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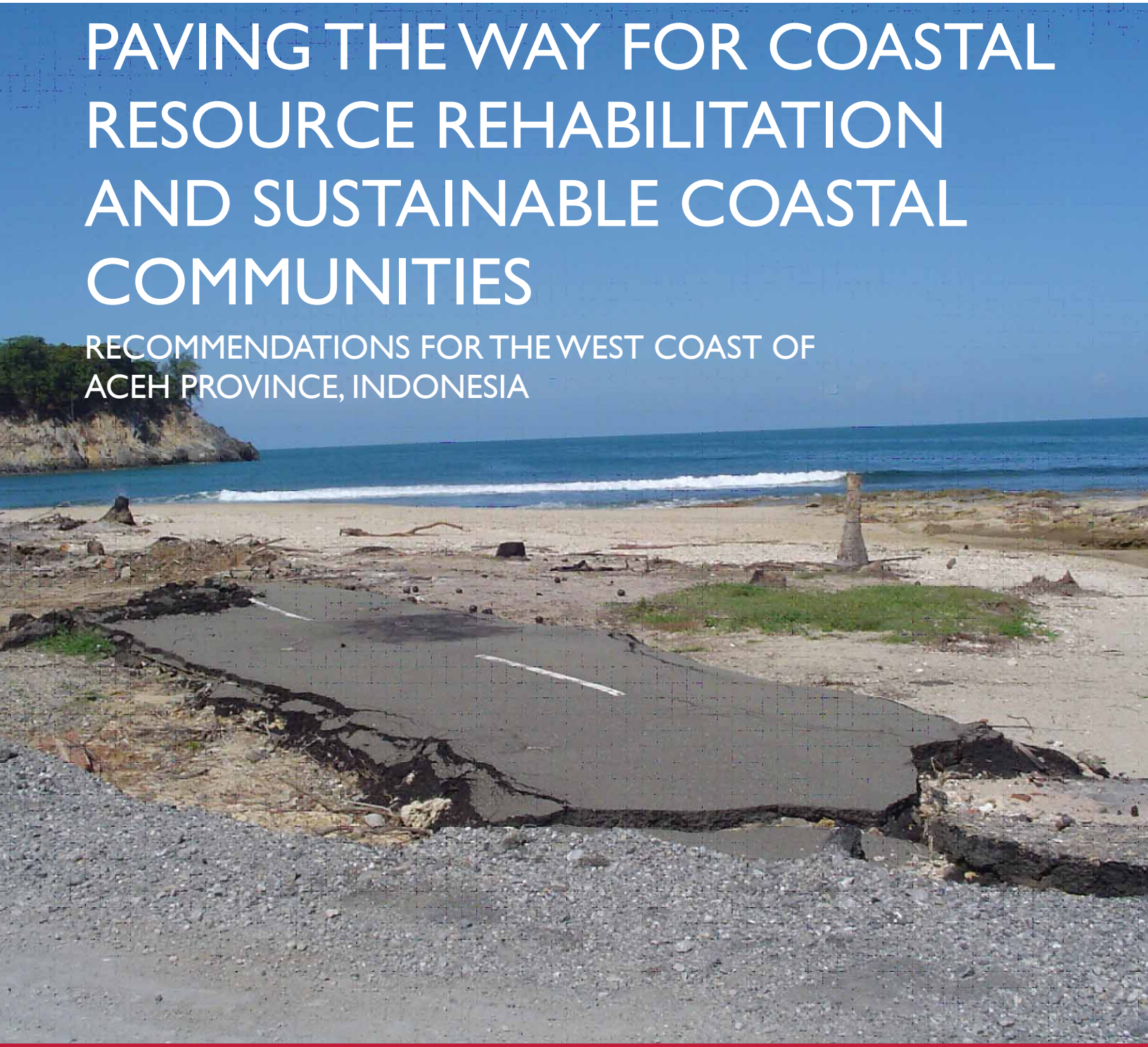
PAVING THE WAY FOR COASTAL RESOURCE REHABILITATION AND SUSTAINABLE COASTAL COMMUNITIES

RECOMMENDATIONS FOR THE WEST COAST OF ACEH PROVINCE, INDONESIA



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COVER PHOTO

Section of west coast road near Lhok Nga. Photo taken by Kitty Courtney.

PAVING THE WAY FOR COASTAL RESOURCE REHABILITATION AND SUSTAINABLE COASTAL COMMUNITIES

RECOMMENDATIONS FOR THE WEST COAST OF ACEH PROVINCE, INDONESIA

USAID Contract EPP-I-00-04-00024-00

Integrated Water and Coastal Resources Management IQC
International Resources Group – Tetra Tech Joint Venture

COASTAL RESOURCES CENTER
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EXECUTIVE SUMMARY

INTRODUCTION

The earthquake and tsunami disaster of December 2004 devastated Indonesia's Aceh and North Sumatra provinces, killing at least 150,000 people and leaving hundreds of thousands of survivors displaced and in need of urgent assistance. Physical infrastructure, natural assets, and social capital were swept away in many areas. Damage to coral reefs, land, water bodies and coastlines was also significant, with preliminary environmental damage estimated at half a billion dollars. Addressing environmental concerns is essential to ensure sustainable development in the long term, particularly as the livelihoods of the affected populations depend on natural resources, particularly coastal resources. Rehabilitation and reconstruction efforts offer opportunities for realizing integrated coastal zone management and sustainable coastal livelihoods in the affected areas.

As one major part in Aceh's revitalization, the United States Agency for International Development (USAID) has committed to the Government of Indonesia to reconstruct the coastal road on the west coast of Aceh Province from Meulaboh to Banda Aceh. This document summarizes integrated coastal planning and management recommendations that can be integrated with the road reconstruction as well as long-term development. This work is being shared through this document and a series of meetings to generate discussion and to initiate coordination with interested implementing agencies.

On March 15, 2005, the United States Agency for International Development contracted the International Resources Group-Tetra Tech (IRG-Tetra Tech) Joint Venture to conduct a needs assessment for coastal resources rehabilitation and livelihood restoration in Aceh province. The overall objective of the needs assessment was to identify opportunities and constraints in four key technical areas:

- Rehabilitating environmental damage;
- Restoring coastal ecosystems;
- Restoring livelihoods of coastal communities; and
- Building local planning and management capacity.

The geographic area of focus was the west coast of Aceh province from Banda Aceh to Aceh Barat. Linkages with other USAID and donor programs, in particular, with USAID's support for reconstruction of the west coast road from Meulaboh to Banda Aceh provided a strategic focus. Finally, the development and prioritization of program areas and recommendations were further guided by cross-cutting principles including focus on poverty alleviation, economic and environmental sustainability, use of integrated, holistic and participatory approaches, and consideration of the real needs and capabilities of local people.

The needs assessment was conducted between March 31 and April 21, 2005 by a five person team from IRG-Tetra Tech. The assessment team conducted interviews with over 150 individuals from donor agencies, relevant agencies of the Government of Indonesia, local government offices, nongovernmental organizations, and academic institutions in Jakarta and Aceh province. Site visits were made to coastal areas surrounding Banda Aceh; Aceh Besar; Calang, Aceh Jaya; and Meulaboh, Aceh Barat. Presentations of the results of the needs assessment were made in Jakarta (April 19 and 20; May 17 and 23), Banda Aceh (May 19), and Meulaboh (May 20) to a wide range of government, donor, and non-governmental organizations.

RECOMMENDATIONS

USAID's commitment to reconstructing the Meulaboh-Banda Aceh (M-BA) road offers a unique opportunity for promoting coastal resource rehabilitation and livelihood development. Efforts should be made to intensify the benefits from road reconstruction and to minimize environmental and social impacts. Specific recommendations to achieve that goal are described below, grouped into six recommendation themes.

- Coastal infrastructure linked to the road;
- Sustainable coastal livelihoods;
- Rationalized coastal land use;
- Accessible information, education and communication;
- Integrated coastal management; and
- Strong local institutions.

The first two recommendation themes focus on opportunities for infrastructure investment and associated technical assistance and training to intensify benefits from the road reconstruction. The next three recommendation themes identify early and medium-term actions leading to a comprehensive ICM framework for the province to rehabilitate coastal resources and minimize environmental impacts. The last recommendation theme addresses broad issues of good governance and participation by civil society.

COASTAL INFRASTRUCTURE LINKED TO THE ROAD: INTENSIFYING BENEFITS, INVOLVING COMMUNITIES

This recommendation theme addresses activities that can be carried out in conjunction with road planning and implementation. In advance of road construction (during the planning and design process), there are several important (software) opportunities to promote participation, inform communities and contribute to improved governance, including the required "environmental assessment (EA)" process. To facilitate road construction, there are opportunities to improve port facilities and to strengthen the supply chain for construction inputs. To strengthen and expand economic links to the road, sea transport, storage and transport facilities, loan guarantees could be considered.

PRE-CONSTRUCTION ACTIVITIES

- Use the Environmental Assessment (EA) process for the west coast road reconstruction to influence engineering and construction best practices and environmental mitigation and monitoring for the road and other infrastructure.
- Socialize information about road reconstruction to build transparency and local links, especially during the EA scoping process.

CONSTRUCTION FACILITATION ACTIVITIES

- Remove/dispose of sediment/debris around strategic ports, as necessary, utilizing the EA process to minimize or mitigate environmental impacts.
- Encourage innovative debris recycling and reuse.
- Develop/strengthen supply chain for building materials needed for road reconstruction.

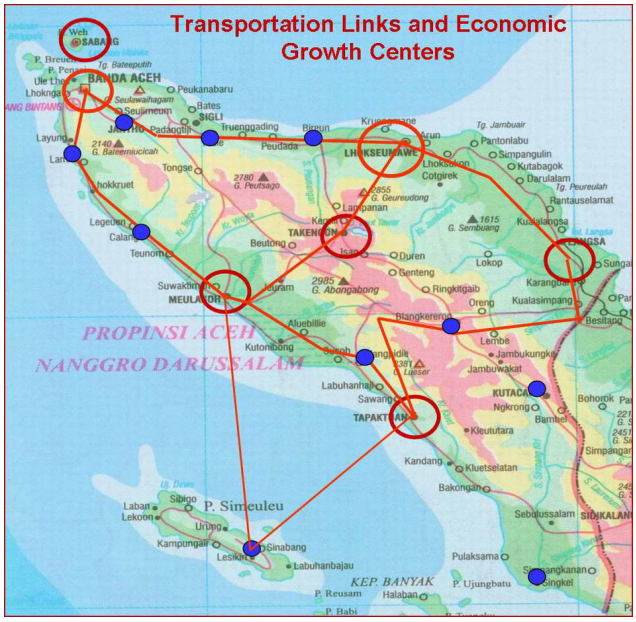
TRANSPORTATION LINKS AND ALTERNATIVES

- Consider high speed ferry service for people and light cargo on west coast.
- Integrate planning and construction of secondary roads, linked to main road.

- Facilitate construction of port facilities (storage & transfer) in Banda Aceh and Meulaboh.
- Consider Development Credit Authority (DCA) Loan Guarantees for large infrastructure needs (ice plants, port facilities).
- Consider road and bridge reconstruction south of Meulaboh in areas affected by the second earthquake in March 2005.

Coastal infrastructure will be needed to support the M-BA road reconstruction project, including harbors, secure storage/warehousing facilities, secondary/feeder roads, and worker encampments. If well-planned and sited, this infrastructure will also benefit the wider economy. Transport connections along the west coast have been badly damaged by the tsunami and need to be rehabilitated or reconstructed to support economic development in the province. Secondary roads are needed to connect coastal settlements to the road.

Alternative sea transport routes are available, but infrequent. A weekly ferry service from Meulaboh to Banda Aceh takes about 6 hours by sea. With improved facilities, improved speed, and more regular and frequent connections, this could become a viable and desirable economic alternative before the road is completed and continuing into the future.



These recommendations are consistent with the overall transportation and economic development plan outlined in the GOI's "Blueprint" document. The west coast road is a central element of the transportation and economic links among the secondary and tertiary growth centers on the west coast, as envisioned in the map to the right. Efforts should be made to facilitate a coordinated planning process between GOI and other donors to develop a strategic plan for all development along Aceh's west coast.

Other small scale infrastructure projects have been recommended to supplement or link to the road project to spread the benefits more widely and to catalyze/facilitate livelihood and small scale business enterprises linked with improved transport along the west coast. These kinds of infrastructure, including cold storage and transport facilities, storage and transfer facilities at larger ports, and road and bridge reconstruction south of Meulaboh will help to stimulate and sustain economic activities linked to livelihoods and small scale business enterprises.

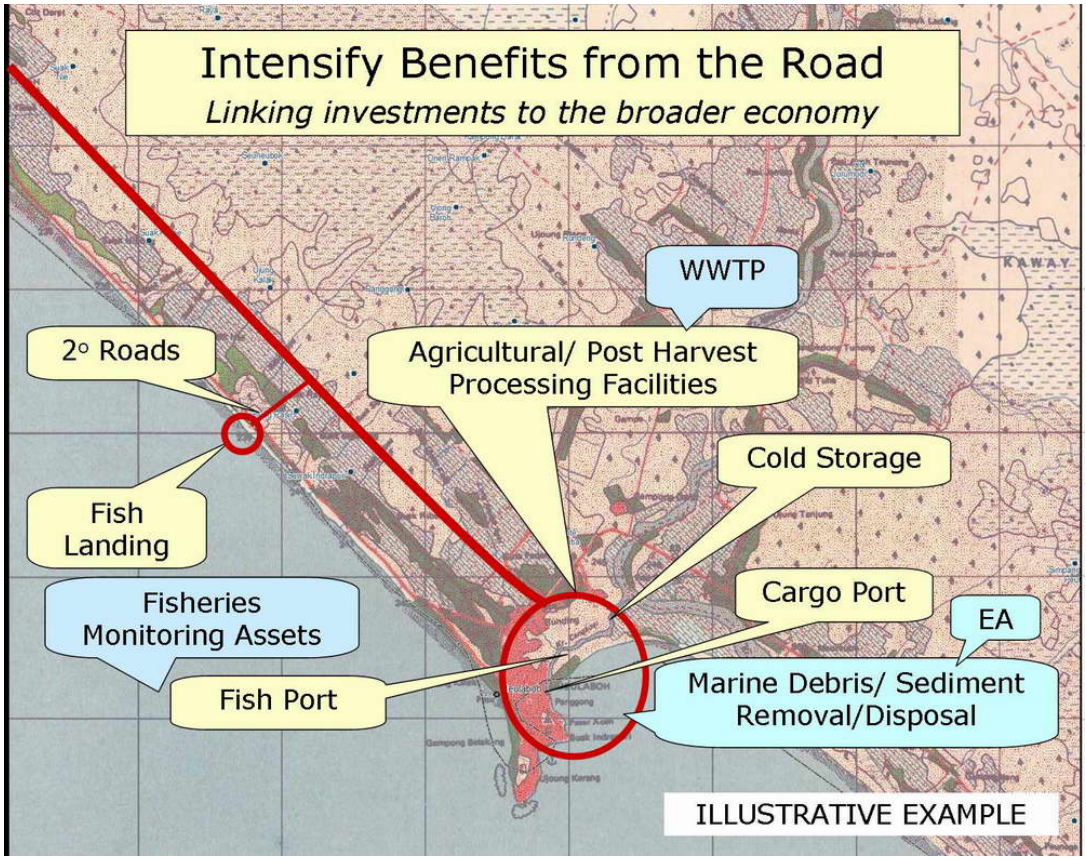
SUSTAINABLE COASTAL LIVELIHOODS: BUILDING VALUE & MARKET ACCESS TO REDUCE POVERTY

Livelihoods on the west coast of Aceh Province will continue to be dominated by agriculture and fisheries for the foreseeable future. Recommendations are focused on infrastructure, basic services and associated institutional development to rehabilitate, reconstruct and improve livelihoods. Recommendations are aimed at improving incomes and enabling conditions for agriculture and fisheries livelihoods as well as information, extension and other supporting services primarily at the small-scale business/producer and community levels. With relief efforts transitioning to rehabilitation efforts, a large number of international NGOs are beginning to work on livelihoods. Rehabilitation and reconstruction efforts should focus strategically to integrate large infrastructural design and construction, policy development and implementation, governance and participatory planning and private sector development.

COASTAL AGRICULTURE AND FISHERIES LIVELIHOODS

- Rehabilitate and improve Meulaboh fish port and small scale fish landings along the west coast.
- Support value-added post-harvest processing investments for fisheries and agricultural products.
- Rebuild and improve supply chain for cold storage for fisheries and agricultural products.
- Diversify and improve agricultural and fisheries livelihood options for coastal communities.
- Provide capacity building support to development of small scale business associations.
- Support to community cooperatives for agro-fisheries business development.
- Develop market information systems for small scale producers and fishers.

The figure below illustrates how these investments can be linked to transportation networks to intensify the benefits for local communities and integrate them into the regional economy.



Recommendations are also provided for coastal tourism and recreation. While large-scale tourism in Aceh may not be viable in the immediate future, it is important to highlight and consider it during reconstruction planning. Aceh's west coast has considerable tourism and recreation potential due to its relatively unspoiled natural environment.

COASTAL TOURISM AND RECREATION

- Technical assistance for tourism development strategy.

- Training program for small-scale tourism service providers and tourism associations (hotels, tour operators, dive operators).

- Promote and support program of tourism best practices, including ecotourism, Green Globe and other international standards.

Agriculture and fisheries are primary sources of livelihoods in the west coast of Aceh for at least 80% of the population. Fisheries (capture and aquaculture) and coastal agriculture were seriously disrupted as a result of the tsunami but lowland agriculture a few kilometers further inland, and certainly upland cropping systems, were not directly impacted by the disaster but are relatively undeveloped for marketing of production surpluses. Infrastructure development and supporting capacity building software support is recommended for Meulaboh and along the west coast.

Prior to the tsunami, coastal ecotourism and recreation did exist, notably in Pulau Weh, Pulau Banyak, Lhok Nga, Lhok Geulumpang, Simeulue Island and a few other places between Banda Aceh and Meulaboh. Recreational activities included swimming, snorkeling and scuba diving along with surfing. In some places, guides were available to do scenic jungle treks and handicrafts could be purchased. Now, "tsunami tourists" are arriving and hundreds of aid workers up and down the west coast are creating markets for tourism services and experiences.

RATIONALIZED COASTAL LAND USE: ENGAGING STAKEHOLDERS IN PLANNING THE FUTURE

This recommendation theme addresses the need for participatory coastal land use planning for settlements and small scale infrastructure associated with reconstruction activities along the west coast of Aceh province from Aceh Besar to Aceh Barat. Surveys of coastal areas and habitats will be used to inform coastal land use planning and zoning. The integration and transition of geographic information systems from emergency response to reconstruction planning will support long-term district and provincial planning capacity. Recommendations include the following:

- Prioritize coastal ecosystems for restoration and preservation based on surveys that map new biological and geological features of the coastal environment resulting from the earthquake and tsunami.

- Integrate and coordinate geographic information system (GIS) development transitioning from emergency response oriented to reconstruction planning.

- Develop mechanisms for stakeholder participation in coastal land use planning.

