

**Post-Tsunami Sustainable Coastal Livelihoods Program  
Regional Development Mission/Asia**

**Program Description**

**I. SUMMARY**

The December 26, 2004 tsunami that struck throughout the Indian Ocean basin affected hundreds of thousands of people in countries throughout the region. The death toll has risen to over 260,000 victims. Many that survived have had their livelihoods disrupted since coastal tourism, fisheries, mariculture and agricultural sectors have been seriously affected. Housing and public infrastructure have been destroyed. The U.S. government responded to this disaster first through a massive relief and humanitarian assistance program. Efforts are now underway to define medium and long-term rehabilitation programs.

In Thailand, the United States Agency's (USAID) Regional Development Mission/Asia (RDM/A) will support an integrated coastal management program (*Post-Tsunami Sustainable Coastal Livelihoods Program*) to enhance the capability of host governments to coordinate and plan strategic rehabilitation efforts in coastal areas. This 36 month, US \$2 million effort will demonstrate how integrated coastal management (ICM) processes can generate a safer and healthier environment for sustainable livelihoods in several coastal villages along the coast of the Andaman Sea that have been damaged by the tsunami. This program is designed in response to the priority needs for international assistance requested by Royal Thai Government through several task forces formed by the Subcommittee for the Post-Tsunami Rehabilitation of Ecosystems and Livelihoods which was established by the cabinet immediately following the disaster. The *Post-Tsunami Sustainable Coastal Livelihoods Program* will implement a rehabilitation effort in four villages along the Andaman Coast in the Suk Samran Sub-District of Ranong Province. These villages will serve as a demonstration of sustainable and diversified coastal livelihoods for other communities and nations in the region. The objectives of the Program are to:

1. Negotiate with local and national Thai authorities, and most specifically with communities themselves, on a set of principles and unified approach to rehabilitation in the targeted communities.
2. Reestablish a diversity of sustainable livelihoods that feature the reduction of pressures on overexploited fishery resources, promote low impact aquaculture practices, and make full use of the benefits of responsible tourism.
3. Assist local authorities in the redesign of damaged coastal infrastructure and shoreline protection that incorporates construction guidelines and building standards that reduce vulnerability to future coastal hazards.
4. Build capacity of Thai agencies at both the village, tombon, and provincial levels to better integrate existing policies and procedures affecting planning and decision-making in the coastal zone.
5. Promote learning and the efficient exchange of techniques and experience in the application of ICM principles and good practices both in Thailand and the region as a whole.

The anticipated results of this three-year effort in the demonstration site will include:

- 100 boats provided to fisher households whose fishing vessels were destroyed as a result of the tsunami

- Sustainable livelihoods in fisheries are identified that do not overtax the capacity of the fish stocks to recover and to produce long-term benefits.
- Diversified livelihoods are initiated through training and start up loans in small scale aquaculture and tourism.
- Local government adopts environmentally sound designs for rehabilitation of coastal public infrastructure in the Program area.
- There is strengthened capacity of local authorities (TAO) and the provincial fisheries office to plan and implement sustainable fisheries co-management plans .

At the national scales the anticipated results will include:

- Dissemination of experience and lessons learned at the demonstration site.

The program will contribute to the USAID/RDM/A Strategic Objective *of Improving Environmental Conditions in Asia*. It will be implemented by the Coastal Resources Center (CRC) at the University of Rhode Island (URI) and its partners as an Associate Award under the Leader with Associates Cooperative Agreement *for Sustainable Coastal Communities and Ecosystems (SUCCESS)*.

## **II. BACKGROUND**

### **The Regional Disaster**

On December 26, 2004 at 6:58 a.m. (local time), a 9.0 magnitude earthquake occurred in deep water off the western coast of Northern Sumatra, Indonesia. The earthquake triggered a massive tsunami. Large waves struck without warning and severely impacted the coasts of South and Southeast Asia, including Indonesia, Thailand, Sri Lanka, India, stretches of the Malaysian coast and many small islands in the Andaman Sea.

The tsunami affected hundreds of thousands of people and killed over 260,000. It devastated nearly 500 fishing villages along the Andaman coast. It destroyed the livelihood of an estimated 30,000 households who were dependant on fisheries and it destroyed or seriously damaged over 4,500 fishing boats. In Thailand, the hardest hit were over 200 coastal villages in the provinces of Phang Nga, Phuket and Krabi Provinces that front upon the Andaman Sea. The tsunami seriously impacted the natural environment as well. It severely damaged many of the country's marine and national parks, destroyed its coral reefs and damaged agricultural lands through salt-water intrusion. These environmental impacts will have serious long-term consequences for tourism and fisheries and will affect the livelihoods of many thousands of people.

While affected areas are being cleared of debris and people provided with temporary shelters, food and other basic necessities, medium to long-term rehabilitation plans are being formulated at the national and local levels. In most cases, development along the affected coasts has evolved through an unplanned process that produced many "development mistakes". Houses and infrastructure were built very close to the shoreline with no consideration of building standards or setbacks. Many communities were built on exposed coasts without the benefits of natural features such as dunes, reefs or sandbars to protect them from coastal hazards. Sewage and other wastewaters were and continue to be discharged into the sea without treatment – frequently close to fish mariculture and tourism sites. As the abundance of fish and shellfish has declined in the face of the dual threats of overfishing and habitat destruction, many fishers have resorted to unsustainable fishing practices such as nearshore trawling, and the use of fine mesh push nets.

Although the current situation is tragic, it also provides a unique opportunity to do things better. Reconstructed communities can be made more environmentally and economically sustainable. Developing an example of good planning that promotes environmentally sound livelihoods and minimizes future damage from natural disasters, can inspire similar action elsewhere in the country and region where rehabilitation and reconstruction will be underway for the next several years.

