may reduce the pressure of unsustainable resource use.
- The local organization is an important facilitator to help people relieved from critical situation both in economic and coastal resource management.
Recommendations

**Awareness of people in participation**
- Make clear understanding from people to get the effectiveness of coastal resource management
- Encourage people to realize the benefit of participation in making decision and implementing process on community development plan
- Educate people by arranging training

**Network among Sub-Districts and Province**
- Establish network between the neighboring Sub-Districts to make more effective regulation in wider area
- Empower the capacity of collaborative management body on coastal resource management by support from related government agencies
Designated management body at local level

- Enhance capacity of Ao.Bo.To. on budget allocation
- Train the member and staffs of Ao.Bo.To. on related laws to self-regulate the management measure within jurisdiction

- Build awareness on sustainable resource use
- Encourage people to participate in management process

- Support enforcement facility to village committee
- Train volunteer on monitoring coastal activities

Collaborative management body

- Ao.Bo.To.
- Fishers group
- Village committee

Manager

Sustainable Use on Coastal Resource
Proposed mechanism of decentralization and participation on CRM

**Organization structure**
- National level: MOAC, DOF
  - Provincial government (& District office)
    - Sub-district level: Ao.Bo.To.
      - Village level: Fishers group, Village committee
        - Collaborative management body
          - Sub-district A, Sub-district B, Sub-district C

**Legal framework**
- Fishery Act
- Ministerial Regulation
- Provincial Promulgation
- Sub-district Provision
- Moral Rule
- Agreement

**Authorities**
- Close season and Close area in Bay-based area
- Prohibited fishing activities
- Determining demarcated area
- Prohibited fishing gear
- Licensing of fishing gear
- Facilitating network of Ao.Bo.To. on CRM
- Organizing the consensus among people
- Self-management Plan
- Implementing conservation activities
- Monitoring coastal utilization
- Proposing the appropriate measures to higher level

**Suggestion the direction of CRM**
- Devolution & Delegation
- De-concentration & Delegation

**Network**
- Collaborative management body
- Village committee
- Fishers group

**Sub-district level**
- Provincial government
- MOAC, DOF
- Provinces, District office

**Provincial level**
- Villages
- Sub-districts
- National level
Policy implication

Institutional arrangement in local level for developing the locally based coastal resource management

- **Organization re-structuring**
  Form the collaborative management body

- **Legislation revision**
  Promulgate the prescriptive plan and process of decentralization on coastal resource management

- **Encouraging people’s participation**
  Promote the formal and practical method to get people’s participation

- **Enhancing organization’s capacity**
  Enhance knowledge of Ao.Bo.To. member on related function and authorities on CRM

- **Systematizing organization’s rebuilding capacity**
  Arrange the center of managing the relief help
Thank you very much