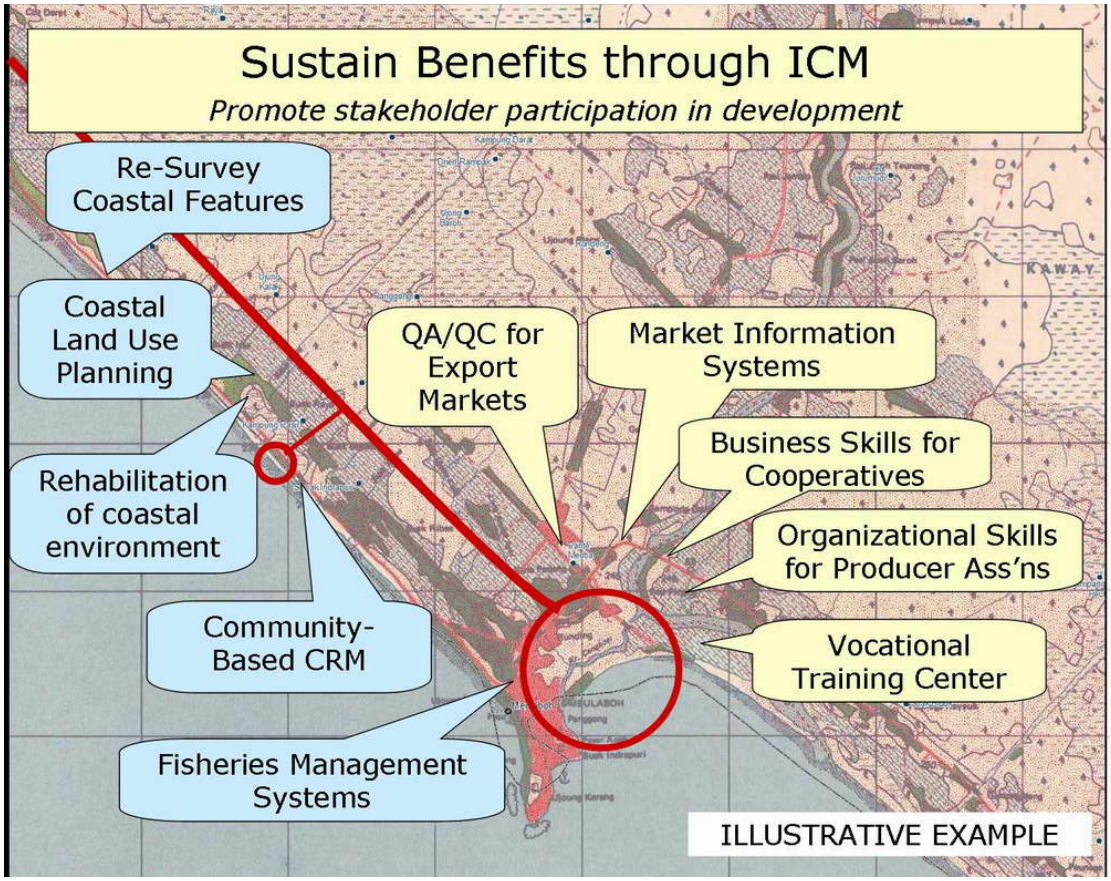
- Assist local government to prepare coastal land use plans with stakeholder participation.

- Promote broad-based awareness of coastal land use plans and understanding of the basis for zoning.

The tsunami reconfigured many parts of the coast. Whole sections of the shoreline are now missing or radically altered. Coastal land use planning and zoning provides the fundamental basis for coastal reconstruction and long-term delivery of basic human and environmental services considering the significant physical changes in coastal areas resulting from the tsunami and earthquakes and risks from potential future natural disasters. Without coastal land use zoning, environmental impacts associated with infrastructure development will exacerbate the already high level of coastal environmental degradation. Already, wetland areas in Banda Aceh and the Meulaboh area are being filled in for debris disposal. While some of this is temporarily necessary, negative practices should be limited to avoid damaging environmental service delivery over larger areas of important coastal habitat.

The new shoreline and associated coastal features need to be surveyed and mapped to provide a basis for zoning. Shoreline set-backs and other coastal land use zones are considered vital management measures for coastal areas in planning for natural catastrophes, coastal erosion, industrial growth, access, and mitigation of

environmental impacts. The GOI Blueprint has prioritized post-earthquake and post-tsunami spatial structuring of Aceh province to reconstruct areas, cities, regions and settlements devastated by the disaster that is intended to balance economic, social, and environmental services and enables community members to conduct their activities under improved conditions, safe from disaster. The kinds of investments recommended in this section can be envisioned to link to the road and other development activities as illustrated in the figure below.



ACCESSIBLE INFORMATION, EDUCATION AND COMMUNICATION: MAINSTREAMING COASTAL ENVIRONMENTAL SERVICES

This recommendation theme addresses the information, education and communication (IEC) needs of local communities and governments related to sustainable coastal planning and management and the coordination and delivery of reconstruction activities. Improved and sustainable coastal resource management policies and practices along the west coast of Aceh province must be supported and advocated through strengthened roles for public participation and local media in various forms.

The main purpose of these efforts would be to develop and disseminate relevant information on coastal resources and environmental management, improve coastal environmental education and target strategic forms of communication and knowledge management for this complex reconstruction endeavor. This program is also expected to help foster the conditions that make it possible for all stakeholders (regional government, NGOs, community members, journalists, and the private business sector) to develop open dialogue and democratic processes toward improved coastal resource management that support the development of sustainable livelihoods and increased prosperity of Aceh's citizens. Recommendations include:

- Develop information, education, and communication (IEC) strategy with local partners and international agencies.
- Integrate coastal environmental messages, materials in information centers and other delivery mechanisms.
- Establish baseline environmental awareness levels.
- Develop coastal environmental awareness and education materials.
- Establish primary and secondary school curricula in coastal environmental management and coastal hazards and response.
- Develop innovative knowledge management capability for Aceh's government and donor/NGO coordination.

The devastating impact of the tsunami in Aceh destroyed much of its information, education and communications (IEC) infrastructure including formal and social infrastructure. The influx of large numbers of foreign and Indonesian agencies, donors, NGOs and others to work on relief, rehabilitation and reconstruction has seriously stressed scarce IEC resources further, precisely at a time when they need to be significantly enhanced well above pre-disaster levels.

The Acehnese people continue to have issues concerning access to quality information and opportunities to engage with government on policies relating to the reconstruction and rehabilitation program and to participate actively in the development process. A strengthened civil society and educated media are necessary for citizens to participate meaningfully in the decision-making process and to advocate for participatory coastal environmental management and economic development. Properly developed coastal environmental IEC properly developed also can increase the awareness of communities of the importance of coastal hazards and responses. This could be linked to the proposed development of the hazard early warning system.

Finally, there is a pressing need, recognized by all parties and especially the GOI, to improve the exchange of information, data and knowledge and coordination to avoid overlaps, gaps and re-learning basic lessons – in short a need for a knowledge management system that makes use of the technology and information resources already in place but underutilized for this purpose. The subject area working groups forming in most of the major cities of Aceh are already beginning to address the coordination issues. Continued development and linking of information systems, as proposed for the "E-Aceh" Website is also a positive step toward improving knowledge management.

INTEGRATED COASTAL MANAGEMENT: SUSTAINING COASTAL RESOURCE BENEFITS

This recommendation theme addresses two basic reconstruction needs essential to providing and sustaining basic human services in the coastal zone. Coastal resources need to be rehabilitated and managed as life-support systems. Coastal resource and environmental management systems must be developed and integrated into all aspects of reconstruction to minimize further degradation of coastal ecosystems, to avoid or mitigate environmental impacts from infrastructure development, and to provide the greatest potential for sustainable development beyond reconstruction.

Significant opportunities exist for environmental services infrastructure, technical assistance, and capacity building to develop coastal resource and environmental management systems to restore and maintain healthy coastal ecosystems during the reconstruction of Aceh province. Recommendations cover four management needs. Fisheries management recommendations focus on the district-level local government with linkages to national, provincial, and village levels as appropriate. Community-based coastal resource management recommendations focus on village participation in management decision-making with linkages to district and provincial levels. Environmental management recommendations focus on integrating environmental considerations into all reconstruction activities and building the capacity of local institutions to deliver

environmental management as a basic service. These recommendations provide a basis for moving toward development and adoption of an ICM framework along the west coast of Aceh. Recommendations include:

- Build sustainable fisheries management systems including management plans and fisheries databases and monitoring systems.
- Promote community-based stewardship of coastal resources including developing rehabilitation plans for restoration of coastal vegetation and coral reefs.
- Develop tools and systems to restore and preserve environmental services including mainstreaming environmental assessment for infrastructure and other projects with the potential for environmental, social, and socioeconomic impacts.
- Assist local government at district and provincial levels to develop an ICM framework appropriate for planning and implementing rehabilitation activities and to sustain benefits from coastal resources in the long-term.

Hundreds of international NGOs and donors have been working in Aceh province since the disaster providing important emergency relief efforts to devastated communities. Many of these organizations have substantial financial capacity to move from the emergency relief phase to rehabilitation and reconstruction activities. This transition period creates opportunities – as well as challenges – for integrating coastal resource and environmental management systems into the rehabilitation and reconstruction of the west coast of Aceh province.

The large scale of reconstruction efforts, multitude of donors and NGOs involved, and speed at which decisions are being made, could pose significant challenges to restoring environmental services from coastal ecosystems if reconstruction activities exacerbate the already-damaged coastal environment. Coastal resource and environmental management systems are needed to guide the reconstruction and long-term development of Aceh province.

Currently, fisheries-related coastal livelihoods and infrastructure rehabilitation activities are being programmed and funded with little consideration of the medium term fisheries management implications. While many organizations are funding boat construction to rehabilitate small-scale coastal fisheries, anecodotal evidence indicates that the number of small boats being constructed may well exceed what was lost in the tsunami, not even considering the number of fishermen still alive and capable of fishing, let alone serving as the captain of a vessel. The initiation of fisheries management interventions presents an important opportunity to provide a rational basis for rehabilitation and proposed expansion of fisheries-related infrastructure including fish ports, landings, fishing boats, and post-harvest facilities as well as build in sustainable coastal livelihoods tied to the M-BA road reconstruction. Early discussion of fisheries interventions, alternatives, and priorities will help to redirect some effort to improving value added and market potential in the fisheries sector (with focus on livelihoods and poverty alleviation), not simply increasing the capacity to harvest fish.

The restoration and protection of environmental services from coastal ecosystems, including lowland forests and coastal vegetation, wetlands, mangroves, and coral reef environments, is intimately linked to the degree to which communities are involved in resource management decisions. Participatory coastal land use planning and zoning is an important first step in coastal ecosystem restoration. Community-based coastal resource rehabilitation and management presents a strategic opportunity to provide systematic assistance in coastal ecosystem restoration tied to the M-BA road reconstruction. Community based, multi-stakeholder, management plans and agreements will also be an important contribution to revitalizing and improving local environmental governance systems.

STRONG LOCAL INSTITUTIONS: BUILDING CAPACITY FOR THE FUTURE

The presence of a large number of foreign NGOs for the next two to five years and the infusion of large and small donor projects provide significant opportunities to train a large number of local people at the village, subdistrict, district, and provincial levels in a wide variety of essential governance, economic and development management skills, thereby jump-starting Aceh's social reconstruction at least as much as its physical reconstruction.

How institutional and skills-based capacity building is carried out makes a crucial difference. Approaches that are outcome-based and rooted in the various reconstruction projects are recommended, rather than generic training. The targets are local government, private sector and civil society organizations and educational institutions. We recognize that many skill and institutional needs will inevitably be similar among the various interventions but training, technical assistance or mentoring should be rooted in the actual activities as much as possible. This requires that donor and NGO assistance explicitly include skills and performance-based capacity building in as many of their activities as possible. Recommendations include the following:

- Provide skills training in results-based, participatory planning for coastal development.
- Provide skills training in facilitation, mediation, conflict resolution and coordination.
- Support private sector and civil society roles in reconstruction and development.
- Facilitate the organization of information, public awareness and communications.
- Integrate gender considerations in capacity building for coastal revitalization.

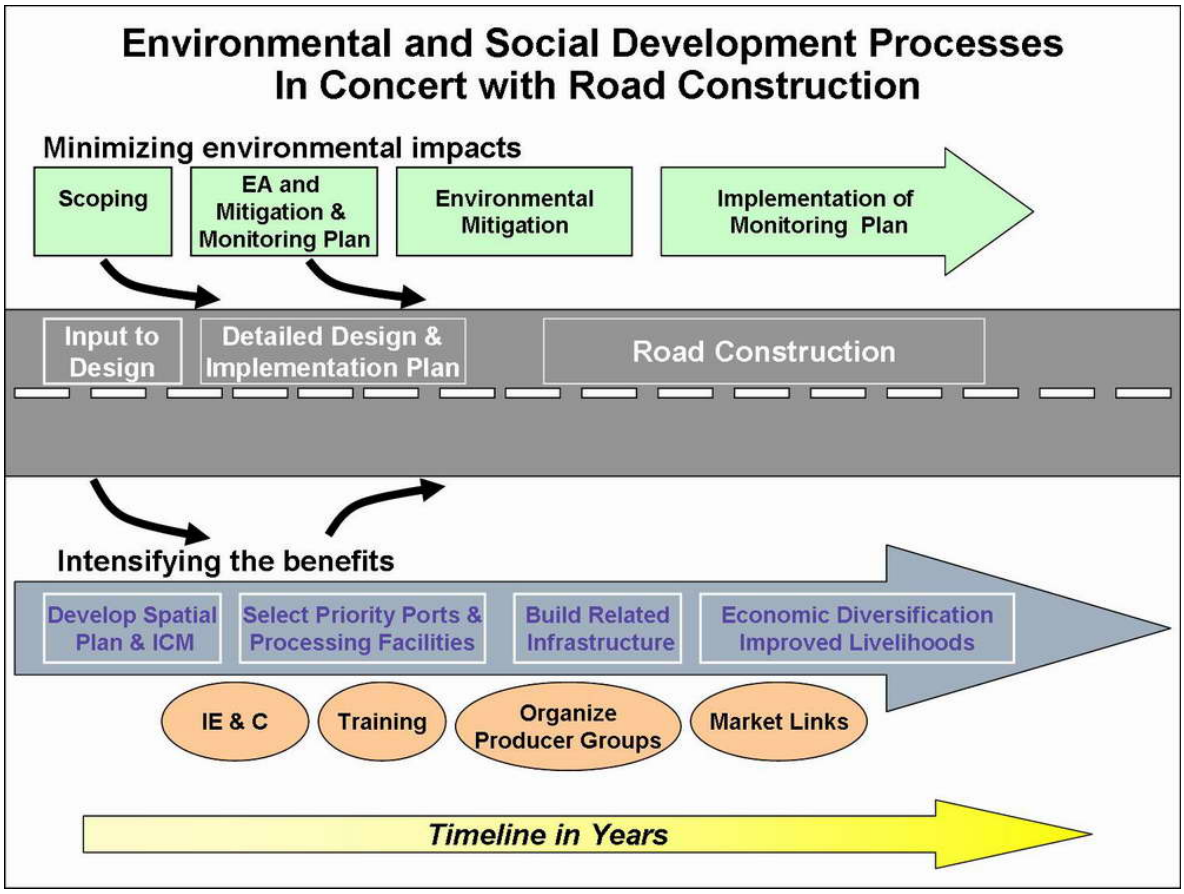
Even before the earthquake and tsunami hit Aceh, the capacity of local governments, NGOs and communities to plan and manage development activities were considered low relative to other provinces, mainly because of the military emergency. For this reason, a strong capacity building element must be integrated into the coastal rehabilitation and reconstruction program – one that provides the necessary knowledge, skills and practices to undertake integrated and sustainable coastal resources management and development. Even after the emergency phase, cleanup activities and resettlement of communities are completed, serious coastal ecosystem and socio-economic problems in Aceh will remain for many years to come. Therefore, building strong local institutions is crucial for Aceh's long term development.

IMPLEMENTATION CONSIDERATIONS

A number of factors were considered in developing the recommendations described above. Planning and coordination mechanisms between the GOI, donors, and international NGOs should be developed to intensify the benefits from road reconstruction and minimize environmental impacts. Other implementation considerations include constraints, activities covered by other organizations, and actions with the potential for significant environmental impacts.

Planning and Coordination Mechanisms. As people's needs are being filled through the efforts of relief organizations, planning and coordination mechanisms need to be established to facilitate the transition from relief to rehabilitation and reconstruction efforts. The M-BA road provides a unique opportunity to link environmental, social, and socioeconomic development processes to build ownership in the rehabilitation and reconstruction of coastal communities, ecosystems, and livelihoods for long term sustainability. Detailed information about reconstruction efforts is gradually being collected and should be captured in a geographic information system database system that builds on and expands the efforts of UN HIC, which has developed some systems to track organizations and activities working in relief efforts.

The following figure illustrates conceptually how activities to minimize environmental impacts, investments to intensify economic and livelihood benefits, and programs to strengthen institutions can be integrated with the road construction process in an appropriate time frame.



Constraints. Lack of coordination, direction and prioritization of the reconstruction efforts may serve as a constraint resulting in fragmented implementation and poor delivery. Understandably, the relief effort has been uppermost in priority and the second earthquake disrupted plans and programs for many. Many organizations are now rapidly transiting into the rehabilitation and reconstruction phase and this requires a different mode of operation. The coordinating Board for Rehabilitation and Reconstruction (announced in May 2005) reflects the need to manage and coordinate above the implementation level. Foreign and Indonesian teams on the ground have clear priorities in addressing the needs of affected communities. However, there will also need to be attention to middle levels of management, infrastructural needs, and governance institutions that can help assure that village level interventions are supported appropriately and link to broader development investments and objectives.

Security in Aceh poses another constraint. The possibility of continuing armed clashes could affect progress towards road reconstruction and other activities. Consultations with local government and other local stakeholders will be essential to developing ownership and cooperation for successful road construction as well as implementation of other projects. The scoping process, conducted as part of the environmental assessment for the road, is important in addressing these concerns.

Coastal Activities Covered by Other Organizations. Many international donors and NGOs are supporting relief and reconstruction efforts with substantial funds. Generalizing, donors tend to work with government structures, while NGOs tend to work at village and community level. This may be an appropriate sharing of responsibility and leads to a range of activities and services that seem to be adequately resourced for the coming months, if not years. Many organizations are involved in shelter and reconstruction of basic education and health facilities, which was not a focus of this assessment.

Many organizations are also involved in and supporting livelihoods activities, through cash or food for work, grants, and technical assistance. Livelihood support activities that appear to be sufficiently covered include construction of boats, small scale ice plants, and cleaning and replanting of agricultural land. Some of these organizations were also involved in rehabilitating or reconstructing adult and youth vocational training centers and government agency facilities. For these reasons, we have not focused on these activities in this assessment. The many activities being conducted by the hundreds of international donors and NGOs is constantly changing and should be regularly assessed as part of the input needed for planning reconstruction along the road.

Activities with Potential for Significant Environmental and Social Impacts. Although the coastal environment along the west coast of Aceh was seriously damaged, the potential for environmental, social, and socioeconomic impacts related to road reconstruction or other reconstruction efforts must be identified and the risks carefully evaluated through an environmental assessment process. As a starting point only, some activities with the potential for significant environmental and social impact include the following:

- Construction of seawalls, offshore barriers, artificial reefs;
- Re-aligning, concretizing rivers;
- Filling in or obstructing water flow through wetlands;
- Increasing fishing capacity without concurrent management interventions;
- Relocation of populations; and
- Facilities to service work crews (sanitation and transmission of diseases).

While it is clear that some of these activities will be needed in certain areas (e.g., seawalls in harbors, facilities along rivers), it is recommended that they be minimized and contained as much as possible. The use of the environmental assessment process for large infrastructure projects is fundamental for identifying and mitigating environmental, social, and socioeconomic impacts of reconstruction activities.