### **The Royal Thai Government (RTG) response and request for assistance**

On January 11, 2005, a Cabinet Resolution on Tsunami Response established a committee to coordinate tsunami relief and rehabilitation efforts. This Committee, which is chaired by Deputy Prime Minister Chaturon, has several subcommittees. This includes a Subcommittee for the Post-Tsunami Rehabilitation of Ecosystems and Livelihoods. The role of this Subcommittee is to ensure the coordination of rehabilitation efforts by the international community. The Subcommittee includes Thai government officials, representatives of Thai civil society organizations, United Nations (UN) agencies, international conservation organizations, international financial institutions, international development organizations, and embassies. The Subcommittee has three task forces: Coral Reefs and Coastal Habitats (chair: Ministry of Natural Resources and Environment, DMCR); Geohazards (chair: Ministry of Natural Resources and Environment, Department of Mineral Resources); and Livelihoods/Community Development (chair: Maidohl University). The task forces are in the process of identifying priority needs and soliciting assistance from the international community. To date, assistance requests have emphasized the importance of ensuring that local community members participate in decision-making processes and implementation. Now there is a need to bring provincial governments and communities more into the planning process.

A second forum addressing coastal/marine resource issues is the regional Consortium to Restore Shattered Livelihoods in Tsunami-Devastated Nations (CONSRN). The core members include the United Nations Fisheries and Agriculture Organization (FAO), the Network of Aquaculture Centers in Asia, the Southeast Asia Fisheries Development Centre, the World Fish Center and Bay of Bengal Inter-Governmental Organization. Partner nongovernmental organizational (NGOs) include the Sustainable Development Foundation, International Collective of Fish Workers, the Mangrove Action Program and the Asian Disaster Preparedness Center. CONSRN was established to integrate the activities of the core partners by:

- collating and disseminating up-to-date information on the tsunami impact;
- demonstrating credible assessment of damages and needed efforts and resources for rehabilitation;
- developing and sharing guidelines for planning and implementation of livelihoods, community and sector rehabilitation program;
- coordinating immediate efforts to rehabilitate affected coastal communities;
- building a common vision, objectives and strategy for medium to long-term rehabilitation; and
- coordinating on-the-ground activities to meet the common vision.

To date, initial assessments have been undertaken to assess damages in terms of the numbers of people killed or injured, number of boats lost or damaged, etc. In Thailand, FAO, the Department of Marine and Coastal Resources (DMCR) and the Asian Institute of Technology (AIT) have conducted site assessments. The emphasis has been on determining immediate assistance needs for monetary compensation. The Department of Fisheries (DOF) has a standard compensation scheme for fishermen and aquaculture owners that is being applied as an initial guide. The Thai

military has started to construct new housing for coastal residents whose houses have been destroyed.

There has, as yet, been limited consideration of strategies that would promote sustainable rehabilitation of coastal livelihoods in fisheries, aquaculture, and tourism. At the provincial level, however, they have acted to control any replacement of infrastructure in what are now recognized as hazardous or otherwise undesirable locations. The Governor of Phuket, for example, is enforcing a 50-meter setback and the Governor of Krabi has halted reconstruction on devastated Phi Phi Island.

The Royal Thai Government has formulated a set of priority needs for international assistance through several task forces formed by the Subcommittee for the Post-Tsunami Rehabilitation of Ecosystems and Livelihoods which was established by the Cabinet immediately following the disaster. These priority needs include the following:

- *Integrated coastal management*, including revision of laws and regulations and improved interagency coordination; development of management strategies, such as zoning, identification of carrying capacity, and mangrove protection
- *Capacity building to enable communities* to practice co-management and to their improve conflict resolution skills
- *Re-establishment of livelihoods* for coastal residents
- *Coastal erosion strategies*, including coastal engineering measures, such as breakwaters and beach replenishment
- *Disaster management preparedness* for tourists and fishing communities including vulnerability assessment, and safety at sea training for fishermen
- *Comprehensive assessment, monitoring and rehabilitation* of coastal habitats such as coral reefs, beaches, forests, sea grass beds, mangroves, and shoreline vegetation
- *Development of marine park management* plans

### **The U.S. Government and USAID Response**

From the first day of the tsunami disaster, military and civilian agencies led by USAID have coordinated massive relief and humanitarian efforts in every affected country. USAID mobilized its Disaster Assistance Response Teams and worked closely with the Department of Defense (DOD) and other agencies, as well as host governments and other donors, to meet the urgent needs of survivors. As other resources from the U.S. Government, private foundations and companies, and the U.S. public are being mobilized, USAID will continue to play a central coordinating role in ensuring resources are utilized in a way that creates synergy amongst the various efforts.

The USAID/Regional Development Mission/Asia (RDM/A) – based in Thailand – also played a key role in assisting and coordinating relief efforts of the Response Management Team (RMT) and Development Assistance and Response Teams (DARTs) throughout the region. As the transition to reconstruction and rehabilitation occurs, the RDM/A will continue to play a vital role in demonstrating strategic and appropriate reconstruction approaches and promoting the sharing of lessons with and among other USAID missions and donors. An integrated coastal management (ICM) approach will be central to RDM/A's reconstruction response.

Both the ICM approach and USAID's Principles of Development and Reconstruction Assistance emphasize the vital role played by the people of the place in helping to bring about change. Who could better know their environment and who could be more highly motivated to build a more

sustainable, equitable society than the people of that place? The *Post-Tsunami Sustainable Coastal Communities Program* will therefore emphasize the participation of the people of the place in all phases of the rehabilitation process.

In Thailand, the RDM/A will support the *Post-Tsunami Sustainable Coastal Communities Program*. The program will assist four villages in restarting fisheries livelihoods affected by the tsunami and will assist in diversifying sustainable livelihoods in aquaculture and tourism. The Program will also enhance the capability of host country governments, especially local governments and key ministries in fisheries and coastal management. The Program will coordinate and plan sustainable resources management and strategic rehabilitation and reconstruction efforts.

### ***Past USAID assistance to RTG in Integrated Coastal Management (ICM)***

In 1985, the Coastal Resources Center was selected to lead the first Coastal Resources Management Program (CRMP) funded by USAID. This sponsored pioneering programs at the national scale in Ecuador, Sri Lanka and Thailand. These programs adopted a “two track approach” whereby policy reform and collaborative action within central government were closely linked to highly participatory, issue-driven initiatives at the local level modeled on experience at the special area management scale in New England. The program in Thailand started in 1988 and continued until 1993 when it was abruptly halted when all USAID assistance was withdrawn in response to a non-democratic change in the Thai government. The program was designed to feature “action-planning” at the provincial level in which a committee chaired by the governor with representatives of all the major agencies of central government would meet to act upon priority issues posed by the coastal development process. The selected province was Phuket, which at the time was undergoing explosive, largely unplanned growth as an international tourism destination. The accomplishments in Phuket varied significantly with the interest and support of a sequence of governors. The second phase of the program featured the negotiation of Thailand’s first national coral management policy and conservation plan and the establishment of the Coastal Resources Institute (CORIN) at Prince of Songkla University. CORIN subsequently evolved into a regional center that has conducted projects and trained professionals from Thailand and neighboring nations. At the national scale, the CRMP worked with Thai legal experts to thoroughly review pertinent law and institutional structures before designing a national coastal management program equipped to address the major development and conservation issues. The strategy was to base the design of a national program on lessons learned from practical experience in resolving a diversity of coastal issues involving a number of Thai institutions. This effort was truncated at the early stages of discussion – just as institutional options were being discussed amongst the country’s leading national agencies.

### ***Coastal Tsunami Reconstruction Needs***

The amount of damage in the 200 coastal villages affected by the tsunami varies widely. In heavily affected communities, all structures have been destroyed. In other villages, where some infrastructure withstood the force of the tsunami, damages are less severe. In a few communities, damage is minimal. In some instances, impacts of the tsunami have been felt as far as one-kilometer inland. Estimates calculate the wave height in some areas at as much as 18 meters. The economies of the communities are diverse, with varying amounts of tourism, fisheries, aquaculture and farming. Communities with strong tourism economies appear to be recovering most quickly while those that were more dependent on fishing and farming are recovering more slowly. There are reports that some compensation, for instance for lost fishing boats and gear, is

not necessarily being used to re-capitalize fishing, but is instead being used for more immediate needs such as housing and food. The needs are enormous and include livelihood establishment, infrastructure and housing rehabilitation and development, habitat restoration and hazard mitigation. Equally important is the need to enhance the capacity of national and local government institutions to plan and implement coastal rehabilitation and reconstruction efforts in a manner that promotes more sustainable forms of coastal development.

The Program has selected a site in Southern Thailand, targeting four villages in Suk Samran sub-district of Ranong Province – Baan Talae Nok, Baan Ta Klang, Baan Had Sai Khao and Bann Tab Nua. These villages are within Laemson National Park and are close to two other coastal national parks – the Mu Ko Phayam National Park and the Mu Ko Ra-Ko Phra Thong National Park. These small communities, consisting of a total of approximately 315 households and 1260 people, were moderately or severely impacted by the tsunami. They suffered from the death of over 160 of their residents and the loss of over 200 fishing boats, engines and gear. In the aftermath, and because they are among the poorest coastal communities in Thailand, these communities have expressed a strong interest and a potential for livelihood diversification and improved resource management.

### **III. OBJECTIVES**

#### *The Goal of this Activity*

The USAID RDM/A proposes to fund a *Post-Tsunami Sustainable Coastal Livelihoods Program*. This Program will demonstrate how participatory, issue-driven and results-oriented integrated coastal management (ICM) processes can be applied to restart livelihoods and rehabilitate coastal communities affected by the tsunami. The first step is to gain agreement on the principles and to formulate in close consultation with the villagers, a diversified livelihood development strategy. At the request of USAID/RDM/A, the Program will implement a replacement scheme of boats lost during the tsunami, while identifying and assisting other households to pursue opportunities in coastal mariculture and tourism. The Program will simultaneously work in partnership with local government to design the rehabilitation of coastal physical infrastructure in a manner that is environmental sound and also reduces future threats from natural hazards.

#### *The Objectives*

This Program is one of many efforts being undertaken by a diversity of Thai agencies and the international community. Specifically, the Program will:

1. Negotiate with local and national Thai authorities, and most specifically with communities themselves, a set of principles and unified approach to rehabilitation in the targeted communities.
2. Reestablish a diversity of sustainable livelihoods that feature the reduction of pressures on overexploited fishery resources, promote low impact aquaculture practices, and make full use of the benefits of responsible tourism.
3. Assist local authorities in the redesign of damaged coastal infrastructure and shoreline protection that incorporates construction guidelines and building standards that reduce vulnerability to future coastal hazards.
4. Build capacity of Thai agencies at both the village, Tombon, and provincial level to better integrate existing policies and procedures affecting planning and decision making in the coastal zone.
5. Promote documentation, learning and the efficient exchange of techniques and experience in the application of ICM principles and good practices for wide dissemination.

#### **IV. PROGRAM DESCRIPTION**

##### **A. Summary of Overall Expected Results**

This *Post-Tsunami Sustainable Coastal Livelihoods Program* will be undertaken as an Associate Award to the SUCCESS Leader with Associates Program. This summary is structured to highlight the linkages between the two programs. It follows the four major categories of results anticipated from SUCCESS.

##### **A.1. Tangible On-the-Ground Results**

*Improved societal and environmental conditions in rural coastal environments.* The rural communities along the Andaman Sea coast are dependent upon the goods and services provided by their immediate coastal ecosystem. Priority needs in these areas call for restoring livelihoods that improve community members' quality of life while maintaining or improving coastal environmental quality.

*Ecosystem-based management of coastal fisheries.* The problems facing the many communities of fishers along the coasts of Thailand include the overexploitation of inshore stocks, intrusion by industrial trawlers into near-shore fishing grounds, destructive fishing practices such as the use of illegal push nets and overall environmental degradation. In some cases, poor fish handling and marketing practices have compounded these problems.