DISSEMINATION OF RESULTS AND NEXT STEPS

The results of this assessment were disseminated by presentations made in meetings to a broad spectrum of government, non-governmental, and donor agencies in Jakarta, Banda Aceh, and Meulaboh between April 19 and May 23, 2005. Overall, participants appreciated the need for an integrated and coordinated approach. As many international NGOs and donors are now transitioning from relief to reconstruction, the recommendations were also considered timely in providing a macro-perspective of needs and a possible integrated planning framework for reconstruction. Many opportunities exist to improve the quality of life for communities rebuilding their lives along the west coast of Aceh. Next steps may include:

- Identify specific activities to intensify benefits from road reconstruction from within existing USAID projects.
- Identify specific activities to intensify benefits from road reconstruction in discussions with other donors and international NGOs.

1.0 INTRODUCTION

The earthquake and tsunami disaster of December 26, 2004 devastated Indonesia's Aceh and North Sumatra provinces killing at least 150,000 people and leaving hundreds of thousands of survivors displaced and in need of urgent assistance. Damage to coral reefs, land, water bodies and coastlines was also significant, with preliminary environmental damage estimated to be US $548 million. Addressing environmental concerns is essential in ensuring sustainable development in the long term, particularly as the livelihoods of the affected populations depend on natural resources, particularly coastal resources. Rehabilitation and reconstruction efforts offer opportunities for realizing integrated coastal zone management and sustainable coastal livelihoods in the affected areas.

1.1 SCOPE OF WORK AND TECHNICAL APPROACH

The United States Agency for International Development (USAID) awarded the International Resources Group-Tetra Tech Joint Venture (IRG-Tetra Tech) contract number EPP-I-00-04-00024-00, RFTOP No. RFP Indonesia 05-008 on March 15, 2005 to conduct a needs assessment for coastal resources rehabilitation and livelihood restoration in Aceh Province. The overall objective of the needs assessment was to identify opportunities and constraints in four key technical areas:

- Rehabilitating environmental damage
- Restoring coastal ecosystems
- Restoring livelihoods of coastal communities
- Building local planning and management capacity

The geographic area of focus was the west coast of Aceh province from Banda Aceh to Aceh Barat. Linkages with other USAID and donor programs, in particular, with USAID's support for reconstruction of the west coast road from Banda Aceh to Meulaboh provided a strategic focus. The GOI Blueprint for Aceh was reviewed as input for developing recommendations consistent with the large-scale rehabilitation and reconstruction planning. Finally, the development and prioritization of program areas and recommendations were further guided by cross-cutting principles including focus on poverty alleviation, economic and environmental sustainability, use of integrated, holistic and participatory approaches, and consideration of real needs and capabilities of local people.

The needs assessment was conducted between March 31 and April 21, 2005 by a five person team from IRG-Tt. A work plan was prepared and submitted to USAID on April 4, 2005 describing IRG-Tt's technical approach, team composition and work schedule for addressing the scope of work. The needs assessment was conducted between March 31 and April 21, 2005 by a five person team from IRG-Tetra Tech. The assessment team conducted interviews with over 150 individuals from donor agencies, relevant agencies of the Government of Indonesia (GOI), local government offices, nongovernmental organizations, and academic institutions in Jakarta and Aceh province. Site visits were made to coastal areas surrounding Banda Aceh; Calang, Aceh Besar; and Meulaboh, Aceh Barat.

Recommendations from the needs assessment were disseminated through presentations made to a wide range of stakeholders in Jakarta, Banda Aceh, and Meulaboh including local and national government, donor agencies, and international and local NGOs. Presentations of the draft report with recommendations were made to USAID and GOI (Ministry of Marine Affairs and Fisheries (DKP) and Ministry of Planning (Bappenas) from April 18 to 20, 2005. A second phase of presentations was conducted between May 16 and

23, 2005 in Banda Aceh and Meulaboh. Comments and inputs raised during these presentations were considered and incorporated into this final report.

1.2 REPORT ORGANIZATION

This final report is organized into four sections and two appendices including this introduction. Section 2.0 describes recommendations in six program areas. Section 3.0 describes implementation considerations including planning and coordination, constraints, areas covered by other organizations, and activities with potential significant environmental impacts. Section 4.0 describes the process used to disseminate these results to stakeholders and partners, as well as issues raised during this second set of discussions. Some possible next steps are also discussed. Appendix A provides a list of contacts used to gather information and data for the needs assessment, as well as the contacts during the second phase of dissemination of results. Appendix B is a list of references reviewed during the needs assessment.

2.0 RECOMMENDATIONS

USAID's commitment to reconstruction of the Meulaboh-Banda Aceh (M-BA) road will help to reconnect a vital transportation artery and build ownership in the recovery process by restoring coastal livelihoods and the environment as a basic human need. Recommendations were developed to achieve two strategic goals: intensify the benefits from road reconstruction and minimize environmental and social impacts. Specific recommendations to achieve that goal are described below grouped into six themes.

- Coastal infrastructure linked to the road
- Sustainable coastal livelihoods
- Rationalized coastal land use
- Accessible information, education and communication
- Integrated coastal management
- Strong local institutions

The first two recommendation themes, coastal infrastructure linked to the road and sustainable coastal livelihoods, recommend infrastructure and associated software to intensify benefits from the road reconstruction by planning and constructing infrastructure needed for road construction with the dual purpose of supporting coastal livelihood development. The next three recommendation themes address early and medium-term actions leading to a comprehensive integrated coastal management (ICM) framework to rehabilitate coastal resources and minimize environmental impacts. The last recommendation theme, strong local institutions, looks into the broad issues of good governance and participation by civil society.

The discussion of each recommendation theme is organized into a summary list of recommendations, rationale, and description of recommendations, and expected outcomes.

2.1 COASTAL INFRASTRUCTURE LINKED TO THE ROAD

INTENSIFYING BENEFITS, INVOLVING COMMUNITIES

Recommendations for coastal infrastructure and related software (community participation, guidelines, and market linkages) linked to the M-BA road will improve transportation options and supply chains that support the road while also contributing to long term economic development of Aceh's west coast and offshore islands. Recommendations are described for pre-construction activities, construction facilities activities, and transportation links and alternatives.

PRE-CONSTRUCTION ACTIVITIES

- Use the EA process for the west coast road reconstruction to influence engineering and construction best practices and environmental mitigation and monitoring for the road and other infrastructure.
- Socialize information about road reconstruction to build transparency and local links, especially during the EA scoping process.

CONSTRUCTION FACILITATION ACTIVITIES

- Remove/dispose of sediment/debris around strategic ports - Banda Aceh and Meulaboh - in an environmentally sound manner.

- Encourage innovative debris recycling and reuse.
- Develop/strengthen supply chain for building materials needed for road reconstruction.

TRANSPORTATION LINKS AND ALTERNATIVES

- Integrate planning and construction of secondary roads, linked to main road.
- Consider leveraging construction of port facilities (storage & transfer) in Banda Aceh and Meulaboh.
- Consider Development Credit Authority (DCA) Loan Guarantees for large infrastructure needs (ice plants, port facilities).
- Consider road and bridge reconstruction south of Meulaboh.
- Consider high speed ferry service for people and light cargo on west coast.

RATIONALE

Coastal infrastructure will be needed to support the M-BA road reconstruction project, including harbors, secure storage/warehousing facilities, secondary/feeder roads, and worker encampments. If well-planned and sited, this infrastructure will also benefit the wider economy and sustained development along the west coast.

In the shorter run, transport connections along the west coast have been badly damaged by the tsunami. The detoured, temporary road constructed by TNI allows slow transport by truck, with several difficult stretches, especially in bad weather. Previously, the route from Meulaboh to Banda Aceh took 5-6 hours; currently, the transit is longer. An alternative mountain road connecting Meulaboh to Medan is being used for some logistical needs. However, this road is in disrepair, runs through insecure areas, and is declining in quality due to heavy use for last three months. Informal payments required along the road raise the cost of this option relative to other routes. Under best conditions, transit time to Medan is 18 hours, which is not suitable for transport of perishable agricultural products and fish.

Alternative sea transport routes are available, but infrequent. A weekly ferry service from Meulaboh to Banda Aceh takes about 6 hours by sea. With improved facilities, improved speed, and more regular and frequent connections, this could become a viable and desirable economic alternative before the road is completed and continuing into the future.

Other small scale infrastructure projects have been recommended to supplement or link to the road project to spread the benefits more widely and to catalyze/facilitate livelihood and small scale business enterprises linked with improved transport along the west coast. These kinds of infrastructure include cold storage and transport facilities, storage and transfer facilities at larger ports, and road and bridge reconstruction south of Meulaboh, which will help to stimulate and sustain economic activities linked to livelihoods and small scale business enterprises.

DESCRIPTION

This recommendation theme highlights opportunities that can be carried out in conjunction with road planning and implementation. In advance of road construction (during the planning and design process), there are several important (software) opportunities to promote participation, inform communities and contribute to improved governance. To facilitate road construction, there are opportunities to improve port facilities and to strengthen the supply chain for construction inputs. To strengthen and expand economic links to the road, sea transport, storage and transport facilities, loan guarantees could be considered.

PRE-CONSTRUCTION ACTIVITIES

Pre-construction activities could be conducted over the next 6-9 months, beginning in the larger communities on Aceh's west coast, moving toward smaller communities and villages in the later stages. The socialization

process is an excellent opportunity to involve local groups in reaching out to smaller communities so that there is no confusion about the nature, purpose, or impact of the road project. Many international NGOs working the area have local NGO partners and strong networks in local communities. These networks can be used to facilitate the process of disseminating information, raising awareness, and seeking feedback.

Use EA process for road to influence best practices and environmental mitigation for other infrastructure. The environmental assessment (EA) process can be used to develop and disseminate principles and guidelines that can be applied more widely in land use planning, coastal zoning, and activities of other partners and donors. International standards and codes of engineering practice can be adapted in the process of road project development. These principles can then be disseminated through national or local government to be applied to mitigate environmental impacts of the road and siting of other infrastructure, such as smaller ports, feeder roads, and construction camps, among others. Guidelines developed in conjunction with local government, with community participation and awareness can create new standards for new infrastructure projects in other sectors, funded by other donors.

Socialize information about road reconstruction to build transparency and local links. The Environmental Assessment includes a scoping process, which is used to gather information about local knowledge and desires along the proposed transport route. This scoping process provides an early opportunity to link the road project to outreach efforts and initiatives to improve local governance. Scoping discussions (and extension/facilitation staff) can also be used to provide information at the village/local level about the road reconstruction process to build transparency, link to local land use planning processes, prevent tension and conflict, and facilitate related governance improvement processes. There will be opportunities to involve local governments, NGOs and community level organizations, including traditional governance structures and institutions (e.g., *mukim* level, sectoral *panglima*). This large and visible project provides an opportunity to set an example and to develop a new standard of performance in public sector governance/decision making.

CONSTRUCTION FACILITATION ACTIVITIES

Construction facilitation activities, in conjunction with road construction, should be considered to improve access for bringing in heavy equipment, materials, and construction teams by land or sea. The supply chain, of course, is being re-established now with the involvement and investment of so many relief agencies, as well as the private sector. Some of these activities, however, are occurring at high cost for emergency purposes. To ensure that road construction can proceed in a relatively cost effective manner, some harbor facilities and temporary road connections will need to be improved in the short run. Because of security issues on land routes, sea routes may be preferred and be less costly in some cases. Any alternatives developed will contribute to long-term economic development well after the construction phase.

Remove/dispose of sediment/debris around strategic ports - Banda Aceh and Meulaboh. Many former port areas or river mouths will need to be dredged to allow boat access and renew economic activities. In specific strategic areas, possibly Banda Aceh, Calang and Meulaboh, and some smaller coastal landing sites, debris removal and dredging may be necessary to expand, deepen, and improve access for larger vessels capable of delivering heavier loads of equipment and materials needed for road construction. These improvements will provide lasting benefits to local communities and the local economy by providing more and better sea transport options (which can be augmented further through strategic investments, such as ferry transport, as discussed below).

Encourage innovative debris recycling and reuse. Debris recycling and reuse is currently underway in all disaster-impacted areas. Some of the debris is being used by households to construct temporary dwellings and some is being recycled by entrepreneurs (metal, glass, some plastics, etc.). Both Acehnese government officials and some foreign organizations (e.g. UNDP, OCHA) have stated their intention that all debris will be removed from building sites and/or recycled and temporarily disposed within six months. This seems optimistic, though much has been accomplished already. In conjunction with private sector and livelihood support activities, some kinds of debris can be recycled or reused as building or road bed materials, using

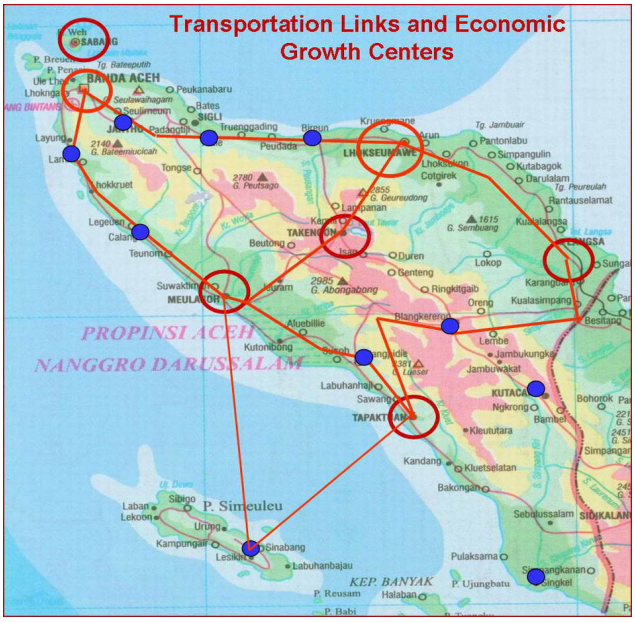
portable rock and cement crushers. Currently, private sector operations are already harvesting higher-valued metal (rebar) from destroyed buildings as well as vehicles and other metal sources and introducing small-scale saw mills or wood processing operations in some areas to process fallen or dead trees (e.g., rubber estates near Meulaboh). Training, new technologies, and support for cooperatives could help to ensure that these operations are as environmentally friendly as possible and that less valuable waste materials are also utilized. For example, technologies for shredding and compressing waste into building materials could be introduced (particle boards and other composites). Both Oxfam and UNDP have mentioned the need to use such technologies to avoid felling fresh trees from forests but there are not yet specific proposals for these activities.

Develop/strengthen supply chain for building materials needed for road reconstruction. The transport/supply chain for the road project will include shipping of heavy equipment, trucking from commercial centers, feeding and housing of workers. Market and transport links developed for the road project will also support/improve the supply chain for agriculture and wider livelihood/economic activities on the west coast. Supply chain investments and requirements (selection of contractors, development of transport fleets, warehousing facilities, worker temporary housing and living needs) can be used strategically to create lasting infrastructure and transportation linkages that continue to support economic development after the road is completed.

TRANSPORTATION LINKS AND ALTERNATIVES

Coastal infrastructure will be needed to support the M-BA road reconstruction project, including harbors, secure storage/warehousing facilities, secondary/feeder roads, and worker encampments. If well-planned and sited, this infrastructure will also benefit the wider economy. Transport connections along the west coast have been badly damaged by the tsunami and need to be rehabilitated or reconstructed to support economic development in the province. Secondary roads are needed to connect coastal settlements to the road, as well as interior communities, where road connections have been damaged or moved.

Alternative sea transport routes are available, but infrequent. A weekly ferry service from Meulaboh to Banda Aceh takes about 6 hours by sea. With improved facilities, improved speed, and more regular and frequent connections, this could become a viable and desirable economic alternative before the road is completed and continuing into the future. As illustrated in the figure to the right, the suggested road and ferry transport links are consistent with the GOI's broad blueprint for the area, which names Banda Aceh as a primary growth node, linked to secondary growth areas, including Meulaboh, and tertiary nodes along the coast.



Other small scale infrastructure projects have been recommended to supplement or link to the road project to spread the benefits more widely and to catalyze/facilitate livelihood and small scale business enterprises linked with improved transport along the west coast. These kinds of infrastructure include cold storage and transport facilities, storage and transfer facilities at larger ports, and road and bridge reconstruction south of Meulaboh will help to stimulate and sustain economic activities linked to livelihoods and small scale business enterprises. A coordinated planning process with GOI and other donors is needed to develop a strategic plan for all west coast infrastructure needs.

Integrate planning and construction of secondary roads, linked to main road. Integrated

planning will help to maximize agricultural and fishing sector livelihood linkages, and support long-term revitalization of some isolated coastal communities. This will be an opportunity to develop and disseminate standards and best practices for secondary roads for local governments and communities. Planning should consider locations of population centers, local markets, external markets, and supply chains for goods and equipment.

Reconstruct port facilities (storage and transfer) in Banda Aceh and Meulaboh. A number of donors and international NGOs are interested in reconstructing port facilities along the west coast to allow goods and equipment needed in road construction. Beyond immediate road construction needs, these investments should include intermediate cargo storage and handling facilities, such as warehouses, cranes, and road links. Planning and zoning should also provide space for additional processing and transfer facilities that promote commerce and market options that support livelihood development activities. Examples might include cold storage facilities, fish processing or freezing plants, secure warehouse facilities for cooperative enterprises, sorting and quality control facilities to promote/facilitate export of goods to foreign markets.

The assessment recently completed by UNDP (Byrne 2005) provides the most complete assessment of port facilities covering Banda Aceh (Malahayati, Ulee Lheu, and Lampolo) Lamno, Calang, Meulaboh, Susoh, Tapaktuan, Singkel, Simeuleu, and Nias. A combination of reconstruction and new facilities are proposed depending on the assessed extent of damage. In some locations, new jetties are proposed extending into deepwater to achieve required depths without the need for dredging. The report also recommends comprehensive investigation of social, environmental, economic and technical issues for any proposed new siting of facilities, especially fishing ports associated fishing villages.

Reconstruct road and bridge reconstruction south of Meulaboh. Roads south of Meulaboh link Aceh's west coast to North Sumatra and the rest of the Sumatran west coast. Roads and especially bridges south of Meulaboh were further damaged by the second large earthquake on March 28, 2005, centered off North Sumatra at Pulau Banyak. This activity would strengthen economic linkages along the south west coast and into North Sumatra. It may also be cost effective if developed in conjunction with the main area of road reconstruction to the north of Meulaboh.

Consider high speed ferry service for people and light cargo on west coast. This activity could be commenced in advance of the road project as an intermediate alternative to restore transportation links, particularly in Meulaboh. In the short- to medium-term, ferry transport could improve communication and transport options for west coast population, including coastal islands (Simeulue and Nias, plus points south), and increase livelihood options and market linkages. This concept needs further development and integrated planning with port rehabilitation efforts, as well as development of long-term transport options and links to economic options (including tourism) on off-shore islands.

Entry Points: Local government planning and environmental agencies (*Bappeda, Bapedalda* respectively) will necessarily be involved in road planning and siting of secondary infrastructure. Communities and local NGOs should be involved in the EA scoping and socialization process so that the road building process can become an important link in improving governance, transparency, and accountability at every level. This will be an important opportunity, as well, to strengthen local institutions so that they can become more active and viable partners in long-term environmental planning and governance. Bank Mandiri has expressed some interest in linking to micro-finance schemes and BRI and BPD were active in this area pre-tsunami.

Donor /NGO links: Several other donor countries have expressed interest in large-scale infrastructure projects. JICA has expressed interest in improving harbor/port facilities, especially for Banda Aceh. UNDP and FAO have conducted assessments of ports along the west coast (these consultant reports were not yet available at the time of this team's initial visits to Aceh province). In addition, UNDP has completed surveys of ports along the west and northern coasts of Aceh. UNDP may assist in the rehabilitation of some port facilities. The GOI Blue Print document includes a range of infrastructure options and costs, which will create some political pressure for funding from multilateral agencies, including World Bank and Asian Development Bank.