The Program will provide new boats to fishers who lost their vessels, engines and gear in the tsunami. While this effort will help them to restart their livelihoods, it is essential that the process be carried out in a socially and economically responsible manner. This requires an understanding of pre-tsunami vessel ownership and financing practices, crew share systems and types of gear and engines that were used previously. Special attention must be made to discourage return to destructive fishing practices and the re-purchase and use of illegal gears such as push nets. In addition, by meeting the immediate needs of fishers to continue their profession through a boat replacement program, it provides an opportunity to gain their attention concerning the establishment of sustainable fisheries management regimes that can rebuild fish stocks and improve production in the long term. The time scale of this Program and the selection of a site that involves only four villages along this extensive coastline will limit the ability to achieve true reform and substantial improvements in the fisheries. However, some initial steps in this direction can be taken and a foundation of knowledge and better practices established.

Community-level actions that can be taken include the designation of "no-take" marine reserves or seasonal closed areas, improved enforcement, elimination or reduction of the destructive fishing methods practiced by fishers in the community and better fish handling and marketing practices. Such actions must be linked to initiatives at the provincial and national levels that address the root causes of overexploitation of a common property resource in which global market forces and commercial trawling fleets play a dominant role. While activities will be concentrated at the community level, these need to be nested within larger-scale fisheries ecosystem management strategies. Our fisheries management efforts will focus on shifts in human behavior that can lead to improved fish stocks. Positive and sustained improvements in fisheries requires addressing the interplay between artisanal and commercial activities, the need to reduce the overall fishing effort, particularly in over-capitalized commercial fleets, and the elimination of destructive gear.

*Ecosystem-based, low-impact aquaculture.* Aquaculture has played an increasingly important role in the Thai economy. This program will apply small-scale culture practices for indigenous species of shellfish and finfish – practices that have proven to bring benefits to communities by generating products that can be marketed locally as well as internationally. Relationships with the Sea Grant network, the U.S. Department of Agriculture, the Pond Dynamics/Aquaculture Collaborative Research Support Project, and a range of international universities provides CRC and this program with access to hands-on experience in fish and shellfish culture techniques that are particularly suitable for community-based applications in Thailand.

*Regulated and well-planned development.* In settings where tourism has become an important activity, the infrastructure for providing basic services such as electricity, potable water, sewage collection and solid waste disposal have been damaged and must be restored. In other cases, fisheries infrastructure such as piers and small harbors may also need to be rebuilt. This may offer opportunities to avoid repeating “development mistakes” such as the filling of wetlands, using estuaries as a receptacle for sewage and solid waste, and placing buildings in hazardous areas prone to flooding, erosion and wave damage. The Program will apply participatory problem-solving and collaborative action at the grass roots level to promote redevelopment initiatives for coastal development, and guide larger infrastructure investments concentrated on water quality improvements, tourism and fisheries shore-based facilities.

***A.2. Increased capacity through training that draws from, and enhances on-the-ground activity***

Weak individual and institutional capacity is the primary factor limiting sustained progress in ICM programs. Enhancing skills within local government agencies with primary responsibility for coastal management and rehabilitation, within NGOs and the private sector, as well as within the communities themselves, will be critical to Program sustainability. The Program will launch training events which provide trainees with a solid foundation on developing sustainable natural resource-based enterprises as well as on the practical means of locally based resource management such as fisheries co-management. Training will also be provided in practical aspects of entrepreneurship and business management, particularly for those enterprises that require high environmental quality such as tourism and sustainable resource use, such as fishing.

***A.3. Regional networks supported by effective knowledge management.*** While the Program will concentrate on local site based activities, it is important that the activities undertaken through this Program are shared with similar efforts in other nations of the region affected by the tsunami as well as with the multitude of other donors and local groups working in Thailand. This will promote pooling of experience and promoting of collective action through coordination across otherwise independent management efforts. Information, technical expertise, experience and ideas will be shared through various coordinating mechanisms already operating in Thailand and the region as a whole, and through the networks of ICM practitioners involved in the SUCCESS leader award.

***A.4. Science applied to management and good governance***

CRC and its partners will work to increase our understanding of the relationships between human activities and the condition of the coastal environment and its resources. Our focus is upon applying methods for monitoring societal and ecosystem change at a range of spatial scales, assessing the future implications of trends and specifying what needs to change to reach the desired outcomes in a specific locale or region. We anticipate that by the end of the Program, local stakeholders will be generating baselines and monitoring change on variables critical to understanding the evolution of social and environmental qualities. Goal-based monitoring of

social and environmental variables will be serving as the basis for assessing progress toward stated ICM goals.

### **B. Key Principles and Approaches Employed**

In the wake of any major natural disaster, the first priority is to respond to urgent humanitarian needs such as medical assistance, food, water and shelter. In the case of the December tsunami, the second priority is to rebuild damaged communities and re-establish the livelihoods that sustain a largely rural population. In the long term, there is also a need to develop an improved warning system that can provide the lead-time for evacuation in the event of similar wave or storm-induced coastal damage. This reconstruction and rehabilitation process offers unusual opportunities. The pre-existing development pattern was largely unplanned and in many instances evolved in a haphazard manner – one that produced a breakdown in ecological resilience and relegated portions of the society to settlements where poverty, unemployment and risks from a diversity of natural and man-made hazards are now unnecessarily high. This development process featured the destruction of estuaries and wetlands that could have indefinitely produced a wealth of goods and services to human society. And, it resulted in degraded water quality and over-exploited fisheries.

In light of these realities, the Program will apply the following principles in its design and implementation. These principles reflect consultations with leading ICM practitioners in the region and were endorsed by governmental coastal agency leaders assembled in Cairo on Feb 17 by the United National Environment Programme (UNEP).