EXPECTED OUTCOMES

Expected outcomes for coastal infrastructure activities linked to the road include:

- Government, communities, and private sector more actively engaged in planning and developing improved infrastructure for delivery of economic development and basic services.
- Improved standards and engineering practices developed and disseminated to improve future environmental/coastal planning and infrastructure.
- Improved transport options to support diversified livelihood activities and economic/market linkages that contribute to economic development and poverty alleviation.
- Contribution toward achieving Millennium Development Goal 7 - Ensure environmental sustainability (Target 9) and Goal 8 - Develop a global partnership for development (Target 16).

2.2 SUSTAINABLE COASTAL LIVELIHOODS

BUILDING VALUE & MARKET ACCESS TO REDUCE POVERTY

Livelihoods on the west coast of Aceh Province will continue to be dominated by agriculture and fisheries for the foreseeable future. Recommendations are aimed at improving incomes and enabling conditions for agriculture and fisheries livelihoods as well as information, extension and other supporting services primarily at the small-scale business/producer and community levels. Proposed activities will also promote wider benefit sharing toward poverty alleviation through economic opportunities.

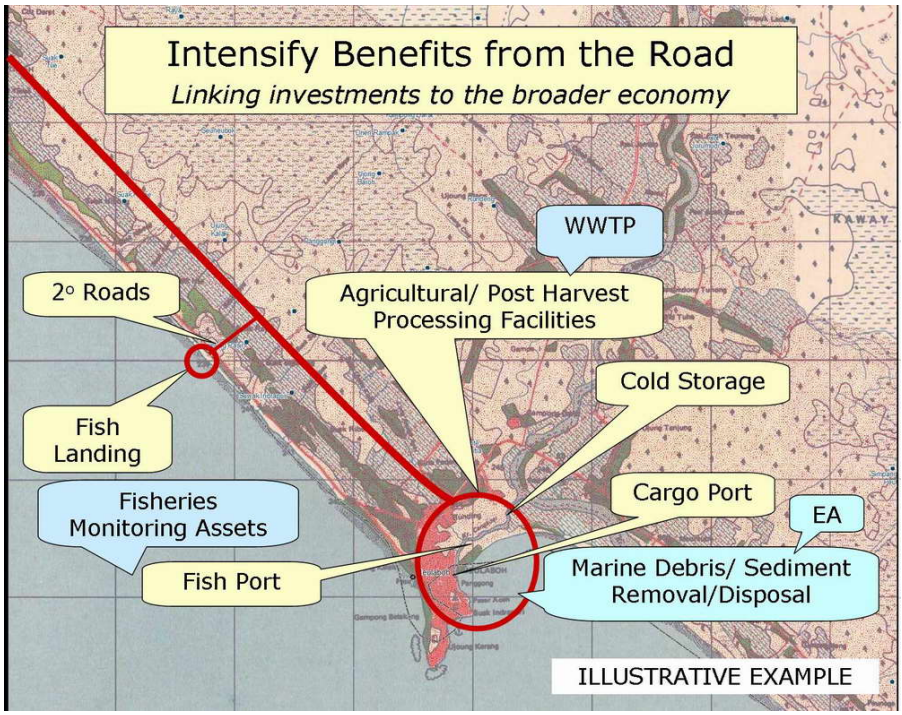
COASTAL AGRICULTURE AND FISHERIES LIVELIHOODS

- Rehabilitate and Improve Banda Aceh Fish Port and Small Scale Fish Landing Ports on the West Coast.
- Support Value-Added Post-Harvest Processing Investments for Fisheries and Agricultural Products.
- Rebuild and/or Improve Supply Chain for Cold Storage of Fisheries and Agricultural Products.
- Diversify and Improve Agricultural Livelihood Options for Coastal Communities.
- Improve Fisheries Livelihood Options for Coastal Communities.
- Provide Capacity–Building Support to Development of Small Scale Business Associations.
- Support to Community Cooperatives for Agro-Fisheries Business Development.
- Develop Information Systems for Local Livelihoods Support.

COASTAL TOURISM AND RECREATION

- Technical assistance for tourism development strategy.
- Supply and train personnel in use of computers, GIS and presentation equipment for database development of tourism assets and also marketing of Aceh's west coast.
- Training program for small-scale tourism service providers and tourism associations (hotels, tour operators, dive operators, etc.).
- Promote and support program of tourism best practices, including ecotourism, Green Globe and other international standards.

The figure below illustrates how these investments can be linked to transportation networks to intensify the benefits for local communities and integrate them into the regional economy.



RATIONALE

Agriculture and fisheries are primary sources of livelihoods in the west coast of Aceh for at least 80% of the population. Fisheries (capture and aquaculture) and coastal agriculture were seriously disrupted as a result of the tsunami. Lowland agriculture a few kilometers further inland and certainly upland cropping systems were not directly impacted by the disaster, but transport links, supply sources, and market chains were disrupted, so earnings from marketing of production surpluses are disrupted due to the disaster. It is important to note that agricultural and agroforestry activities, including various kinds of tree crops, especially rubber, have historically been important parts of the local economy. In the short-term, it is important that both fisheries and agricultural systems be strengthened and markets for tradable surpluses re-opened as soon as possible in order to supply local needs and provide cash incomes for displaced populations as well as local residents not directly impacted by the disaster. In the medium term, robust local agriculture and fisheries – taking advantage of local comparative advantages and future markets such as tourism – could be a significant economic driver for the region.

Prior to the tsunami, coastal ecotourism and recreation did exist, notably in Pulau Banyak, Lhok Nga, Lhok Geulumpang, Simeulue Island and a few other places between Banda Aceh and Meulaboh. Recreational activities included swimming, snorkeling and scuba diving along with surfing. In addition, in some places guides were available to do scenic jungle treks and there were handicraft makers in various places, e.g. near Meulaboh. So, despite the very disadvantageous conditions, the basis for a tourism sub-sector does exist. Already, "tsunami tourists" – both local Acehnese and foreigners – have begun arriving, for example, to see the huge, beached and capsized boats at Lhok Nga. Hundreds of aid workers are also camped up and down the west coast, interacting with the local population, creating markets for basic foodstuffs and shelters and taking digital photos of the scenery which are now appearing all over the world. While the disaster cannot be described as a positive tourism marketing event, of course, it may well have a short-, medium- and possibly long-term indirect positive impact.

DESCRIPTION

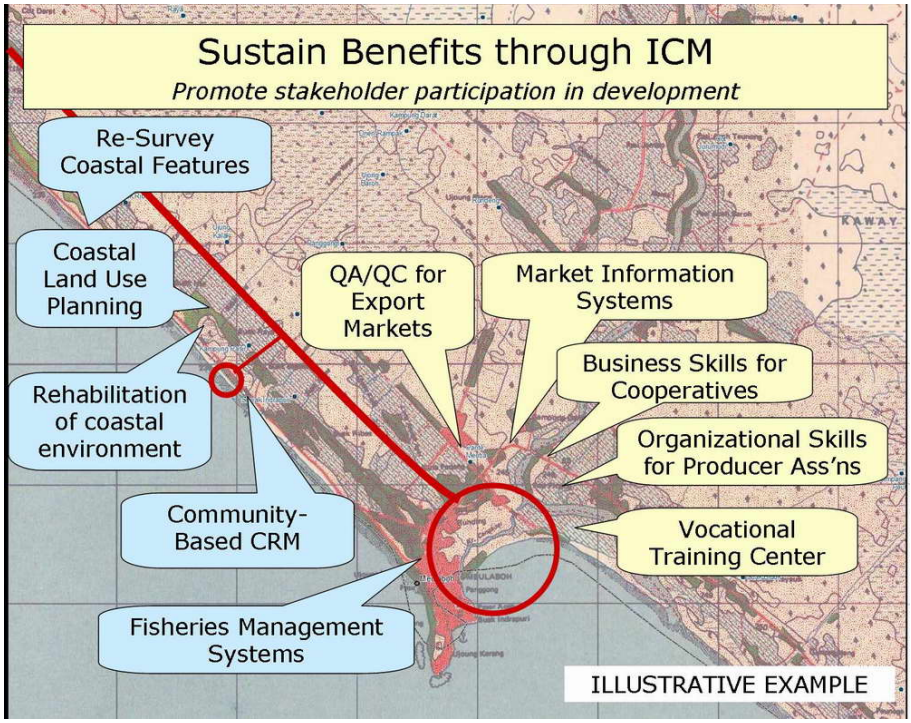
Local agriculture and fisheries sectors on the west coast of Aceh have the potential to contribute to improved livelihoods and food security with proper investment in local and regional market and transport infrastructure, low-cost, post-harvest processing, storage, and training, extension and organizational support. Infrastructure and value-added investments are essential to medium- and long-term improved coastal livelihoods in the agriculture, agroforestry, and fisheries subsectors.

COASTAL AGRICULTURE AND FISHERIES LIVELIHOODS

Rehabilitate and Improve Small-Scale Fish Landings and Ports. Rehabilitation or reconstruction of small scale fish landings and fishing ports is needed along the west coast of Aceh including Lampulo in Banda Aceh, Lamno and Calang in Aceh Jaya and Meulaboh in Aceh Barat. Others may emerge as well. Some ports are in worse shape than others: Lampulo, Ulee Lheue, Calang and Meulaboh are totally destroyed while Lamno can be restored with targeted infrastructure investments. Aside from determining which donor will rebuild which port, the design and location of the reconstructed ports are important early considerations noted in the previous section. FAO (2005) has made an assessment of small-scale fishing landing sites.

Support Value-Added Post-Harvest Processing Investments for Fisheries and Agricultural Products. Processing for fisheries may include canneries, drying or possibly freezing facilities as well as sorting/grading and dressing facilities. Processing for agriculture includes: a) initial post-harvest processing, including peeling/shelling, screening, drying and sorting for quality and different markets, which is partially done at the household/village level already for some products. Further processing could be done in sub-district and district towns, e.g., juice or syrup making and packaging (and possibly roasting) of coffee beans; packaging of fresh fruits and vegetables and grain milling and butcheries for markets in Banda Aceh and Medan. Drying (especially fish), pickling and preserves are within local capabilities though quality and packaging standards may be lacking. Freezing (e.g., flash freezing) for shipment, especially internationally, would require a greater level of investment, training and organization. As will be discussed in another section, it is absolutely essential that clean water, sanitation and wastewater and solid waste management services must be developed for both domestic and especially international trade in fisheries and agricultural products since international trade in these products requires adherence to strict health and safety standards. Stimulus capital or common environmental service facilities for such processing along with technical assistance on design and financing to private sector or cooperative processing ventures could be provided to support value-added processing for fisheries and agricultural products.

The following figure illustrates how these various recommendations for training and livelihood development could be linked with an overall suite of hardware and software interventions, within an ICM framework in a particular site. Meulaboh is chosen only as an illustrative example, not a specific proposal.



Rebuild or Improve Supply Chain for Cold Storage of Fisheries and Agricultural Products. These investments are directly related to the construction of small-scale ports (above) and include: ice plants and cold storage facilities for fisheries products; cold storage and transport, including refrigerated trucks for both fish and foodstuffs and cold storage facilities at Meulaboh and Banda Aceh airports. It should be noted that Banda Aceh's government (Bappeda) currently intends to develop Banda Aceh's cargo port as a trans-shipment port to Sabang for international traffic and Medan for national cargo traffic. It also should be noted that a number of foreign NGOs are investing significant amounts of funds for local replacement of small, coastal fishing vessels lost in the tsunami.

The following technical assistance, training and institutional support is required to address this recommended program area.

Diversify and improve agricultural livelihood options for coastal communities. A number of donors and international NGOs are working to diversify and improve livelihood opportunities. Illustrative activities that could be usefully added to improve livelihood options include:

- Survey of upland and lowland cropping systems on the west coast and an assessment of existing (i.e. pre-tsunami) market patterns and the potential for value-added through local/sub-regional processing of treecrops, vegetables, rice, dry season crops and livestock;
- Identify specific agricultural areas impacted by the tsunami, most likely the lowland coastal cropping systems;
- Identify and profile populations most at risk, i.e., those dependent only on (now salinized or flooded), coastal cropland and landless agricultural laborers and others with limited capital assets. Some, hopefully many, farmers will have both upland and lowland parcels;
- Prepare appropriate extension and training packages for upland and lowland farmers;
- Identify transport constraints to the use of the main road (adequacy of feeder roads and local transport, including river transport). Some small feeder roads from the uplands exist in many areas but most

settlements appear to be in the lowlands so improvement and/or repair of these roads and bridges will need to be assessed and carefully planned in conjunction with the west coast road (see also Section 2.2).

Given the generally very steep terrain, especially in the northwest of this region, interspersed with relatively narrow river valleys (which have now become somewhat shorter), most farmers are not likely to have had large yields on either upland tree crops and vegetable crops or lowland rice and dry season crops, with the possible exception of lowland areas near Meulaboh. Livestock mainly includes water buffalo, cattle, goats and fowl. Moreover, agricultural labor may now be a serious constraint in some areas due to loss of human life and those who have decided not to return to the coast as well as competition from "cash for work" and rebuilding activities. Hence, relatively low labor/low input and high value cropping systems may make sense for at least the short to medium future. This suggests tree and vegetable cropping systems for an initial focus and cropping systems in which women would be primary workers. In addition, farmer field trials on the agro-ecological suitability of high-yielding or dwarf varieties of some tree crops should be undertaken along with production cost and marketing considerations.

Tree crops already known to exist in this area include coffee, various citrus species, common tropical fruit species, various nuts and spice trees amongst others. Old rubber and palm oil estate crops as well as smallholder coconut groves are also present in Aceh Barat and probably elsewhere. Replanting of coconuts already has begun in some coastal areas. Vegetable crops range over a broad mix of tubers, legumes, squashes, tomatoes and others typically found in the Indonesian homegarden or vegetable plot and corn, beans and other dry season crops are also grown. Whether there are unusual but marketable fruit and vegetable cultivars should be investigated. One potentially important line of inquiry includes the use of salt-tolerant cultivars (e.g. traditional brackish water rice varieties exist in various parts of Sumatra and Kalimantan) for those coastal lands that have been salinated by the tsunami and deposition of ocean sediments and which may take some years to return to normal soil composition. Finally, local agriculture surpluses, especially fruits, vegetables and meats, also could readily supply future local beach and nature tourism sites, including homestays, hotels and restaurants.

Improve fisheries livelihood options for coastal communities. Fishing communities are found throughout this region. Fishermen frequently have complex livelihood strategies, due to the high risks associated with fisheries and seasonality issues so many are not full-time fisherfolk. The following activities are recommended:

- Identify main fishing centers on west coast and the existing organizational and fishing profiles of these sites in order to determine priority infrastructure, equipment and technical assistance and training investments as well as employment patterns.
- Support development of fisher livelihood organizations, in conjunction with the *Panglima Laot* institution, including business training, commodity markets information (see separate recommendation below), health and nutrition education.
- Undertake a fisheries management and marketing feasibility study about the potential for development of larger boats to eventually replace part of the armada of very small fishing vessels (currently being built with international NGO support) to take advantage of deeper water, higher valued fish. However, licensing issues and the sustainability of the fishery are very important considerations for this task.

Provide Capacity–Building Support to Development of Small Scale Business Associations. In addition to the producer cooperatives described above, other business associations could be supported to represent/advocate and provide technical support to enterprises related to processing, transport, storage and institutional support (credit, information, marketing).

Support to Community Cooperatives for Agro-Fisheries Business Development. Traditional fisheries marketing usually has been quite exploitative with patron-client relationships based on debt and market price manipulation by middlemen agents being the norm for Aceh. Hence, to make the best use of the

infrastructure and equipment recommended above, fishers need to be organized into producer and marketing cooperatives over time. Activities include assessment of institutional and cultural constraints to such cooperatives, training and organizational governance, and marketing assistance. Agricultural products marketing may face similar middlemen exploitation, though time did not permit investigation of this matter. However, agriculture has been constrained by transport and other infrastructure deficiencies, as noted above. The same basic set of recommendations as those for fisheries are recommended here with the addition of extension and field trials for high-yielding and/or salt-tolerant cultivars.

Develop Information Systems for Local Livelihoods Support. This recommendation focuses on a key constraint to both fisheries and agriculture on the west coast: the lack of timely and accurate commodities market information in order to target specific markets competitively and retain a greater share of the market price to producers. The feasibility of a decentralized (village and/or sub-district-level) mobile phone-based market price information exchange possibly supplemented by Internet and radio information should be considered. International examples can be referenced (e.g. Egypt and India in agriculture and Philippines in fisheries). Constraints and deficiencies of the current local commodities market information, e.g. the lack of a trading exchange or dominance by informal oligopsonies have to be factored into the feasibility of such a system (though these barriers have occurred elsewhere, too). The development of such a system assumes the existence of producer organizations (as described above), which also could provide market leverage but the system also could be facilitated or supported by local government and/or independent private sector parties.

While it has been difficult for the assessment team (and the GOI) to track all that the different international NGOs are doing at the community level, including services, credit, training and other assistance relating to livelihoods, it can be assumed that this must be far more confusing for the affected communities themselves. Hence, another function of the information system for local livelihoods support is to "match customers with suppliers," in a sense. A particularly effective mechanism for disseminating information about what aid programs are available is radio programming, and developing a network of local-language radio programming should be a priority. Community-level training programs in "aid advocacy" are particularly important for highly vulnerable groups since these may not participate in normal group meetings, particularly with outside donors. Indonesian NGOs such as PPSW, and YAPPIKA have already piloted such programs in Aceh and Nias.

Entry Points: Village (*gampoeng*), *mukim* (traditional grouping of 7-8 villages) sub-district and district governments, *Panglima Laot* institution, *Petua Seunebok* (traditional village agricultural leader) and *Pawang Glee* (traditional village forestry leader), existing trade associations, Acehnese development NGOs and Indonesian (especially Acehnese) universities and higher technical schools providing field research and extension services.

Donor /NGO links: FAO and UNDP are assessing productive sectors. IRC/CARDI, Triangle and several other NGOs are building small fishing boats. CRS-Accord is focusing on the market chain for fisheries rather than building boats. Oxfam, Action Contra La Faim (ACF) and other foreign NGOs are working on restarting or improving agricultural activities in various communities, especially with village governments. NACA with WWF are looking at market linkages for brackish water fishponds (*tambak*) of which there are many fewer on the west coast than on the east due to coastal geography and the rough offshore waters.

COASTAL RECREATION AND TOURISM

Tourism Infrastructure Development. Tourism development is ideally suited for private sector investment. Government's role is to provide a supportive policy and regulatory environment and to ensure that economic policies and physical infrastructure are available to support domestic and international tourism. Much of the physical infrastructure discussed above in this section and also in section 2.1 and 2.5 directly support tourism development as well. Hence, the only infrastructure or equipment recommendation here might be the use of computers, GIS and presentation equipment with associated training. These would be used for database development of tourism assets and marketing of Aceh's west coast by provincial and district governments and by local tourism associations affiliated with KADIN and others. In addition, a very useful technique for direct training and familiarization in the ecotourism field is the use of exchange visits to

successful park or resort facilities and tours in other developing countries and attendance at tourism trade shows.

Technical Assistance, Training and Institutional Development. Early actions to provide technical assistance and training include:

- Assess ecotourism/nature and culture tourism potential by an expert team. The International Ecotourism Society among others can provide further information about experts and codes of best practices.
- Identify, mainly through the international NGOs working on the west coast (and which are planning to remain working in Aceh for 2+ years or more), existing tourism and recreational activities of interest to foreign workers and which local people have begun supporting these (e.g. fishing boats used to take people to offshore swimming and to recreational sites).
- Prepare a plan and conduct training for boat operators and land-based tourism workers (homestay operators, restaurants, local trekking guides, etc.) in health and safety, appropriate equipment and lodging standards (including solid waste and sanitation), basic English language and signage/tourism guides and other information.
- Assist local government or operators in developing private trade associations aimed at self-help and improvement or joint marketing activities. There are very likely to be cooperative partners in the foreign NGO community for this purpose.
- Monitor ecotourism and cultural tourism development, develop lessons learned for application in other parts of the province. Pulau Weh, which lies northeast of Banda Aceh has a marine protected area and a modest dive operator community. This has already proven to be a magnet for the hundreds of foreign disaster aid workers looking for recreation on weekends and holidays. It is recommended that members of this business community share their insights and lessons learned through a network which this proposed project could facilitate. This network also could be linked to other ecotourism networks in the region for lessons learned, sources of expertise and marketing.

Entry Point: Local and provincial governments and private entrepreneurs, possibly nature conservation NGOs, such as FFI, CI, WWF, Walhi and others.

Donor /NGO links: foreign relief and development NGOs as initial ecotourism clients; International Ecotourism Society and foreign trekking and event tourism agents as sources of expertise (Abercrombie & Kent – Hong Kong and Australia branches; Sobek, which has an active Indonesian branch; Terres D'Aventure; World Expeditions (Australia) and many others). Note that these are suggestions and points of contact, not specific endorsements of individual organizations.

EXPECTED OUTCOMES

Expected outcomes from coastal livelihood activities along the west coast of Aceh include:

- More diversified and stable incomes, gradually increasing incomes over time, and improved nutrition and health, both of which contribute to economic development and poverty alleviation.
- Environmentally appropriate upland cropping systems with relatively high returns per hectare achieved. Fisheries, with proper stock management bring higher returns to fisher folk through processing and better storage and transport to markets.
- Gradual development of a dispersed, low-impact ecotourism sector, which will be a primary business for some people and a part-time business for many more and which contribute to seasonal and chronic poverty alleviation in the west coast.
- Additional incentives to protect coastal and upland natural resources due to nature tourism.

- Additional incentives to develop best practices in public health and safety.
- Contribution towards achieving Millennium Development Goal 1 - Eradicate extreme poverty and hunger and Goal 8 - On global partnership for development.

2.3 RATIONALIZED COASTAL LAND USE

ENGAGING STAKEHOLDERS IN PLANNING THE FUTURE

This recommendation theme addresses the need for participatory coastal land use planning for settlements and small-scale infrastructure associated with reconstruction activities along the west coast of Aceh province from Aceh Besar to Aceh Barat. Surveys of coastal areas and habitats will be used to inform coastal land use planning and zoning. The integration and transition of geographic information systems from emergency response to reconstruction planning will support long-term district and provincial planning capacity. The following specific recommendations are developed further below:

- Conduct coastal and marine surveys;
- Integrate and coordinate geographic information system (GIS) development;
- Develop mechanisms for stakeholder participation in land use planning;
- Assist local government to prepare coastal land use plans; and
- Promote broad-based awareness of coastal land use plans and understanding of the bases for zoning.

RATIONALE

The tsunami reconfigured many parts of the coast. Whole sections of the shoreline are now missing or radically altered. Coastal land use planning and zoning provide the fundamental basis for coastal reconstruction and long-term delivery of basic human and environmental services considering the significant physical changes in coastal areas resulting from the tsunami and earthquakes and risks from potential future natural disasters. Without coastal land use zoning, environmental impacts associated with infrastructure development will exacerbate the already high level of coastal environmental degradation. Already, wetland areas in Banda Aceh and the Meulaboh area are being filled in for debris disposal. While some of this is temporarily necessary, it must be remembered that this dispersal simply spreads potentially dangerous materials over a broader impact area.

The new shoreline and associated coastal features need to be surveyed and mapped to provide a basis for zoning. Shoreline set-backs and other coastal land use zones are considered vital management measures for coastal areas in planning for natural catastrophes, coastal erosion, industrial growth, access, and mitigation of environmental impacts. The GOI has prioritized post-earthquake and post-tsunami spatial structuring of Aceh province to reconstruct areas, cities, regions and settlements devastated by the disaster that is intended to balance economic, social, and environmental services and enables community members to conduct their activities under improved conditions, safe from disaster (see GOI Blueprint).

DESCRIPTION

Conduct coastal and marine surveys. Coastal and marine surveys would be conducted to delineate the new shoreline, coastal hazards, and coastal habitats along the west coast of Aceh province. These surveys are needed to characterize the new coastal features created by the tsunami and earthquake. Coastal area maps would be developed based on satellite imagery and ground-truthed with coastal surveys at a scale that will facilitate local planning and zoning. Land-based surveys would include delineating new shoreline, beaches, lowland forests and wetland features such as mangrove and swamp forests and coastal hazards such as unstable geological features unsuitable for settlements and small scale infrastructure. Marine habitat surveys

would focus on mapping the location and condition of coral reefs and other marine habitats and identifying areas least impacted by the tsunami to set aside for conservation zones.

Integrate and coordinate geographic information system (GIS) development. Given the huge scale of destruction, economic and population dislocations, altered geography, and the scale of relief efforts, GIS management is essential. The UN-HIC has developed and maintained a GIS to track emergency relief efforts in Aceh province. The GOI has developed a GIS database to facilitate macro-level reconstruction planning. Integration and coordination of data layers from these efforts would provide a vital starting point to transition emergency relief planning to reconstruction planning at a scale that can be used for coastal land use zoning at the district, city, and village levels. The Japanese International Cooperation Agency (JICA) plans to develop a GIS database to enable planning at high resolution of detail for Banda Aceh. A similar effort is needed for the rest of west coast from Aceh Besar to Meulaboh and the surrounding areas of Aceh Barat.

Develop mechanisms for stakeholder participation in land use planning. Mechanisms for stakeholder participation must be incorporated in coastal land use planning through consultations, workshops, and other modes of communication to generate widespread endorsement of the plan. Maps need to be developed to communicate the results of coastal and marine surveys at a scale and in a manner that can generate useful inputs from stakeholders. Illustrative activities include:

- Developing a pool of trained facilitators to engage stakeholders in land use planning;
- Village-level presentations by technical experts of coastal and marine survey results;
- Displaying coastal habitat and hazard maps in at the village level;
- Area-based planning workshops to facilitate stakeholder participation; and
- Feedback mechanisms to coastal stakeholders on coastal land use plans.

Assist local governments prepare coastal land use plans. Technical assistance to local government would be provided to review the land use zones for each district described in the GOI Blueprint and refine and apply the zones through a local participatory planning process involving coastal communities phased with reconstruction activities. Coastal land use planning on the west coast would start with those areas immediately surrounding primary economic growth centers and coastal areas affected by road reconstruction, port development, and other major coastal infrastructure followed by secondary and tertiary growth centers.

Promote broad-based awareness of coastal land use plans and understanding of the basis for zoning. Active participation by stakeholders in developing coastal land use plans will increase awareness of the need for and the sound basis of coastal land use plans. Information, education, and communication programs need to enhance awareness to develop a broader constituency for improving implementation and adherence to coastal land use plans.

Entry Points: District level office of planning (*Bappeda*), would serve as the lead government agency in coastal land use planning. Local partners for this program area would include local government service agencies, universities, and local NGOs. Local universities could conduct surveys and provide support for GIS and mapping. Technical support from the United States Geological Survey (USGS) and the National Oceanic and Atmospheric Administration (NOAA) could be leveraged to provide inputs for survey activities. Local NGOs could engage communities in coastal land use planning and zoning.

Donor /NGO links: JICA is considering coastal land use planning in Banda Aceh as noted above. In addition, the World Bank/Norway is committing $1.6 million for bathymetric mapping and substrate classification, hydrographical sampling, sediment coring, fish and plankton sampling, and fisheries resource assessment. Sampling sites will be located along the northern and western coasts of Aceh in near shore and offshore marine environments; however, no coastal surveys are programmed currently. Bathymetric mapping, if intensified around potential port areas, could also provide important linkages with port

reconstruction activities. WWF-Indonesia is working with the provincial government to establish land use zoning regulations. A draft provincial law on land use zones has been prepared and would define the types of land use zones that incorporate traditional set-backs for coastal plantations of mangrove, coconut, and other coastal vegetation. GEF Small Grants Program is currently supporting the local NGO, YPK, to conduct limited village-based coastal land use plans in Aceh Barat.

EXPECTED OUTCOMES

- Increased awareness of local stakeholders in benefits of coastal land use zoning.
- Coastal stakeholders actively engaged in planning process and advocating coastal land use plans.
- Effective integration of GIS for reconstruction planning.
- Coastal land use plans help to reduce risks of exposure to natural disasters and enhance recovery of environmental services.
- Debris disposal and solid waste disposal sites identified and zoned to minimize impacts to wetland ecosystems and human health and safety.
- Coral reef areas sustaining least impacts are mapped and zoned for protection to serve as biological recruitment sources for other areas.
- Wetland areas (including swamp forest and mangrove areas) along the west coast that are mapped and zoned for rehabilitation and protection enhance long-term ecosystem recovery and provision of environmental services.
- Contribution toward achieving Millennium Development Goals 7 - Ensure environmental sustainability (Target 9).

2.4 ACCESSIBLE INFORMATION, EDUCATION AND COMMUNICATION

MAINSTREAMING COASTAL ENVIRONMENTAL SERVICES

This program area addresses the information, education and communication (IEC) needs of local communities and governments related to sustainable coastal planning and management and the coordination and delivery of reconstruction activities. Improved and sustainable coastal resource management policies and practices along the west coast of Aceh province must be supported and advocated through strengthened roles for public participation and local media in various forms.

The main purpose of this program is to develop and disseminate relevant information on coastal resources and environmental management, improve coastal environmental education and target strategic forms of communication and knowledge management for this complex reconstruction endeavor. This program is also expected to help foster the conditions that make it possible for all stakeholders (regional government, NGOs, community members, journalists, and the private business sector) to develop open dialogue and democratic processes toward improved coastal resource management that support the development of sustainable livelihoods and increased prosperity of Aceh's citizens.

- Establish baseline environmental awareness levels;
- Develop coastal environmental awareness and education materials;
- Establish primary and secondary school programs in coastal environmental management and disaster prevention and preparedness;

- Institute a coastal environmental information center;
- Develop innovative knowledge management capability for Aceh's government and donor/NGO coordination.

RATIONALE

The devastating impact of the tsunami in Aceh destroyed much of its information, education and communications (IEC) infrastructure including formal and social infrastructure. The influx of large numbers of foreign and Indonesian agencies, donors, NGOs and others to work on relief, rehabilitation and reconstruction has seriously stressed scarce IEC resources further precisely at a time when they need to be significantly enhanced well above pre-disaster levels.

The Acehnese people continue to have issues concerning access to quality information and opportunities to engage with government on policies relating to the reconstruction and rehabilitation program and to participate actively in the development process. A strengthened civil society and educated media are necessary for citizens to participate meaningfully in the decision-making process and to advocate for participatory coastal environmental management and economic development. Properly developed coastal environmental IEC can also increase the awareness of communities of the importance of coastal resource management and hazards.

Finally, there is a pressing need, recognized by all parties and especially the GOI, to improve the exchange of information, data and knowledge and coordination to avoid overlaps, gaps and re-learning basic lessons – in short a need for a knowledge management system that makes use of the technology and information resources already in place but underutilized for this purpose.

DESCRIPTION

This recommendation theme focuses on the establishment and development of a coastal resources and environmental IEC capability that will elicit best available local knowledge and wisdom as well as outside technical expertise and best practices to support sustainable coastal planning and management. The recommendations for this coastal environmental IEC program can catalyze change and influence local policymakers' and leaders' decisions in support of more sustainable coastal environmental management and practices by conveying information and arguments with sound scientific, legal and moral justification.

Establish baseline environmental awareness levels. Surveys, including Knowledge, Attitudes and Practices (KAP) surveys are needed to establish baseline awareness levels. This activity will build a strong baseline of data on needs, current practices, opportunities and constraints and assist in developing the best strategy for implementation of a coastal environmental IEC program.

Develop coastal environmental awareness and education materials. Based on analysis of the surveys above and additional primary and secondary information from the donors and NGOs already working with communities, a set of awareness and education materials will be developed to support the awareness campaign and educate constituents of coastal environmental management. Note that for some subject areas, e.g., water and sanitation, various NGOs already may have developed such materials in Bahasa Indonesia/Aceh, so the focus here is on filling the gaps and ensuring that unintended consequences of an intervention program on the coastal environment or social structure are addressed. Moreover, the preparation and especially the use of these materials (e.g. in schools and community meetings) should be undertaken in dialogue fashion so as to obtain direct feedback from the intended audience.

Institute primary and secondary school program in coastal environmental management and hazards. Issues relating to disaster preparedness and prevention, coastal zone management and livelihoods can be integrated into both formal and informal (adult education) education curricula.

Develop a coastal environmental information center. This center can be designed as a clearinghouse of all related information on coastal planning and management and best practices, programs and projects being

implemented, business opportunities and discussion boards in order to serve all constituents from the community level to the provincial level and including donors, international NGOs, the newly-announced national reconstruction agency (BRR) and other national institutions as clients. The establishment and development of a coastal environmental information center would cover several relevant aspects in coastal resources and environmental planning and management including:

- Relevant database and information on Aceh reconstruction and rehabilitation programs
- Relevant spatial data and GIS
- Disaster awareness and preparedness
- Best practices on spatial planning, coastal economic activities and environmental mitigation
- Best practices on quake-proof construction standards and similar information of interest to community reconstruction
- Other relevant database on local knowledge and wisdom on coastal environmental management and hazards

To make the information center as useful as possible, it should be developed at various levels of government and using various media in order to include all constituents of coastal environmental management. For example:

- **Provincial and kabupaten levels**, which would cover general best available practices on coastal management and planning, as well as progress on the various plans of Aceh province reconstruction and rehabilitation (see also, next section on Knowledge Management) as well as communication to the national level, including the Reconstruction and Rehabilitation Board. At this level, both written and electronic media, radio and TV and telephony tools could be used for different IEC purposes.
- **Community level,** which would develop and enhance local knowledge and wisdom in coastal environmental resources awareness and management, elicit information and feedback from the community on rehabilitation and reconstruction programs and operate formal and non-formal education activities. At this level, mostly written materials, oral discussions and meetings and perhaps some use of mobile phones and SMS could be used for different IEC purposes. It should be noted that IEC activities can provide critical information to the west coast reconstruction and other infrastructure design process through the scoping part of the required environmental assessment (EA) process (called AMDAL in Indonesia).

At both levels, the aim is to use different media and communication methods as advocacy tools to improve coastal environmental management at the provincial, district and local level. The multi-media communication campaign approach will provide objective, credible information to a wide spectrum of stakeholders and will increase awareness about appropriate policy and behavior changes needed to reach sustainability. The coastal environmental IEC center can use various media strategically to stimulate, widen, and deepen understanding of coastal environmental issues as the basis for a broad, participatory public dialogue through radio and TV talk show programs, as well as Websites, networks and village level campaigns. Overall coastal environmental resources governance processes will be strengthened by helping local government agencies and civil society organizations to organize public hearings and other consultative processes on key issues of Aceh province reconstruction and rehabilitation.

Ideally, over the long-term, the coastal environmental IEC should be supported by:

- Establishment of a coastal resources education and science center that links with existing universities' coastal and marine departments, such as those at Syiah Kuala University and Abul Yatama University (private university).

- Establishment of new local curricula for primary and secondary schools on coastal environmental and resources management, planning and science that comprise local content within the national curriculum.

- Build capacity of Syiah Kuala University, already a node of the Indonesian national Sea Partnership Program, which links coastal universities and expertise in a national network for capacity development and extension about coastal issues.

Develop Innovative Knowledge Management Capability. The earthquake/tsunami disaster of Aceh and the subsequent relief, rehabilitation and reconstruction activities provide a unique opportunity to develop an innovative and much-needed knowledge management (KM) system for reconstruction partners among the NGO, donor and GOI communities. This disaster is not the first of the age of decentralized and networked communications (Internet, mobile phones, SMS and TV/radio media) but it has already become a major focus of global attention and involvement. There are two aspects to KM in the context of reconstruction that are relevant:

- Lessons learned from other disasters and the reconstruction activities carried out in those and current efforts.

- Managing flows of information and coordination of rehabilitation and reconstruction activities in the donor, GOI and NGO communities.

Regarding the first activity, this is partly a matter of reducing the learning curve on programming and designing of activities. For example, one American NGO in Aceh is attempting to apply knowledge on community rebuilding from earthquake disasters by incorporating lessons learned from Bam in Iran in 2003 and the Gujarat earthquake in 2001. This kind of KM activity requires a "community of practice" approach in which practitioners in the same or allied fields provide advice and discussion on approaches, techniques, sources of expertise and design on a particular problem. Communities of practice are now widely used in the corporate private sector, as well as international organizations (World Bank, FAO, large NGOs, etc), and the U.S. military, among others. USAID has developed two interactive community of practice Websites based around global projects, both of which would be relevant to the Aceh situation (there may also be others unknown to the team). One of them is MicroLinks, which is a part of the AMAP project dealing with micro-enterprise development and the other is FRAME, which deals with community-based natural resource management. The aim here is to have an interactive Web-based platform that would allow all relevant parties to interact with each other online to advise, design and troubleshoot issues in the rehabilitation and reconstruction effort.

The second type of KM activity is one that would support an information and coordination database for Aceh reconstruction. Until now, there have been a few efforts at constructing a database of information and coordination, notably the GOI's "Aceh Reconstructs" Website, which is a very interesting approach (http://acehreconstruction.bappenas.go.id/), but is useful only so long as partners contribute to it. With assistance from the World Bank, efforts are now underway to improve the site's ability to facilitate coordination and exchange of information. Regardless of who does it, we recommend that an interactive Website (structured to also allow for low bandwidth) be set up, preferably in Aceh. UN Humanitarian Information Centre (HIC) or OCHA are already set up to facilitate such information and database management and coordination but the system presently is oriented primarily around logistics, as it should be, rather than the future rehabilitation and reconstruction types of issues, which would require KM capability at least at the district level and not just at the provincial level. For example, an expatriate team could set up nodes at the district Bappeda level (as well as the provincial Bappeda level) with a facilitation team that would interact with NGOs and donor projects on KM matters. The purpose of this KM function would be to:

- Manage activities among partners to reduce overlaps, gaps and miscommunications;

- Share required databases for project implementation including GIS-related and financial flows where possible; and

- Promote efficiency, effectiveness and sustainability in Acehnese reconstruction and development planning, including spatial planning, livelihoods and governance.

Entry Points: Bappeda (province and district); donor and NGO working groups at the district and provincial levels, OCHA and UNDP, and local universities that possess coastal and marine programs. Syiah Kuala University and Abul Yatama University are potential partners. The IEC targets and constituents (such as communities, NGOs, local governments) will play an important role as active supporters and users of the center. *Dinas Pendidikan dan Pengajaran* (Education and Teaching Service Agency), at both provincial and district levels will be the main partner in the curricula development.

Other key early potential partners include the USAID/Indonesia Education mission that is working on some areas of education in Aceh Province and ESP-*Lestari*, which was created as the outreach and education arm of the USAID/Indonesia NRM III Program. *Lestari* created a Multi-Media Machine that strives to build public understanding of and participation in progressive coastal environmental management practices and governance. *Lestari* uses media outlets as a forum for dialogue between communities and governments on natural resources management issues, through organizing public events as a mechanism for citizen participation and by using media to access and influence decision making, especially by highlighting local solutions to local problems.