1. Reduce the vulnerability of coastal communities and coastal activities to natural hazards while acting swiftly to provide housing to displaced families in suitably selected sites.
2. Avoid increases in fishing power and resumption of destructive fishing practices while rebuilding fishing livelihoods for those affected.
3. Restore habitats in order to function naturally to protect people and generate a diversity of sustainable livelihoods, especially in tourism.
4. Encourage low-impact aquaculture.
5. Correct past mistakes and inequities in the design and placement of community infrastructure.
6. Promote government accountability, celebrate success and widely disseminate good practices as they emerge.

### **C. Technical Program Elements and Life-Of-Program Results**

The Program will be composed of four interrelated program elements:

- Facilitating consensus on a unified vision and principles for action;
- Diversification of sustainable livelihoods in small-scale tourism, fisheries and low impact aquaculture;
- Design and siting of environmentally sensitive coastal public infrastructure in need of rehabilitation and development, and;
- Enhancing local capacity in support of community livelihood development, hazard mitigation and sustainable fisheries management.

These program elements are further described below:

### **C.1. Facilitating Consensus and Creating a Unified Vision for Action**

It will be essential for the Program to reach agreement with in-country partners on these guiding principles. This includes agreement from the RTG agencies at the national and local level and from the governors who have jurisdiction over the communities that will benefit from the Program's on-the-ground activities. The full understanding and support of the provincial governor and Tambon officials will be particularly critical and must be maintained throughout the project. At the national level, the Program will need to coordinate with the Department of Fisheries (DOF), Department of Marine and Coastal Resources (DMCR), the National Parks Authority, as well as with the National Task Forces for Tsunami rehabilitation.

Once the Program is operational, it will work with affected groups at the community level to define livelihood rehabilitation goals and the processes by which Program activities will be undertaken and conflicts negotiated. This will be a primary task for the field site coordinator and community extension workers operating at the site level. It will also be essential to coordinate with on-going rehabilitation efforts and planning structures already underway at the provincial, district and community levels. Activities undertaken to establish this unified vision will include:

- At the village level – facilitate consensus on a vision to guide future development decisions, livelihood options, and quality-of-life issues by implementing a participatory but rapid planning process involving stakeholders from target communities to achieve consensus on the principles that will guide community rehabilitation plans.
- Identify specific goals, objectives, actions, and a timeline for each village
- At Tambon level – negotiate a shared vision on a regional development plan
- promote the diversification of livelihoods and benefit sharing
- promote culturally and environmentally responsible tourism
- strengthen linkages with the National Park and promote good stewardship
- Recruit, train, and equip a team of village extension agents
- For each village, develop a consensus on a plan for reconstructing the physical (human-built) environment (piers, markets, coastal erosion controls, new land uses)
- Seek concurrence from appropriate government departments
- Incorporate conflict mitigation and dispute resolution techniques
- Initiate and sustain awareness and commitment of RTG and other donors in support of overall program goals

The key results expected in this program element are:

- A set of principles and a unified approach to rehabilitation in the targeted communities
- Political support at the village, Tambon and provincial level for the actions to be undertaken and the participatory processes used to implement them

### **C.2 Restart and Develop Sustainable Livelihoods**

It is critical to the rehabilitation effort that the Program engages local residents through facilitation, technical and financial support, to help themselves get back on their feet. For many fishers, all capital equipment necessary to their livelihood, including vessels, gears and engines has been lost. Fish farmers have seen their cages destroyed and fishponds flooded and farmers have lost the year's harvest. Tourism resorts have lost their buildings or must invest in their repair.

Special emphasis will be given to the fisheries and/or aquaculture sector, with the dual objectives of assisting food security and income generation while promoting more sustainable fisheries. All efforts in fisheries rehabilitation must recognize the pre-existing conflicts and over-fishing of nearshore fish stocks by both the artisanal and commercial trawl fisheries and the use of destructive and illegal push nets. An initial step will be to establish a baseline of the trends and conditions of the fisheries resource and governance context prior to the tsunami. This must define the degree of overfishing and the conflicts among groups of fisheries that existed before the tsunami and an understanding of the socio-economics of the fishing sector within these communities.

Another issue is related to access to the available fishery resources and the allocation of these resources to the different fisheries groups. This topic raises conflict and defies easy solutions. The Program will work to promote ecosystem-based fisheries management that can provide models for collaborative fishery management elsewhere in Thailand and the region. The emphasis will be on co-management, community enforcement of prohibitions on illegal and destructive fishing gears (e.g. push nets), and establishing small scale marine protected areas that promote a new balance between fishing and the resource base that is ecologically and economically sustainable. This will require intensive work with fisherfolk, the Department of Fisheries, and others to reach consensus on the goals and objectives of a rehabilitated fishery/aquaculture system. The agreements must be reached before large expenditures are made on vessel repairs, gear replacements, transportation, processing, and marketing infrastructure.

This process will require implementation of the following activities. In all cases of livelihood development, especially with respect to access to micro-credit, gender equity will be stressed.

- Assess opportunities and needs in small scale tourism, sustainable fisheries and low-impact aquaculture, including an assessment of the pre-tsunami environmental conditions and governance context
- Design and implement strategies to restart livelihoods in fisheries, aquaculture, tourism, agriculture, craft-making, or other fields
- Provide technical assistance to support the livelihoods strategy
  - Design and deliver training on such topics such as micro-financing, business planning, production, processing, marketing, and management
- Identify options and secure agreements for financing of small scale enterprise developments
- Implement micro-credit schemes to finance start-up of small business enterprises such as low impact aquaculture
- Provide replacement boats to fishers who lost vessels gears and engines
- Provide training-of-trainer workshops for DOF officers and local fishermen in maritime safety, sustainable fisheries, co-management, data collection
- Promote adoption of fisheries co-management plans for small-scale fisheries
- Assist the Tambon government on overall design of infrastructure and services reconstruction, and provide co-financing for certain components
- Implement “Cash for work” projects related to mangrove and tree replanting in areas impacted by the tsunami or for project-related infrastructure construction and fishing boat replacements

It should be stressed that the final package of services provided and activities carried out for rebuilding and diversifying livelihoods in the community will be decided through a participatory

process of community consultation, carried out with the involvement of local government (TAO). For instance, a number of charitable organizations have started to provide micro-financing for livelihood development, and started boat replacement initiatives. To the extent possible, these activities will be coordinated with existing local NGOs that are on the ground in the tsunami-affected communities and area. In addition, we expect that some of these activities will be carried out through sub-awards to these local NGOs. However, the life-of-Program results are expected to include the following types of outcomes. Specific targets will be developed through participatory planning with key community and local government stakeholders.