EXPECTED OUTCOMES

Expected outcomes from activities to mainstream coastal environmental services include:

- Increased awareness of coastal communities on the importance of a healthy coastal ecosystem for supporting local sustainable livelihoods.
- Improved practices and behaviors adopted at all coastal environmental resources constituents on sustainable use of the resources.
- Local knowledge and wisdom regarding disaster awareness and preparedness and good coastal zone resource management is recorded and disseminated.
- Increased NGO, CSO, and citizen involvement in decision making processes, as manifested in frequency and level of participation in public hearings and discourse opportunities (e.g., radio call in shows).
- Important stakeholders (NGOs, CSOs, government agencies, resource user groups, journalist, media outlets, and progressive private sector interests) are engaged in a vibrant, productive coastal environmental communications network.
- District governments adopt (implement and institutionalize) consultative processes as an integral part of the policy development and decision-making processes associated with coastal environmental issues.

2.5 INTEGRATED COASTAL MANAGEMENT

SUSTAINING COASTAL RESOURCE BENEFITS

This recommendation theme addresses two basic reconstruction needs essential to providing and sustaining basic human services in the coastal zone. Coastal resources need to be rehabilitated and managed as life-support systems. Coastal resource and environmental management systems must be developed and integrated into all aspects of reconstruction to minimize further degradation of coastal ecosystems, to avoid or mitigate environmental impacts from infrastructure development, and to provide the greatest potential for sustainable development beyond reconstruction.

Recommendations in this program area include infrastructure, technical assistance, and capacity building to develop coastal resource and environmental management systems to restore and maintain healthy coastal ecosystems during the reconstruction of Aceh province. Recommendations cover three management needs.

Fisheries management recommendations focus on the district-level local government with linkages to national, provincial, and village levels as appropriate. Village-based coastal resource management recommendations focus on village participation in management decision-making with linkages to district and provincial levels. Environmental management recommendations focus on integrating environmental considerations into all reconstruction activities and building the capacity of local institutions to deliver environmental management as a basic service.

FISHERIES MANAGEMENT

- Mainstream fisheries management concerns and policies in coastal reconstruction.
- Develop profiles of small scale and commercial fisheries to target priority interventions.
- Develop sustainable fisheries management plans and regulations with active stakeholder participation.
- Implement fisheries management measures and regulations.
- Build the capacity of local institutions to monitor and evaluate the status of fisheries resources.

VILLAGE-BASED COASTAL RESOURCE MANAGEMENT

- Increase community awareness of coastal ecosystem values and services.
- Develop coastal resource management plans with active community participation.
- Rehabilitate and protect lowland forests and coastal vegetation as protective buffers.
- Rehabilitate and protect mangroves and coastal wetlands as protective buffers and nursery grounds for fisheries.
- Establish marine protected areas for coral reef ecosystems as recruitment sources for the restoration of other areas.

ENVIRONMENTAL MANAGEMENT

- Mainstream environmental considerations in all aspects of reconstruction.
- Build capacity of local institutions to deliver environmental management services.
- Develop effective mechanisms for local stakeholder participation in environmental management decisionmaking
- Develop monitoring capacity, both within infrastructure projects and also linked to local government.

RATIONALE

Hundreds of international NGOs and donors have been working in Aceh province since the disaster providing important emergency relief efforts to devastated communities. Many of these organizations have substantial financial capacity to move from the emergency relief phase to rehabilitation and reconstruction activities. This transition period creates opportunities – as well as challenges – for integrating coastal resource and environmental management systems into the rehabilitation and reconstruction of the west coast of Aceh province.

Currently, fisheries-related coastal livelihoods and infrastructure rehabilitation activities are being programmed and funded with little consideration of the medium-term fisheries management implications. While many organizations are funding boat construction to rehabilitate small-scale coastal fisheries, anecdotal evidence indicates that the number of small boats being constructed may well exceed what was lost in the tsunami, not even considering the number of fishermen still alive and capable of fishing (and the still smaller number of capable fishing boat captains). Further, there is a high probability that fishing boats are being

distributed to non-fishermen. These issues, including the quality and seaworthiness of newly constructed boats, are being raised through the regular fisheries working group, jointly led by the Provincial Dinas DKP and FAO.

The initiation of fisheries management interventions presents an important opportunity to provide a rational basis for rehabilitation and proposed expansion of fisheries-related infrastructure including fish ports, landings, fishing boats, and post-harvest facilities as well as build in sustainable coastal livelihoods tied to the M-BA road reconstruction. Early discussion of fisheries interventions, alternatives, and priorities will help to redirect some effort to improving value added and market potential in the fisheries sector (with focus on livelihoods and poverty alleviation), not simply increasing the capacity to harvest fish.

Rehabilitation and livelihood interventions also need to understand fishing as part of broader fisheries sector activities. Fishers and boats are only the first link in a market chain of additional transport and processing activities, such as drying, salting, freezing, or packaging – that can be conducted by urban dwellers, women, and non fisherfolk. Also, supply chains and support services, such as engine repair, cold storage, vendors associations, and transport operators need to be redeveloped and improved, not just the capacity to fish. All of these represent important and useful livelihood support activities, as well.

The restoration and protection of environmental services from coastal ecosystems, including lowland forests and coastal vegetation, wetlands, mangroves, and coral reef environments, is intimately linked to the degree to which communities are involved in resource management decisions. Participatory coastal land use planning and zoning is an important first step in coastal ecosystem restoration. Village-based coastal resource rehabilitation and management presents a strategic opportunity to provide systematic assistance in coastal ecosystem restoration tied to the Meulaboh-Banda road reconstruction. Community based, multi-stakeholder, management plans and agreements will also be an important contribution to revitalizing and improving local environmental governance systems.

The large scale of reconstruction efforts, multitude of donors and NGOs involved, and speed at which decisions are being made, could pose significant challenges to restoring environmental services from coastal ecosystems if reconstruction activities exacerbate the already-damaged coastal environment. Coastal resource and environmental management systems are needed to guide the reconstruction and long-term development of Aceh province. The recommendations below provide significant opportunities for both GOI and international development agencies.

DESCRIPTION

FISHERIES MANAGEMENT

Rebuilding the capacity of the fishing fleet without the simultaneous introduction of fisheries management measures is irresponsible given the well-documented, downward spiral of fish stocks worldwide. Fishing boats, ice plants, landings, and ports were significantly damaged or destroyed as a result of the earthquake and tsunami. Many relief organizations are providing support to repair or build boats for fishermen and committing to provide small scale infrastructure such as ice plants and fish landings to restore coastal livelihoods. Limited information and data for Aceh, as well as more comprehensive studies for the rest of Indonesia, suggest that over-fishing was likely in near-shore and offshore waters of Aceh province before the tsunami. The development of marine capture fisheries management is needed now as the capacity of the fishing fleet and associated infrastructure are being rehabilitated and reconstructed.

Integrate fisheries management concerns and policies in coastal reconstruction. Coordination of the many efforts to build boats and restore fishing livelihoods is limited and anecdotal evidence indicates that the number of boats being built may well exceed the number of surviving fishermen. Fisheries management concerns including overcapitalization of the industry and that a sustainable fisheries management framework at district and provincial levels needs to be integrated into all aspects of reconstruction that affect the resources. Workshops with relief organizations on fisheries management principles and codes of best

practices have been suggested by FAO, as well as development and distribution of sustainable fisheries framework and best management practices.

Develop profiles of small scale and commercial fisheries to target priority interventions. Information and data are needed to manage fisheries. In Banda Aceh, much of the fisheries statistics were lost in the tsunami. There is a need to compile and consolidate existing information on the status of fisheries. Currently, there is no consolidated information about small scale or commercial fisheries along the west coast of Aceh province. Workshops with local government, *Panglima Laot*, local NGOs, and local universities are needed to identify priority issues, compile site-specific information and data on the status of the fisheries, and identify government and traditional management measures. Fisheries profiles will serve as a baseline for building management systems to address reconstruction needs.

Develop sustainable fisheries management plans and regulations with active stakeholder participation. Fisheries resources along the west coast of Aceh are harvested in an open access regime without limits to the number of fishers, boats, catch, or other management measures that are used to reduce the risk of over-fishing and fisheries collapse. Management plans with a range of access restrictions are needed to avoid over-fishing and overcapitalization. These management plans must be area-based and address both small-scale and commercial fisheries in an integrated manner to reduce conflicts and to manage the complex and diverse assemblages of tropical marine life. Local government and national government agencies as well as the fishermen, traditional fishers' organizations, and other stakeholders need to work together in developing a rational framework for fisheries management along the west coast of Aceh province, linking economic viability and sustainability with protection of ecosystem integrity. Illustrative activities include:

- Workshops with fishermen to identify traditional management measures.
- Training and technical assistance in fisheries management.
- Write-shops to develop integrated, area-based fisheries management plans for small-scale and commercial with active participation of traditional fisheries organizations (*Panglima Laot*) and commercial fishers, as well as endorsement by appropriate government agencies.

Implement fisheries management measures and regulations. Fish stocks could be rebuilding during this period of time when fishing pressure is reduced. However, foreign fishing fleets from Thailand and other neighboring countries are fishing illegally in Indonesian waters around Aceh province, sometimes encroaching within 3 nautical miles of the coast. These activities are likely to increase with the absence of Acehnese fishermen on the water monitoring and reporting intrusions to the water police (SatPol Air) and Indonesian Navy. There is an urgent need to increase enforcement capacity to provide the opportunity for fish stocks to rebuild for the benefit of Acehnese fishermen. Illustrative activities could include:

- Establish registration and permitting system for small-scale coastal fisheries.
- Limit access through spatial, temporal, and effort restrictions.
- Conduct formal training on all aspects of coastal law enforcement including boarding operation, patrol planning, interdiction, and prosecution.
- Train *Panglima Laot* to assist the water police with monitoring, surveillance and enforcement programs.
- Provide appropriate hardware support for local enforcement activities including computers, information management systems, monitoring equipment, and patrol boats as identified through a needs assessment.

Build the capacity of local institutions to monitor and evaluate the status of fisheries resources. The collection, analysis, and management of new information and data are needed to manage fisheries during reconstruction and over the long-term. Local fisheries agencies, coordinated up to the provincial level, need

to improve monitoring and evaluation of fisheries resources. Syiah Kuala University may be an excellent source of expertise and training to analyze data and develop technical inputs for local management plans. USAID's innovative support for Indonesia's Sea Partnership Program provides an excellent mechanism for developing and delivering some of these recommendations. Illustrative activities include:

- Training of local government and *Panglima Laot* to collect and analyze fisheries data.
- Development of enhanced fisheries monitoring systems at fish landings and ports.
- Fisheries management database system development with computer hardware support at fish landings and ports and linked to local and national government agencies through Internet.
- Capacity building for local universities in fisheries resource assessments and applied research to support fisheries management activities through Sea Grant program.

Entry Points: Local partners for this program area include: local government, traditional fisheries organizations, fish vendor associations, local universities and local NGOs. The provincial and district level Offices (*Dinas*) of Marine Affairs and Fisheries would serve as the lead agencies in developing marine capture fisheries management plans with active participation by traditional fisheries organizations such as the *Panglima Laot*. Local universities would be engaged in conducting fisheries assessments, analyzing fisheries data and information and assisting in the development of monitoring and reporting systems through the Sea Grant Program. The capacity of local NGOs to assist the local government and traditional fisheries organizations in fisheries management would be developed through workshops and training.

Donor /NGO links: The Food and Agriculture Organization (FAO) can serve as a key partner in this program area providing technical expertise on various aspects of fisheries management. International NGOs, including CARE, Triangle, and Save the Children, are engaged in boat building activities as part of relief and rehabilitation efforts. Mercy Corps is providing support to improve the administrative and technical capacity of the *Panglima Laot* organization, in collaboration with Yayasan Laut Lestari Indonesia, from North Sulawesi. The World Bank/Norway is committing $1.6 million for bathymetric mapping and substrate classification, hydrographical sampling, sediment coring, fish and plankton sampling, and fisheries resource assessment. Sampling sites will be located along the northern and western coasts of Aceh in near shore and offshore marine environments.

COMMUNITY-BASED COASTAL RESOURCE REHABILITATION AND MANAGEMENT

Aceh's coastal resources, environment, and shoreline were dramatically altered by the earthquake and tsunami. Debris, including metal, bricks, concrete pieces, wood, drums, and vehicles were strewn in sensitive habitats both in coastal wetlands and in the near shore environment. Aceh's diverse coastal ecosystems, including coral reefs and mangrove, peat swamp, and lowland forests, experienced massive physical stress resulting primarily from the tsunami. Coastal forests were uprooted or snapped under wave energy. The course and flow of rivers and estuarine areas have been changed, clogged by debris and new sand berms at the mouth of these areas. Entirely new geomorphologic features have been created where water has been retained in new wetland and lagoon areas created by the tsunami, as well as subsidence associated with the earthquake and tectonic activity. Limited surveys in the northern island areas show that coral reefs were damaged in a patchy manner dependent on local currents and environmental features.[1] Assessments of Aceh's coastal resources are only just being initiated and only in limited areas of the impact zone. Village-based coastal resource management provides the necessary framework for local participation in management decision-making upon which sustainable coastal livelihoods and restoration of healthy ecosystems depend.

[1] Limited offshore, underwater survey work has been conducted along the west coast, mainly only on the northern islands (and only verbal reports were available from the UNESCO, IPB, WCS, and FFI teams involved). Coral may be an important coastal feature in the west of Aceh Besar, but is unlikely to be prominent in off shore areas of Aceh Jaya and Aceh Barat, due to the nature of the high energy, sandy coast. No before and after comparisons have been made in this area, so findings are necessarily anecdotal and preliminary.

Increase community awareness of coastal ecosystem values and services. The value of coastal ecosystems and the environmental services they provide was highlighted as a result of the tsunami. The success of coastal resource management initiatives will depend in large part on enhancing community awareness of the multiple environmental services maintained by healthy and resilient estuarine areas, wetlands, swamp forests, mangroves, and coral reefs. The development of village-based coastal environmental information, education, and communication programs is critical to increasing awareness and knowledge of coastal resource problems and solutions. These ideas were already discussed in some detail in the prior section on Program Area 2.4.

Develop coastal resource management plans with active community participation. Village-based coastal resource management plans developed with active community participation provide the best assurance for implementation. Illustrative activities include: training for communities to conduct participatory coastal resource assessments, training for local government and local NGOs to facilitate participatory community-based planning, and technical assistance to coastal communities in developing coastal resource management plans.

Rehabilitate and protect lowland forests and coastal vegetation as protective buffers. In some areas, lowland forests and coastal vegetation were devastated by the tsunami. Coconut palms and Casuarina were fairly resistant in some areas, while other types of vegetation, including rubber trees, were not. In some areas, coastal vegetation was not destroyed by the tsunami, but later died, presumably due to soil salination. In the absence of coastal vegetation, newly exposed shoreline areas are further eroding causing sedimentation in the near shore environment, readily seen from the air. Unfortunately, seawalls and other man-made structures are not a universal solution. These structures generally reflect wave energy causing increased erosion in adjacent areas. Rehabilitating and protecting lowland forests and coastal vegetation is vital for the rehabilitation of the shoreline and immediate coastal areas to serve as a coastal buffer. Illustrative activities include:

- Survey and delineation of suitable sites and appropriate, salt resistant species, preferably those with economic value for rehabilitation of lowland forests and coastal vegetation.
- Development of village-based rehabilitation and protection plans for lowland forest and coastal vegetation.
- Establishment of nurseries for diverse and appropriate assemblage of lowland forest and vegetation species.
- Development of incentives for rehabilitation of lowland forests.
- Monitoring and evaluation of rehabilitation and regreening efforts.

Rehabilitate and protect mangroves and coastal wetlands as protective buffers and nursery grounds for fisheries. The west coast is not an important mangrove habitat, relative to the north and east side of Aceh province. However, existing or former mangrove areas in Banda Aceh and Aceh Besar could be rehabilitated as part of proposed new green belts and efforts to protect coastal areas and communities. Newly created wetland areas – in areas of subsidence and reformed coastal morphology, could be rehabilitated, protected, or further developed as part of an effort to rehabilitate ecological services to protect coastal areas from extreme wave events, to stabilize coastal erosion, and to enhance fishery nursery grounds. This could be proposed as a form of "wetland mitigation banking" (a relatively new concept for Indonesia) which would help to recover/replace the loss of wetland areas and fish nursery habitats over the last 10 to 20 years (though this process was more widespread along the east coast). Illustrative activities include:

- Survey and delineation of suitable sites for rehabilitation including new wetlands and former wetland and mangrove areas.
- Development of village-based rehabilitation and protection plans for wetlands and mangrove areas.

- Establishment of nurseries for diverse and appropriate assemblage of mangrove and wetland species.
- Development of incentives for wetland, coastal vegetation, and mangrove rehabilitation.
- Monitoring and evaluation of rehabilitation efforts.

Local universities could assist in delineating rehabilitation sites based on suitability for replanting and monitoring and evaluating rehabilitation efforts. Local NGOs could engage communities in coastal land use planning and the establishment of nurseries for rehabilitation activities.

Establish marine protected areas for coral reef ecosystems as recruitment sources for the restoration of other areas. The distribution and condition of coral reefs along the west coast of Aceh province before or after the tsunami are not well documented. The near shore marine environment along the west coast is characterized by a high wave energy environment with significant sand scouring, regardless of terrain. Coral reefs occur and provide environmental services including nurseries for fisheries resources and habitat for diversity of marine life. Marine protected areas exist in Pulau Weh to the north of Banda Aceh, in Simeulue off the west coast, and in Kepulauan Banyak to the south of Simeulue. After the initial rehabilitation phase, there may be opportunities, in conjunction with local communities, to improve the status and management of these areas and even to increase the number and variety of locally important protected or no-take zones. The establishment of marine protected areas (even at the community scale) is one of the best coastal resource rehabilitation and protection mechanisms for coral reef ecosystems and an important contributor to the long-term health and resilience of marine fisheries. Illustrative activities include:

- Identification of suitable marine protected areas with active community participation and involvement in site selection.
- Development of village-based marine protected area management plans.
- Monitoring and evaluating rehabilitation efforts.

Entry Points: Coastal villages are being rehabilitated and will serve as the primary entry point for coastal resource rehabilitation and management. Local universities could assist communities to delineate and monitor marine protected areas. Local NGOs could engage communities in marine protected area planning. The capacity of local government together with local NGOs must be developed to deliver coastal resource management as a basic service.

Donor /NGO links: Many international relief and development NGOs are working at the community level, some in concert with local partners. These organizations need training and skills development in coastal resource issues and management practices. A few international environmental NGOs, including WWF Indonesia, Fauna and Flora International (FFI), and Conservation International had programs in Aceh before the tsunami. These organizations and their local partners can become the base for improved and expanded environmental and coastal protection efforts. The Global Environment Facility Small Grants Program (Jakarta-based) has initiated efforts to identify potential grant activities (limited funding potential) in Aceh Besar. A potential local partner is YPK (Yayasan Pengembangan Kawasan –Regional Development Foundation), based in Meulaboh.

ENVIRONMENTAL MANAGEMENT SYSTEMS

Reconstruction efforts have the potential to exacerbate the already fragile and damaged condition of Aceh's coastal environment. Underlying the renewal of livelihoods along the west coast of Aceh province is the need for environmental infrastructure and management systems that support a healthy, productive workforce, promote high quality product standards, especially in market sensitive foodstuff such as fisheries, and support international best practice standards for service industries such as tourism that may emerge as Aceh recovers. Given the population distribution and largely rural economy of the west coast, environmental management

systems and infrastructure will need to be decentralized and relatively simple but effective for the medium-term future.