- More sustainable fisheries enterprises have been identified and are being tested.
- One hundred replacement artisanal fishing boats have been built and are being used by resident fishing families.
- Other income generating enterprises are started for coastal community households.
- Contributions have been made toward an enhanced fisheries management plan for the Andaman Sea coast of Thailand.

### **C.3 Siting, Design and Construction of Coastal Public Infrastructure**

One of the most striking physical affects of the tsunami is the devastation of standing structures. In some communities, there are few – if any – buildings left standing. Many damaged buildings need extensive repair or have been condemned and are slated for demolition. The destruction hit both private properties such as houses, shops and tourism facilities, as well as public buildings and infrastructure. Much of the damage can be attributed to the fact that physical infrastructure was inappropriately sited before the tsunami struck. The positive side of this situation is that now, faced with the need to rebuild, there is the opportunity to ensure that what is rebuilt does not repeat past mistakes. Experience elsewhere in the world has repeatedly demonstrated that only prompt, well-informed and decisive action can prevent rebuilding in hazardous areas and recreating sub-optimal forms of shoreline development that will subsequently give rise to a sequence of undesired consequences.

The Program will assist local government in the design and planning of public infrastructure that can reduce threats from future natural hazards. The Program will prepare base maps for the Tambon at an adequate scale and map the inland extent of the “swash line” that marks the reach of the tsunami waves. It will also establish the mean high water mark anticipated by the 2050 median projection for a sea level rise of 30cm made by the Intergovernmental Panel on Climate Change (IPCC) as this may be modified by further climatological and oceanographic data affecting anticipated sea level rise in specific areas. Where information is available, the anticipated effect of historical trends in erosion and accretion to 2050 and the inland extent of flooding in past storms will also be mapped. In consultation with the Governor’s office and other local authorities, the Program will work to establish a construction setback line on the basis of this information. The resulting setback line should be established with visible and permanent on-site markers. The Program will work with authorities to establish the criteria and process for granting exceptions for building structures that are seaward of the setback line – i.e. where such exceptions are required in order to support such water dependent activities as fishing and navigation but not tourist facilities or permanent settlements. Where such exceptions are granted, structures should be temporary, or they should be built to withstand projected flooding by strengthening structural members, elevating the first floors and incorporating other construction standards that reduce potential for loss of life or property from natural coastal hazards. Reconstructed arterial roads and other transportation infrastructure also should be placed well inside the setback line.

In some coastal areas, it may also make sense to construct safe shelters for the population to use in times of storms and other hazards. The places where such shelters would be needed would include those communities where exposure is otherwise unavoidable due to natural hydrologic forces, and yet where evacuation shelters can be made secure and readily accessible.

In some communities, public access to the shore may be a significant issue. Over time, the selling off of coastal real estate for tourism development has caused traditional access-ways to be cut off, depriving local communities of a means to reach the beach and other areas important to their economic and social well-being. As part of the reconstruction, rights-of-way to the shore should be identified with permanent on-site markers and made available for unrestricted public use. In communities with traditional fishing activity, landing sites and facilities for cleaning catches and storing fishing gear should be restored or relocated to an equivalent or better site with ready access.

Activities will be undertaken to promote and assist in implementing actions that can minimize the impacts of future tsunamis, storms, high waves, erosion and sea level on public and private infrastructure as well as minimize the potential for loss of life. These include:

- Assessment of public coastal infrastructure needs for small-scale tourism, sustainable fisheries and low-impact aquaculture, among others
- Identification of construction setback lines based on the best available science and which takes into account both regional and global forces of change and tailors the response to local conditions and needs
- Preparation of GIS base maps highlighting hazard zones, critical habitats, existing infrastructure and proposed public rights of way and various categories of building zones
  - Development of guidelines for the siting, design and rehabilitation/improvement of public infrastructure such as roads, piers, small harbors
  - Design of supporting infrastructure needed to promote diversified livelihoods including for example, piers, fish market, or agricultural markets
  - Construction of demonstration infrastructure facilities that can serve as models for development projects in the region

A portion of Program funds have been allocated for co-financing the rebuilding of some physical infrastructure (e.g. fishing pier, fish market, shoreline stabilization and access, water supply). However, at this stage we cannot identify which of these items will actually be funded until there have been more extensive discussions with the TAO and Governor's office as well as with the affected communities to define priorities and sources of co-financing. With this caveat in mind, the Life-of-Program results expected include:

- Greater awareness in the community and local government of the diversity of forces acting upon shorelines and the changes that can be anticipated in the coming decades
- Infrastructure rehabilitation designs and plans that incorporate best practices for environmentally sound structures and coastal hazard mitigation
- Well documented examples of best practice in infrastructure siting and construction

#### **C.4 Enhance Management Capacity**

Many of the issues facing local governments and communities with respect to the shorefront development, livelihood promotion and hazard mitigation were present before the tsunami struck.

The tragedy has provided an opportunity for communities and local officials to now rethink how they proceed with coastal development planning. However, in order to avoid the many pitfalls that produced the past problems of resource use conflicts, overfishing, construction in hazardous zones, it will 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. As such, a strong capacity building element must be integrated into this Program – one that provides the necessary knowledge, skills and attitudes to promote sustainable natural resource-based livelihoods as well as to undertake environmentally sensitive shorefront development that also mitigates the potential for the loss of life and property from natural hazards. All training activities carried out will strive for gender balance with respect to participation, and will also integrate gender dimensions to the various training curriculum.