Integrate environmental management in all aspects of reconstruction. Strategic environmental assessments and environmental impact assessments must be prepared with ample public scoping despite the urgent need for reconstruction to proceed. Regular environmental impact forums could serve as an early warning system for identifying potential environmental impacts of projects, to report on environmental conditions during reconstruction, and to share strategies to reduce environmental impacts. These forums could be organized by appropriate local government agencies (Provincial and local Bappeda and Bapedalda) with technical assistance and resource support, potentially, from the BRR, donors, international and local NGOs and universities.

Environmental services infrastructure must be included in all coastal infrastructure projects. Wastewater treatment facilities are needed for fish ports, landings, and processing facilities that typically generate considerable amounts of wastewater and solid waste. Large scale infrastructure projects, such as fishing, general cargo or passenger ferry ports should ensure that appropriately scaled and designed WWTPs are included. These kinds of interventions would benefit substantially from the water and sanitation expertise and programs being developed by USAID's Environmental Services Project, as well as other NGOs and donor organizations working in the sector. Also, international NGOs – notably IRC and World Vision – are actively engaging in water and sanitation issues, mainly at household or community level. These initiatives could become part of an effort to improve sanitation at public facilities, such as ports and processing facilities. Future coastal tourism projects, to be successful, will need strict environmental and health standards to reach international clienteles.

Environmental services are both natural (the hydrological cycle in watersheds) and man-made (wastewater treatment) and most are combinations. Service provision relies on a certain absorptive ability (sometimes called carrying capacity) of the natural environment supplemented (or weakened) by human activities. Environmental management policies promote and support regulation, standards and construction activities that conserve or extend environmental carrying capacity, including win-win solutions that also provide economic benefits. Coastal environmental management in particular is challenging because the ocean is a hidden environment but also a very fragile one.

Build capacity of local institutions to deliver environmental management services. The capacity of local institutions to deliver environmental management services needs to be developed for reconstruction and long-term development of Aceh province. Local institutions need training in strategic environmental assessment, environmental impact assessment and monitoring environmental conditions and quality. These issues are taken up in more detail in the next section, which discusses institutional strengthening.

Develop effective mechanisms for local stakeholder participation in environmental management decision-making. Consultation and reporting mechanisms need to be developed to ensure participation, transparency, and accountability in environmental management decision-making. Workshops, forums, and other small group meetings need to be held to solicit input from local stakeholders on reconstruction efforts and associated environmental considerations. Village-based information centers could be developed to serve as a local clearinghouse for reconstruction and environmental management.

Institute a comprehensive environmental monitoring program. Trained local NGOs and universities could augment local government capacity to implement a comprehensive monitoring program throughout reconstruction. Donors and international NGOs should be encouraged to employ trained local institutions to conduct comprehensive environmental monitoring. In this regard, use of the university-based, DKP managed Sea Partnership program could be encouraged.

Entry Points: Local government at district and provincial levels are mandated to deliver basic environmental management services. The capacity of local NGOs and universities to provide technical assistance and extension services to local government would need to be developed.

Donor /NGO links: USAID ESP and all donors and international NGOs involved with infrastructure development including World Bank, ADB, JICA, Mercy Corps, Save the Children, CRS.

EXPECTED OUTCOME

Expected outcomes from activities to sustain benefits from coastal resources include:

- Area-based fisheries management plans developed, endorsed by government and local stakeholders and implemented.
- Fisheries regulations adopted and enforced.
- Improved fisheries management decision-making by government and local stakeholders based on participation and empirical information about the fisheries resource.
- Increased awareness of the value of environmental services provided by healthy coastal ecosystems among coastal communities.
- Community-based coastal resource rehabilitation and management plans developed, endorsed, and implemented by government and local stakeholders.
- Number of hectares of lowland forests, wetlands, mangroves, and coral reefs, restored and protected under improved resource management regimes.
- Environmental management framework developed and endorsed; policies and practices developed as a framework for reconstruction.
- Widespread adoption of best practices and behaviors to minimize environmental impacts by reconstruction entities.
- Contribution toward achieving Millennium Development Goal 1 - Eradicate extreme poverty and hunger and Goal 7 - Ensure environmental sustainability (Targets 9, 30, and 31).

2.6 STRONG LOCAL INSTITUTIONS

BUILDING CAPACITY FOR THE FUTURE

The presence of a large number of foreign NGOs for two to five years or longer and the infusion of large and small donor projects provide significant opportunities to train a large number of local people at the village, sub district and provincial levels in a wide variety of essential governance, economic and development management skills, thereby jump-starting Aceh's social reconstruction at least as much as its physical reconstruction.

How institutional and skills-based capacity building is carried out makes a crucial difference. What is recommended here is an approach that is performance and outcome-based and that is rooted in the various reconstruction programs and projects, rather than generic training. The targets are local government, private sector and civil society organizations and educational institutions. We recognize that many skill and institutional needs will inevitably be similar among the various interventions but training, technical assistance or mentoring should be rooted in the actual activities as much as possible. This requires that donors, projects, and NGOs explicitly include skills and performance-based capacity building in as many of their activities as possible.

- Prioritize results-based, participatory planning for coastal development.
- Provide skills training in mediation, conflict resolution and coordination.

- Support private sector and civil society roles in reconstruction and development.
- Facilitate the organization of information, public awareness and communications.
- Integrate gender considerations in capacity building for coastal rehabilitation and reconstruction.

RATIONALE

The tsunami further weakened institutional capacity within local government and community institutions to rehabilitate and reconstruct coastal social and physical infrastructure and supporting environmental services. Even before the earthquake and tsunami hit Aceh, the capacity of local governments, NGOs and communities to plan and manage development activities were considered low, relative to other provinces, mainly because of the military emergency. For this reason, a strong capacity building element must be integrated into the coastal rehabilitation and reconstruction program – one that provides the necessary knowledge, skills and practices to undertake integrated and sustainable coastal resources management and development. Even after the emergency phase, cleanup activities and resettlement of communities are completed, serious coastal ecosystem and socio-economic problems in Aceh will remain for many years to come. Therefore, building the capacity of all major institutions – local governments, universities, NGOs, and social/cultural institutions – is crucial for Aceh's overall rehabilitation and reconstruction program.

DESCRIPTION

Ideally, interventions in Aceh should start with an assessment of human resources capacity and its deployment for rehabilitation and reconstruction, unless this information is already available. This includes government, non-government and private sector human resources and institutions. A gap analysis should then be undertaken to identify basic governance and development management needs at the local level and also the specific needs required by the project or intervention program. If an appropriate capacity building program in the skills area or physical location is not available it should be built into the reconstruction program.

Beyond the specific skills that may be required for a port reconstruction project, for example, or a community environmental services project, Aceh's reconstruction, particularly in the west coast, will require outcome and performance-based institutional capacity-building efforts. Starting with a set of end results and working backward will not only more likely identify critical institutional gaps but also lend itself to seeing how all governance institutions: government, civil society and private sector contribute to the capacity to address a particular issue. This is especially evident in the provision of environmental services, e.g. solid waste management or water supply services but is also true for the planning and management of physical infrastructure.

Prioritize Results-based, Participatory Planning for Coastal Development. Sustainable development planning should be both bottom-up and top-down. Government provides a framework for the "rules of the game" to ensure equitable access, avoid destruction of the commons and provide governance services. Communities, businesses and civil society provide input to government on basic needs, social programs and economic initiatives. This requires capacity-building oriented towards ensuring that planning is able to be done by all of the above-mentioned stakeholders and not just local governments. It is recommended that a plan be developed with local governments and institutions for a joint training program, preferably decentralized to the village and sub-district levels as much as is feasible, so as not to disrupt reconstruction activities. Such a plan should involve all sectors and could include cross visits, exchanges and lessons learned. Early USAID investments, such as the Provincial Area Development Projects (PDP), NRM II and III and CRMP, in other parts of Indonesia, also should be examined for lessons and design elements. Those activities also focused on coastal and rural development and infrastructure planning directly with local governments (village, sub-district and provincial level). Other recommendations and illustrative actions include:

- Training, workshop and technical assistance for local public and private institutions on coastal resources management plan development; community involvement in community based enforcement and surveillance; collaborative management in coastal rehabilitation and reconstruction, and marine and mangrove protected areas development.

- Training and technical assistance for local governments, including local legislative bodies (DPRD) to formulate and adopt integrated, community-based coastal resources management and coastal and marine protected areas laws or local regulations (*perda*).

- Training of local institutions in regional development and economic planning in the context of projects, including infrastructural planning, livelihoods-related policies and programs, sustainable tourism establishment, co-management of coastal rehabilitation and reconstruction.

- Training to strengthen the planning and management capacity specifically of local governments to undertake environmentally-sound reconstruction of infrastructure, including facility sitting, construction standards and use of spatial planning to regulate and plan coastal development.

- Recruit, train and equip a team of village extension agents for community-based coastal resources management, coastal rehabilitation, ecosystem protection management plan establishment and development, and the implementation, monitoring, evaluation and surveillance program to assist local government in spatial planning.

- Sharing and cross visits to the sites of best practice models and experiences. One possible mechanism for this that would be relevant to Banda Aceh and Meulaboh is the USAID-funded Resource Cities Program, which funds exchanges, technical assistance, workshops, and other proven sister cities techniques. Communities have the opportunity to build institutional capacity for sustainable development through sister city partnerships; design and implement specific projects that can be completed within 12 to 24 months; and assess how the projects can serve as a catalyst for ongoing sustainable development initiatives.

Provide Skills Training in Mediation, Conflict Resolution and Coordination. A major governance function is the mediation and adjudication of conflicts in the use of public resources, economic disputes and social conflicts. The Aceh disaster has caused a tremendous amount of social and economic dislocation and loss, an influx of a large number of foreign organizations and workers and a significant increase in new economic activities related to relief, rehabilitation and reconstruction. Our observation is that the remaining resources of local government are now stretched to the breaking point by all these forces, despite the goodwill of all of the global organizations now working in Aceh. Hence, it is essential that mechanisms be established as soon as possible, from the village to the provincial government level that can provide a true multi-stakeholder planning and coordination function. The recent establishment of the Reconstruction and Rehabilitation Body (BRR) will take some time to develop operational activities and local presence and may not in the short run be able to contribute meaningfully to coordination and dispute resolution at the local level in Aceh. In any event, the largely administrative skills, which local government officials learn and use daily, are not well-suited to handling complex, rapidly changing, physical and socio-economic environments of the kind posed by the disaster and rebuilding. Hence, it is recommended that advisors skilled in post-disaster reconstruction management be recruited and that working groups or planning forums, at least at the district level, be set up to provide mechanisms for addressing mediation, conflict resolution and coordination in a learning-by-doing process supported by mentors.

Support Private Sector and Civil Society Roles in Reconstruction and Development. The private sector and civil society organizations (local NGOs, religious and community organizations) are already involved in the relief, rehabilitation and reconstruction process. The reconstruction process can be used to instill best management practices, new business or advocacy skills, internal governance processes (transparency, accountability, etc.) and information management and communication skills. Intervention projects and programs can be designed to engage and build capacity among the private sector and civil society organizations.

This approach to capacity building can be especially useful to Acehnese NGOs and universities that have had limited opportunities in the past to be involved in the development process. The following types of activities may be possible:

- Increase the capacity of Syiah Kuala University in its research, teaching and extension program for coastal rehabilitation and reconstruction, integrated coastal resources management and coastal community development program, through the Sea Partnership program, including short-term training and an internship program (*pengabdian masyarakat*).

- By means of integration of university-based expert staff in donor/NGO reconstruction activities, provide opportunities to work with project experts on ICM, oceanography, coastal circulation, waves, bathymetry, tsunami, low impact housing/infrastructure development, hazard mitigation planning and preparedness related to earthquakes and tsunamis.

- In village-level projects, provide opportunities for training local NGOs to assist community groups in coastal rehabilitation and reconstruction, management plans for coastal resources, protected areas of coral reef, mangrove, coastal forest, and other important ecosystem and species.

- Build the capacity of local NGOs to assist community groups in livelihood development for coastal communities, through livelihood interventions.

- Foster networks of local NGO consortia to coordinate, facilitate and develop advocacy programs for capacity building for coastal community livelihood programs, community based-ICM programs, community based ecosystem rehabilitation and protected areas programs, community strengthening and awareness-raising programs, and conflict resolution.

- Identify opportunities to support individual entrepreneurs in the community, cooperatives at the community level, and business associations in towns.

- Support progressive entrepreneurs who are interested and willing to practice sustainable resource management, either in primary production activities or processing and services.

Facilitate the Organization of Information, Public Awareness and Communications. In large part, this topic has been addressed in Section 2.4 of this report. In this section, we want to highlight the capacity of government, private sector and civil society to manage information and communications effectively in the forthcoming reconstruction effort. This is a critically important and sensitive function in a democracy and no more so than when a society is in crisis and recovery as Aceh is. Some important types of activities include the following:

- Train local social/traditional institutions and private sector managers to understand and be aware of the importance of environmentally friendly construction techniques in infrastructure, construction standards, and spatial planning to regulate and plan coastal development.

- Train members of the *panglima laot* to become community organizers and facilitators for coastal rehabilitation and reconstruction program, ecosystem rehabilitation and protection, community-based management plan establishment and development, and in implementation, monitoring, evaluation and surveillance. In all these functions, as traditional leaders, one of their most important skills will be communication and information management.

- Identify, strengthen and build the capacity and the role of religious, customary, social, community institutions such as *Gampoeng*, *Mukim* and its structural and functional role (including *Panglima Laot* (fisheries and sea), *Petua Seunebok* (agricultural leader), *pawang glee* (forest advisor) to participate in governance and livelihood decision making for coastal rehabilitation and reconstruction process. As with the *panglima laot*, their most important skills will be communication and information management

- Enhance community knowledge, awareness and readiness on early prevention of disaster (earthquake and tsunami) through public education, cultural/traditional wisdom and community-based early warning system.

Integrate Gender Considerations in Capacity Building for Coastal Rehabilitation and Reconstruction. All capacity building activities should strive for gender balance with respect to participation, and should explicitly integrate gender dimensions into the various capacity building programs and training curricula. In coastal rehabilitation and reconstruction programs, it will also be necessary to strengthen the capacity of local government in participatory planning and to increase their technical knowledge of the best practices implemented in many other parts of the world. Specific recommendations in gender mainstreaming are:

- Develop policies and guidelines that support gender equity in coastal rehabilitation and reconstruction process.
- Promote equal opportunities and voices for all men and women in planning and decision making for coastal rehabilitation and reconstruction process.
- Promote equal opportunity for women and men in training and capacity building activities for livelihood development, planning development and decision making processes.

EXPECTED OUTCOME:

- Increased capacity of local government, university, NGO, local community institutions (including religious/customary/traditional/social institution) in coastal resources rehabilitation and reconstruction process, ICM plan development, implementation, monitoring and evaluation, in ecosystem management and protection.
- Local government, university, NGO and local institutions mobilized to advocate for improved management capacity in ICM and ecosystem protection and improved gender balance in decisionmaking process.
- Improved management practices and behaviors at the community level in coastal resources management, ecosystem rehabilitation and protection.
- Increased local community knowledge, awareness and readiness on early prevention of disasters (earthquake and tsunami).
- Raised awareness, knowledge and skills of local government, university, NGO and community in integrated coastal resources management, disaster preparedness, and livelihood program.
- Progress toward development, adoption and implementation of an ICM plan, marine, mangrove, wetland protected areas in west coast Aceh.
- Gender is mainstreamed in coastal rehabilitation and reconstruction, ICM, and protected areas development programs.
- This program area supports progress towards Millennium Development Goal 3: Promote gender equality and empower women.

Donor/NGO Links: Capacity building and training in livelihood program can be linked to many different donors such as ADB-*Kecamatan* Development Program (KDP), FAO, Oxfam, IRC-CARDI, CRS-Accord, ADB-Japan Fund for Poverty Reduction (JFPR) Grant, JICS and GTZ and many other international NGOs. Capacity building for local community should be linked with national and local NGOs such as WWF Indonesia, WALHI and Aceh NGO's Forum, Wetlands Indonesia, Plan International Indonesia, YPK, Aceh Ocean Coral, and others.

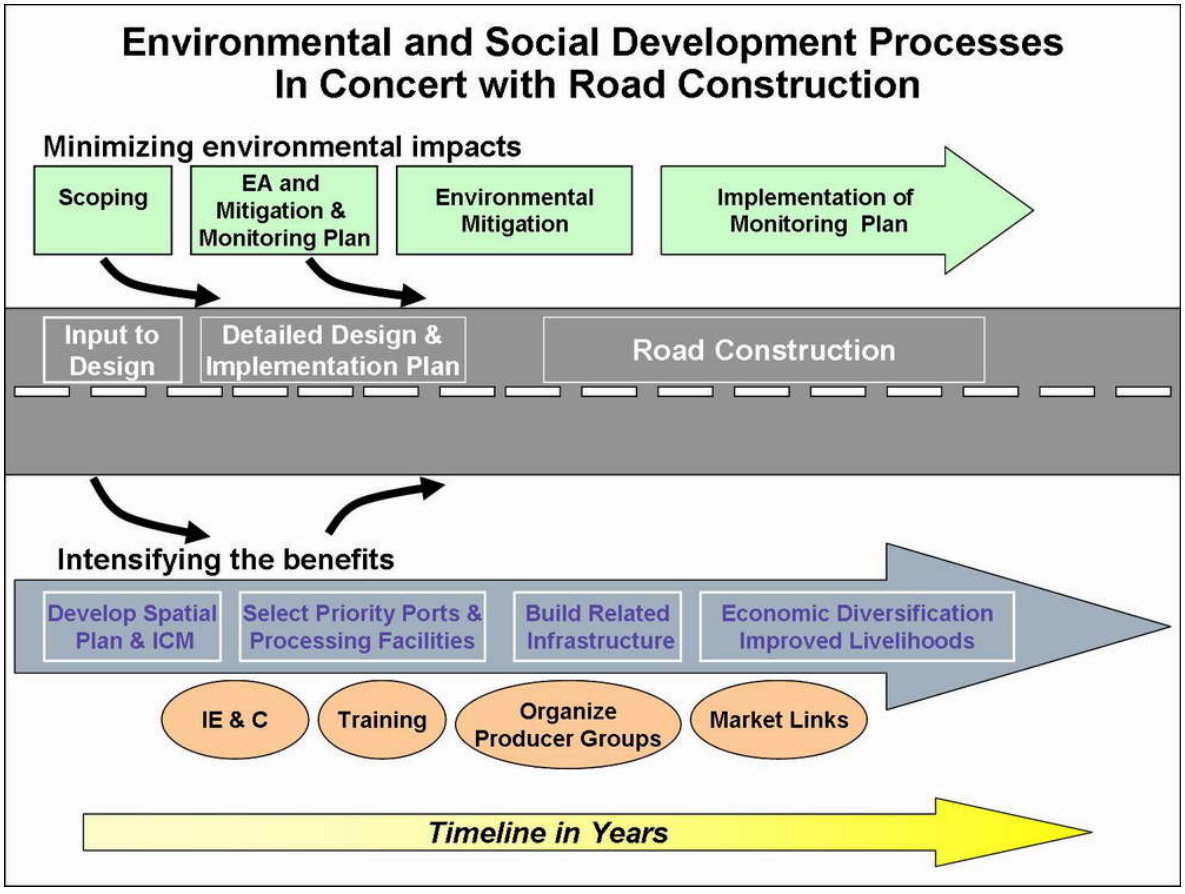
3.0 IMPLEMENTATION CONSIDERATIONS

A number of factors were considered in developing the recommendations described above. Planning and coordination mechanisms between the GOI, donors and international NGOs must be improved to intensify the benefits from road reconstruction and minimize environmental impacts. Other implementation considerations include constraints, activities covered by other organizations, and actions with the potential for significant environmental impacts.