Activities will include:

- Training workshops for recipients of boat replacements and local government in fisheries co-management, safety-at-sea, use of less destructive fishing gears, as well as repair and maintenance of fiberglass boats
- Training of community members in entrepreneurship and micro-credit schemes linked to creation of small businesses in fisheries, tourism and aquaculture
- Awareness raising in the community on local planning, siting and construction practices for coastal development to reduce risks to life and property from coastal hazards
- Training to strengthen the planning and management capacity of the TAO to undertake environmentally sound reconstruction of infrastructure, including facility siting, construction standards and use of spatial planning to regulate and plan coastal development
- Training to strengthen the capacity of the TAO in regional development and economic planning, including SME development and sustainable tourism
- Training to strengthen the capacity of provincial fisheries officers in community involvement in enforcement and surveillance, co-management and establishment of no-take areas

Results expected over the life-of-the-Program for this component include:

- Support of fishers for preparation and implementation of collaborative fisheries management plans with DOF
- Reduced use of illegal fishing gears and ability to repair fiberglass boats provided as part of a boat replacement program
- Improved entrepreneurship skills of coastal residents and a greater number of small-scale start-up businesses that have become successful
- Greater awareness and support among community members for proper planning of infrastructure and private development to reduce coastal hazard risks
- Increased knowledge among decision makers and planners of effective coastal management policy and planning, with special attention to disaster mitigation and preparedness practices
- Strengthened capacity of AIT to support regional governments on coastal management policy and planning with special attention to disaster mitigation and preparedness

While this Program will not emphasize national and regional lesson, it is important that the site based activities be viewed as a demonstration site. As such, the Program will participate in national forums that are developing strategies for increasing the effectiveness and efficiency of coastal management in Thailand. We will draw on the experience gained in the demonstration site to identify lessons and opportunities and will offer examples of how similar issues have been

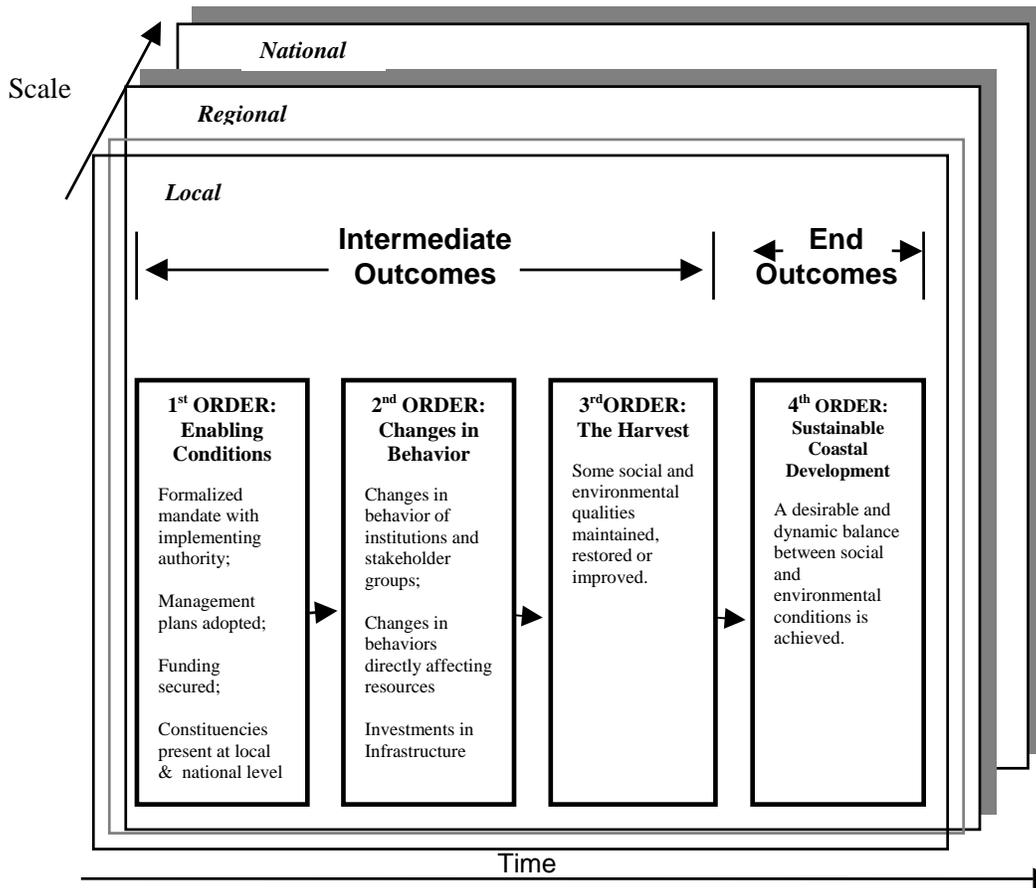
addressed successfully in other nations. The worldwide experience of CRC and its partners provides a large body of experience upon which to draw.

**V. PROGRAM RESULTS FRAMEWORK**

The results possible to achieve in a three-year Program depend largely on the specific issues and the existing capacity in the communities and institutions involved. CRC and its partners will follow the learning-by-doing model that stresses tangible outcomes at the community level. Improved monitoring and adaptive management techniques, combined with early investments in necessary infrastructure, are anticipated to generate significant and sustainable results at the community scale within the anticipated time frame of the Program.