3.1 PLANNING AND COORDINATION MECHANISMS

As people's needs are being filled through the efforts of relief organizations, planning and coordination mechanisms need to be established to facilitate the transition from relief to rehabilitation and reconstruction efforts. The M-BA road provides a unique opportunity to link environmental, social, and socioeconomic development processes to build ownership in the rehabilitation and reconstruction of coastal communities, ecosystems, and livelihoods for long term sustainability.

The following figure illustrates conceptually how activities to minimize environmental impacts, investments to intensify economic and livelihood benefits, and programs to strengthen institutions can be integrated with the road construction process in an appropriate time frame.



3.2 CONSTRAINTS

Lack of coordination, direction and prioritization of the reconstruction efforts may serve as a constraint resulting in fragmented implementation and poor delivery. Understandably, the relief effort has been uppermost in both the GOI's and the UN's and NGOs' lists of priorities. However, many organizations are rapidly transitioning into rehabilitation and reconstruction phase and this requires a different mode of operation. The announcement of the BRR reflects this recognition and this will hopefully be a valuable contribution to directing the reconstruction effort. Foreign and Indonesian teams on the ground need to be organized into working groups that have a clear and rigorous program and set of intended outcomes and priorities.

Security in Aceh poses another constraint. Consultations with local government and other local stakeholders is essential is developing ownership and cooperation for successful road construction as well as implementation of other projects. The scoping process, conducted as part of the environmental assessment for the road, will be important in addressing these concerns.

3.3 COASTAL ACTIVITIES COVERED BY OTHER ORGANIZATIONS

Many international donors and NGOs are supporting relief and reconstruction efforts. Detailed information about reconstruction efforts should be captured in a geographic information database system that expands what UN HIC has developed to track organizations and activities working in relief efforts.

Livelihoods activities including construction of boats, small-scale ice plants, and cleaning and replanting agricultural land are already being covered by many organizations, which is why these activities were not highlighted in this report. Similarly, interventions and infrastructure in the education sector are being developed by other organizations, including the construction of adult and youth vocational training centers, housing, shelter, and government agency facilities.

The many activities being conducted by the hundreds of international donors and NGOs is constantly changing and should be regularly assessed as part of the input needed for planning reconstruction along the road.

3.4 ACTIVITIES WITH POTENTIAL FOR SIGNIFICANT ENVIRONMENTAL IMPACT

Although the coastal environment along the west coast of Aceh was seriously damaged, the potential for environmental, social, and socioeconomic impacts related to road reconstruction or other reconstruction efforts must be identified and the risks carefully evaluated through an environmental assessment process. As a starting point only, some activities with the potential for significant environmental impact include the following:

- Construction of seawalls, offshore barriers, artificial reefs;
- Re-aligning, concretizing rivers, filling in/ obstructing flow through wetlands;
- Increasing fishing capacity without concurrent management interventions;
- Relocation of populations; and
- Facilities to service work crews (sanitation & transmission of diseases).

Although some of these activities will be necessary in some places, it seems advisable to limit these activities to reduce the potential for negative and unintended impacts on a wider scale.

4.0 DISSEMINATION OF RESULTS AND NEXT STEPS

After completion of site visits and meetings and a draft report in April, USAID planned a second stage of activities to deliver the assessment results back to interested stakeholders, both in Jakarta and in Aceh. This section of the report summarizes the process of dissemination and the issues raised during this second stage of discussions. These considerations may provide additional insights that are helpful in formulating more concrete next steps.

Several meetings were set up to reach a wide range of stakeholders in Jakarta, Banda Aceh, and Meulaboh. Efforts were made to advertise the meeting purpose and times to concerned stakeholders through email and follow up phone calls to key representatives of key local government agencies. The invitation was also passed to a wider group of stakeholders through UNDP livelihood email network and the FAO's regular fisheries working group meeting in Banda Aceh. For the Jakarta meetings, USAID distributed invitations to key partner organizations and potentially interested groups. One meeting was set up specifically to share results with USAID projects and staff. This material was also presented in brief form to a meeting of the Donor Roundtable in Jakarta, with participation of GOI officials, including representatives of the newly established Reconstruction and Rehabilitation Board for Aceh. Local government agencies were well involved in preparing these meetings and reaching out to potential stakeholders. The Head of the Provincial Agency for Marine Affairs and Fisheries opened the meeting in Banda Aceh. The District Head (Bupati) of Aceh Barat issued the invitation and the Head of the District Planning Office presided over the meeting in Meulaboh.

The meetings followed a similar pattern. A USAID representative opened the meeting and introduced the GOI partners and the assessment team. The Team Leader presented the findings and recommendations, as outlined in the executive summary of this report. Then, the meeting was opened for discussion. The purpose was to share the ideas and issues from the assessment and solicit feedback from stakeholders and organizations working in Aceh. USAID already has projects on the ground working on issues related to health, education, economic growth, community livelihoods, water, sanitation, and environment, but has not yet determined how to proceed with all of these activities and recommendations.

4.1 BANDA ACEH

Two meetings were held in Banda Aceh on May 19, 2005. These meetings were attended by representatives from USAID projects including RLA, OFDA, ESP, DLGS, and BHS and the US Army Corps of Engineers and other government and non-governmental organizations including DKP, DFID, Plan International, Habitat, ACF, GTZ Pro LH, and IRD, Mercy Corps, CIDA, FAO, Fauna & Flora International (FFI), Indo German cooperation, Unsyiah, and Econips/German.

Discussion after the presentation focused on several questions and raised several important issues. Many agreed that it will be a challenge to find a way to effectively collaborate with all the involved groups. Many were interested in what activities USAID will fund. USAID representatives noted that USAID has many projects already represented in Aceh, working on environmental, governance, health, and education issues and these projects will be on the ground for the next 4 to 5 years. In particular, the governance program is assisting to rebuild local government capacity to take a leading role in reconstruction. The effort is to support and empower local government, working in collaboration with other donors and NGO partners, as well as local communities and organizations.

Many sought additional information about the road construction process although this assessment was not part of the road reconstruction. USAID representatives mentioned that an MOU with the GOI was signed

May 8 and the US Congress passed supplemental budget legislation on May 10. Some procurement actions have been initiated for the environmental assessment (AMDAL) process and for some limited areas of road repair. Additional procurements will follow USAID regulatory procedures, with appropriate notification to the public. Other sources of information about the road will be forthcoming as the road project develops and the timeline becomes more certain.

It was reiterated that this is a conceptual framework that many activities can fit into. It also points out that there are natural links with the road, but also more comprehensive ways to collaborate. This is a foundation for everyone to understand what needs to be done to promote development beyond the construction of the road. There was wide agreement that more coordination and cooperation are needed.

The Head of the Fisheries Dinas appreciated the presentation and was very interested in the integrated development concept to link with the road development, especially community empowerment. He also mentioned the need to develop fishing harbors, which are very needed by the people.

It will also be important to consider the main reasons for reviving these economies and communities and how to ensure that these investments fit in at the economic level. One suggested that more work needs to be done to prioritize these investments and ensure that they meet the real needs of people. There is a need for more management investment and leadership from the government and within the donor community. It was noted that USAID is already taking on the governance leadership role in Banda Aceh, while Japan is taking on the technical side.

USAID officials noted that all parties need to be involved in determining how to proceed. USAID can help with coordination, but would not take on that role without a firm and widely agreed mandate from the donors and the GOI. Several groups expressed interest in being involved in the further development of this concept and livelihoods development and integrated community planning. There is a need for a time frame on how to implement these recommendations in the short run and long run.

One of the challenges will be the resettlement and rebuilding of communities, which is already beginning to happen. The road project will have to take account of these movements of populations. IRD noted the challenge of coordination to get the resources to the right place, to integrate top down and bottom up approaches building from the communities' own needs. Community empowerment is a big challenge.

Others noted that there will need to be efforts to deal with land rights and plans for resolving those issues, for the road construction and other aspects of development. There is also a need to consider social impacts of development, not just environmental impacts. In addition to local government and community involvement, all this has to be synchronized and harmonized with central planning authorities.

There is a need to consider potential for excess capacity in fishing, as well as the quantity and quality of the boats being built and their potential for perpetuating illegal fishing activities, such as trawling. Along with fishing development, there is a need to consider and develop access to markets to improve livelihoods. One agreed with the concept of using vocational training centers, as well as the need to balance the different kinds of investments in different places so that there is not an excess of one activity/intervention in one place, with none in another.

The new road will be closer to some people's land than others and will realign economic activities and opportunities. This will add another layer of complexity to land rights and access issues. People have brought 7000 cases of land use conflicts to the local government. Many have also lost their land. So, the idea of mapping is useful.

One person noted that different development agencies and NGOs have different agendas, even hidden agendas. This will have to be noted in the development process. Another noted that there is a need to consider how this fits with Indonesia's legal environment. Though the laws may be good, in some cases, implementation and enforcement are often lacking.

Most agreed that training and institutional development are important. There is also a need to strengthen local institutions so that they are empowered to guide and channel resources that are offered by assistance organizations, rather than being overwhelmed by the pressures caused by too much money or too many organizations.

It should be noted that large international NGOs may appear to have a lot of money, but they may have constraints on how they can program and use that money. For example, some NGOs may have to spend their resources mainly to help children, which may preclude certain kinds of assistance to the local government, no matter how necessary that is. NGOs need to be responsive to their traditional donors, just as donor agencies have to be responsive to their country constituencies.

What can be done to foster coordination? At a minimum there should be a "needs match making service," a clearinghouse for project ideas and funding resources. Also, a place is needed where people can go for answers to questions, especially within the local government.

4.2 MEULABOH

One meeting was held in Meualaboh on May 20, 2005 with high attendance from local government, national, and international NGOs. The Head of BAPPEDA, in opening remarks, raised the important issue of the fisheries sector and the losses of infrastructure and human resources. Even before the tsunami, there was a lack of fisheries management and the sector was dominated by small-scale, poor fishers. He believes a breakthrough is needed to increase and sustain the fishery sector.

In Meulaboh, the following organizations were represented: Childfund, OCHA, Mercy Corps, FHI, Samaritan's Purse, CAMA, ACF, UNDP, CRS, SFRC, IOM, Spanish and Japanese Red Cross, Medan Peduli, Habitat for Humanity, Good Neighbors, *Panglima Laot*, WVI, FAO, PAPAN, UNDD Bali, YPK, IDEP/Walhi, ACTED, Caritas, Budha Tzu Chi, Pangla, YEU, CARDI/IRC. Also, most of the agencies of the local government were represented including: fisheries, forests, tourism, education, planning, environment, infrastructure, as well as BPN, and several local Camats.

One local government official commented that the assessment results and recommendations are general and do not focus specifically and practically on Meulaboh issues. Aceh Barat District will need a more detailed action plan and time frame for recovery and reconstruction. Another agreed that coastal tourism is worth developing and integrating into recovery plans. Another endorsed the concept of cooperatives as a means to strengthen the local economy. These efforts may be more sustainable and allow innovative mechanisms, such as revolving funds. Cooperatives definitely need training in financial and organizational management. Another mentioned pre-tsunami results that illustrated the relative poverty among fishers. He also mentioned the need to distinguish the management of coastal and marine resources: on the coast the focus will be on socio-economic issues of coastal communities, while in the marine area the focus should be on resource preservation and management of the economic exclusive zone.

The Dinas Perikanan agreed that more attention is needed in the fisheries sector to improve human resources, infrastructure, supporting software, appropriate technology, processing facilities to add value, and access to capital (credit scheme). A representative of the local fishing community agreed with the need to consider the trading system of fish products. He also mentioned the need to assist medium scale fishers, not just small ones. He believes local fishers need assistance to develop and access new markets, especially for direct export, so they do not depend only on the market in Medan.

Some international NGO participants were interested in having more information about the road construction process and timing. This will be important in their efforts to develop secondary roads at the request of specific villages where they are working. Another international NGO representative mentioned that some people are resettling in areas that are unsafe or unhealthy. The timing of improvements in planning and zoning will be important. It would be good to have a detailed ICM assessment and zoning and planning process with stakeholder engagement to begin to build in some environmental and health guidelines on the reconstruction process.

A local NGO representative mentioned the need to deal with issues of the displaced coastal communities before moving on to larger coastal management issues. Communities need livelihood and relocation assistance. Full and direct participation by the people will be critically important and implementing agencies and projects will really have to seriously consider how to effect and achieve this participation to include the communities' aspirations in the rehabilitation and reconstruction process. Another mentioned the need to exercise care in determining the approaches and tools for developing the livelihoods of coastal communities. In particular, translating the concept of "participation" into action and real community involvement remains a challenge. Recommendations for integrated planning and programs should be extended to the interior, as well, to assist and link with agricultural communities, not only fishers. These recommendations need to be correlated with the "blue print" and local plans should be developed to reduce the gap and synchronize between the micro and macro plans.

4.3 JAKARTA

A presentation of the recommendations was made in Jakarta at the Donor Forum on May 17, 2005. Participants appreciated the need for an integrated and coordinated approach. As many donor agencies are now transitioning from relief to reconstruction, the presentation was also considered timely in providing a macro-perspective of needs and a possible integrated planning framework for reconstruction.

In addition, two meetings were scheduled with a broad range of organizations on May 23, 2005. At these meetings, USAID officials opened the meetings and moderated the discussion. The following institutions were represented: CRS, World Bank, CHF, IRD, FFI, Asia Foundation, University of Colorado, NCBA (Cooperatives with Sam Falliaci), IMC (International Medical Corps), CI, WWF, ICRAF, Greenomics, BHS Flagship, Chemonics A-TARP, LGSP/RTI, Unicef MNH, Mercy Corps, JHU CCP, IRD, CWS, PCI, World Vision, CARDI/IRC, Project Concern, HKI, CRMP, ESP.

In general, similar issues were raised regarding the importance of integrated planning, but the problems of timing in practice, with communities already relocating and resettling. Several agreed that it is necessary to think beyond the immediate coastal area or impact zone and integrate development interventions – and environmental protection and mitigation measures – in ways that link and benefit the terrestrial and inland areas and communities. It was noted that the "upstream" communities are also mired in poverty and have little hope for improvement without better access to markets. This was reiterated in the afternoon session, where the importance of rubber and other agroforestry crops was highlighted. There was agreement on the need to expand the definition of "impact" areas, considering that marketing and supply chains have been broken. There is also a need to link up various local and "micro" economies with larger scale activities and economic opportunities. The proposed road is a key investment in this development framework.

One international NGO mentioned that USAID was reasonable to plan not to fund all of these recommendations. Several large NGOs have millions of dollars available and they need assistance in determining how best to program those funds. These NGOs are also very cognizant of the need to situate their work in a larger development framework and link their activities to local government frameworks. Most felt this conceptual framework was a good start on this "window of opportunity" for new development initiatives to shape the future of the area.

As in Banda Aceh and Meulaboh, some commentators were interested in more information about the road process. They would like to be informed and involved because it would help them represent their constituents and would help them plan other forms of linking infrastructure. USAID officials mentioned that Indonesia's Department of Public Works would be the lead agency for road construction and the Indonesian EIA/AMDAL process would guide the public consultation framework.

Some wondered whether other transport links would potentially be strengthened, such as the road from Meulaboh to Medan. Others were interested in the political dimensions of the Aceh conflict and the impact of the road. This was not a main focus on this assessment and this issue was not taken up in detail.

The issue of labor absorption was raised in the context of construction of roads, shelter and other infrastructure. Depending on the timing of investments, it may not be possible to source all labor from local areas. Importing labor from other areas leads to other environmental and social impacts that should be considered.

One commentator noted that the report and recommendations should be translated into Bahasa Indonesia to be more accessible to local partners and communities in Aceh. This is equally true for road-related information and awareness materials.

There was a discussion of coastal vegetation and the need to replant some areas, but also a concern about the amount of land that would be needed for these interventions, relative to community needs for livelihoods, agriculture, and shelter. There was also a brief discussion of the illegal logging problem in Aceh.

There was some agreement that large international NGOs, though well-funded, are more comfortable working at the community level, and not directly with government. Therefore, they see a need for donor assistance and liaison in the middle strata of engagement with local government. This approach can lead to excellent partnerships and networks, if communication and coordination are fully developed. For example, NGO networks can be used in consultative processes, informing higher level planning and governance processes and investments, thus benefiting donors. Similarly, donors' actions and entry points with local governments can benefit NGOs by providing access and creating processes for consultation and collaboration.

Indonesia's Sea Partnership Program was highlighted as an important, tried, and useful mechanism for linking local governments and universities all across Indonesia for capacity building – in coastal zone and fisheries management activities, but also much more.

4.4 NEXT STEPS

It is recommended that this report be distributed to individuals and organizations contacted during the course of this assessment as an initial next step. Additional next steps may include:

- Identify specific activities to intensify benefits from road reconstruction from within existing USAID projects.
- Identify specific activities to intensify benefits from road reconstruction in discussions with other donors and international NGOs.

A list of contacts and organizations appears in the appendix. This can be used for dissemination or future notifications about the road development process.

APPENDIX A: LIST OF CONTACTS

Governments, Donors, International Organizations

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Frej, William, USAID

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Graham, Angus, FAO

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Djohani, Rili, TNC
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Harman, Richard, International Relief and Development (IRD
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Hasyim, Wardah, Oxfam
Hausler, Elizabeth, Build Change
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Johan , Syamsuddin, Ydua

Jumadi, WALHI Aceh

Martunis, Yayasan Pembangunan Masyarakat Desa, Aceh

Nasution, Baby, Yayasan Daulat Remaja

Nurbaity, Lembaga Pengkajian dan Pemberdayaan Sumber Daya Manusia

Nurmaini, Yayasan Anak Bangsa

Risman, Panglima Laot Meulaboh

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Santoso, Dr. Harry , Direktorat Jenderal Rehabilitasi Lahan dan Social Forestry

Suharyanto, Ministry of Marine Affairs and Fisheries, Directorate of Marine, Coasts, and Small Islands

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Second Visit, May

Governments, Donors, International Organizations

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Falchrudi, Indra, UNDP	Schwehm, Philip, RTI LGSP
Gawi, Jamal, CIDA	Setyowati, Timur Budi, Chemonics International
Greenwald, Charles, World Bank, Consultant	Siar, Susana, FAO
Gullikson, Jill, USAID EDU	Sudarmo, Sri Probo, USAID/DDG
Kamil, Maxdoni, ProLH GTZ	Tighe, Stacey, CRMP II
Khan, Muhammad, USAID/BHS	Treidel, Holger, ProLH GTZ
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Mahoney, Alex, USAID/OFDA	Walker, Beatrice, OCHA
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Muchlisin Z.A., Lapis - AusAid Aceh	Trine, OCHA
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International NGOs

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Heffron, Kathy, Childfund	Urqua, Miguel, Spanish Red Cross
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H, Iskandar, Dinas Perkebunan & Petani	Edizar, BAWASDA
H, Muhammad, Dispernlag, Kap	Alfian, BPN Aceh Barat
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Heydir EH, Firman, Sarana & Prasarana Fisik	Muharir, Camat Meureubo
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Erwin, Pangla/Haisi	Mubarak, Zaki, YEU
Hartono, Yudi, YEU	Rahman, Cut, Panglima Laut, Lohk Buban
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APPENDIX B: LIST OF REFERENCES

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