The Program will use the Orders of Outcome Framework (see Figure 1 below) for tracking progress and performance across all its components/elements. As illustrated by Figure 1, the ultimate goals of coastal management are (1) healthy, productive ecosystems, (2) an acceptable quality of life for the associated human populations and (3) a governance system that is

**Figure 1: The Orders of Outcomes Framework**



Source: Olsen, 2004.

equitable, transparent and just. These are defined as Third Order outcomes and must be defined in specific terms for a specific locale. Sustained progress towards Third Order goals requires first creating the necessary enabling conditions (the First Order) and then implementing a plan of

action (the Second Order). The Second Order is signaled by specified changes in the behavior of user groups, relevant institutions and – often, making the necessary investments in infrastructure. Attainment of Third Order goals in human dominated, typically stressed coastal ecosystems at the large scale typically requires decades of sustained effort. Third Order goals have been documented at the community scale (ten to hundreds of square kilometers) within the span of three to ten years.

*The Post-Tsunami Sustainable Coastal Livelihoods Program* acknowledges that this is not a typical coastal management program and therefore the time frames associated with this effort will be highly abbreviated and emphasize a more limited set of objectives. However, the Orders of Outcome framework coupled with the essential actions for planning will serve as the basis for the result framework. In this Program, the essential actions associated with each step in the planning and implementation process will be adapted to simple checklists of progress markers that can trace the evolution of livelihood rehabilitation and planning efforts at the demonstration site. These progress markers can also be used to assess progress of linking the demonstration activities at a community scale to policy and planning at the provincial and national scales.

The Thailand *Post-Tsunami Sustainable Coastal Communities Program* acknowledges that this is not a typical USAID type “Results Framework.” However, the two frameworks will be complementary – i.e., the Program results framework will feed into the overall USAID Results Framework for USAID/RD/M/A and will track selected USAID indicators. The Program results framework consists of three major elements: a Strategic Objective (SO), Intermediate Results (IRs), and indicators (with associated performance targets). Each Program element will have its own specific framework that will “nest” the USAID objectives, intermediate results and indicators into the Order of Outcomes framework outlined above. Both systems are designed to focus upon outcomes and assess progress made toward the ultimate goals of livelihood rehabilitation, and development as well as improved and sustainable coastal resources governance. At the time of preparing this Program statement, USAID is revising its Results Frameworks. In the interim, we assume that the Strategic Objective (SO) to be applied to this Program will be *Improving environmental conditions in Asia*.

An example of the Orders of Outcome framework that will be used by the Program can be illustrated with the example of the rehabilitation of small-scale fisheries in the site area. Table 1

**Table 1 Example of the Orders of Outcomes Framework for Rehabilitation of Fisheries**

**Development Hypothesis:** If sustainable fisheries management rules are developed; if fishers comply with these rules; if the fishing fleet is rehabilitated at a sustainable level of effort using non-destructive gear; and, if the necessary, environmental conditions are sustained, then local fishers will reap quality of life benefits.

<b>Orders of Outcomes</b>		
(1 <sup>st</sup> Order)	(2 <sup>nd</sup> Order)	(3 <sup>rd</sup> Order)
<p><b>Enabling Conditions:</b></p> <ul style="list-style-type: none"> <li>• Fishers re-capitalize the fleet using more sustainable fishing gears</li> <li>• Zoning scheme is in place with no-take areas and exclusion of trawlers from nearshore waters</li> <li>• Management plan is established with overall limits on fishing effort</li> <li>• Management committee appointed</li> </ul>	<p><b>Behavior Change:</b></p> <ul style="list-style-type: none"> <li>• High compliance in no-take areas</li> <li>• Surveillance and patrolling of area</li> <li>• Trawlers kept out of inshore waters</li> <li>• use of fine mesh nets eliminated</li> </ul>	<p><b>The Harvest:</b></p> <ul style="list-style-type: none"> <li>• Fisher income increases</li> <li>• Fish abundance and size inside no-take areas increases*</li> <li>• Fish production in adjacent areas increases</li> <li>• Coral cover in no-take reef zones increased*</li> </ul>
<ul style="list-style-type: none"> <li>• Related to the USAID RDM/A Strategic Objective: Improving environmental conditions in Asia.</li> </ul>		

demonstrates how the Orders of Outcome framework relates to specific development hypotheses and how the CRC Orders of Outcomes and indicators link to the USAID strategic objective (SO). This example is illustrative only and detailed Performance Monitoring Plan will be further elaborated and finalized as part of Year 1 workplan.

## **VI. YEAR 1 ACTIVITIES**

The first priority in Year 1 of the Program will be to develop a detailed workplan. This will be undertaken as the Program office is established in Ranong Province and the Chief of Party and local staffs are brought on board. In order to ensure close coordination with local government agencies, the Program office in Ranong will co-locate within local government offices either at the provincial or Tambon level. The office will be equipped and staffed. While the office is established and administrative and financial systems are put in place, the Program team, in coordination with the RDM/A, will work to ensure there is a thorough understanding of the Program goals and objectives.

Initial assessment of the targeted villages that has already been conducted by USAID will be followed by a more detailed participatory rapid appraisal in the four villages to determine the needs for livelihood rehabilitation and development. This process will be undertaken with the participation of key stakeholder groups within the communities and local government. This effort will be followed by more detailed technical assessments and planning for livelihood diversification based on needs opportunities and potential identified in the participatory appraisals. Concurrent with the start-up process, the Program will work with a local NGO to be identified to coordinate the fishing boat replacement effort specifically for these targeted coastal communities.

At the same time, the Program will start to work with local government authorities that are tasked with redevelopment and rehabilitation of coastal infrastructure to develop an overall set of guidelines concerning infrastructure siting and design including construction standards, setbacks and no-build zones. This is particularly important where tourism may be an important element of the economy and where rehabilitation of shore-based fisheries infrastructure needs to be rebuilt. Information from the technical assessments and the participatory appraisals will also feed into this process. As key issues and actions are identified, engineering specialists will be brought in to help refine action plans and ensure that designs are environmentally sound, apply best practices and draw on the most appropriate technology for the local conditions.

As action plans over the life-of-the-Program are detailed, the Program team will refine the performance-monitoring plan to specify milestones, targets and indicators for the results anticipated.