

Environmental Stories

After Tsunami



The World Conservation Union in Asia



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Waste from tsunami, Thailand © IUCN

Introduction

The Indian Ocean tsunami was one of the greatest tragedies of recent history. The toll in deaths, injuries and human suffering was enormous. Whole communities were destroyed and displaced. Damage to property, infrastructure and the environment was also immense.

Coastal ecosystems such as mangroves, wetlands and sandy shores, as well as key marine ecosystems such as coral reefs and seagrass beds, suffered seriously. Their loss also reduced the options for people to rebuild their livelihoods.

These ecosystems support production, income and employment in sectors such as fisheries and tourism, as well as providing essential ecological services, which safeguard the well-being of coastal settlements.

The debris from the tsunami generated a huge amount of both biodegradable and non-biodegradable solid waste, causing environmental damage and posing hazards to human health. In addition, the waves contaminated many sources of drinking water in coastal areas with salt water.

In some areas, these environmental problems were further exacerbated by post tsunami restoration and reconstruction activities. In the rush to identify locations for resettlement, to rebuild and rehabilitate, ecosystems received scant attention. This omission potentially undermines many of the goals of reconstruction, because it ignores a vital source of the goods and services that are so vital for livelihoods and sustainable development.

During the past year, the World Conservation Union, its members and its partners have been very active, providing guidance to reconstruction efforts and undertaking community-based restoration work in affected areas, particularly along the coasts of Sri Lanka and Thailand. It has also provided guidance and support on ecosystems and sustainable livelihood to the wide range of agencies and sectors who are involved in post-tsunami reconstruction across the region.

Mandated to work towards the vision of a just world that values and conserves nature., the Union took the approach that sustainable reconstruction must build on a healthy environment, and that livelihoods will only be

sustainable if ecosystems are restored and conserved. It drew upon its demonstrated experience and credibility in dealing with ecosystem and livelihood issues, its wide network of members, partners and scientific experts, and its strong field presence to collaborate at both local and national levels.

The Union has carried out numerous programmes, ranging from cleaning beaches and reefs and rapid biodiversity and socio-economic surveys in affected areas to creating greater environmental awareness at both local and national levels. The World Conservation Union, its members and its partners are committed to restore and conserve the environment and its ecosystems, in order to help protect livelihoods and human security.

Reef clean ups in Sri Lanka

The waves came, the waves damaged and the waves departed, leaving an enormous amount of debris, which included rocks and rubble, concrete and clothes, barbed wire and bottles, scattered on beaches and entangled on coral reefs.

Dirty beaches and reefs are not only unsightly but are dangerous for divers, tourists and fishermen, as well as a serious threat to human health and the economy. They also impair ecosystem recovery, productivity and functioning. Conversely clean beaches and reefs support many livelihoods.

In Sri Lanka, 80 percent of tourism infrastructure and sites are in the coastal zone, and coastal tourism contributes many millions of dollars to the national economy.

In coastal areas, the tourism industry depends on clean reefs and beaches. Recognizing that these were needed to rebuild tourism and restore livelihoods, the World Conservation Union initiated beach and reef clean ups on the south-western, southern and eastern coasts of Sri Lanka.



Clean up with volunteers in Unawatuna, Sri Lanka © IUCN

IUCN together with the National Aquatic Resources Research, the Development Agency Sri Lanka and the Sri Lanka Sub-Aqua Club arranged with minimum resources, but maximum enthusiasm and participation, teams of local volunteers to clean beaches and reefs.

They removed fishing nets entangled in corals reefs, clothes, shoes, barbed wire, concrete, glass and other debris, including an eight-metre long concrete telegraph pylon, from reefs and beaches.

What was special was the enthusiasm of local communities. Part of the clean up programme was the creation of awareness about the need for clean and healthy beaches and reefs. As a result of this initiative, local schools have continued their own clean up operations.

Restoring the environment in Sri Lanka and Thailand

It seems that every time you look at a newspaper, there is something about climate change. In tropical countries, such as Sri Lanka and Thailand, where the sun shines brightly most of the year, the effects of melting polar ice caps and rising sea levels seem light years away. Yet, the effects of climate change will hit as hard in the tropics as in temperate countries.

Tsunamis may be rare, but climate change experts are predicting that as a result of global warming, recurrent natural disasters—extreme weather events such as intense rainstorms, cyclones, floods, fires, and worsening droughts—will become more frequent.

Coastal communities, especially the poor, are vulnerable to events that can wreak havoc on them. Given that communities, already battered by the tsunami, are now even more vulnerable to extreme weather events, it is essential to rebuild natural defences to protect them.

The tsunami provided evidence that healthy mangroves serve as natural barriers against storms and extreme weather events.

They also provide coastal communities with a range of ecosystem services and goods as well as supporting a myriad of livelihoods. Almost 40 percent of the world's mangroves are concentrated in the Asian region, but sadly, the region also accounts for the highest loss of mangroves during the last decade.

The World Conservation Union with the Department of Wildlife Conservation (Sri Lanka), the Department of National Parks, Wild Life and Plant Protection (Thailand) and the Department of Marine and Coastal Resources (Thailand is replanting mangroves in Kumana protected area and Yala National Park in Sri Lanka and in Laemson National Park in Thailand.

Two nurseries, with 50,000 seedlings, have also been established. The mangrove rehabilitation programme is not only providing financial benefits to the local communities but also generates awareness of biodiversity conservation in the region.

Rehabilitation of Wanduruppa and Welipatanwila, two villages in southern Sri Lanka

The World Conservation Union supported the reconstruction of boats and houses in Wanduruppa and Welipatanwila—two severely affected villages—from post-tsunami relief, through rehabilitation to reconstruction, and a sustainable and self-reliant future.

The two villages, located on the southern coast of Sri Lanka, were amongst the worst affected by the disaster. The loss of human life, destruction of houses, village



A broken sand bar in Sri Lanka © IUCN

infrastructure and livelihoods was enormous. The damage to the beaches was also very extensive. The rehabilitation of the two villages was funded by relief funds collected among the World Conservation Union staff globally and in the region, together with private sector donations.

Nearly eighteen months after the disaster, the affected communities are now strong and resilient. During the relief phase, the World Conservation Union's work was focused on rehabilitating affected families and village based social organizations, with a view to mobilising their participation in the long-term ecological restoration. Organizations formed with the World Conservation Union's support then mobilised external funds themselves for several environmental initiatives, such as eradication of invasive species, green recovery of coastal stretches, new settlement sites and ecosystem restoration, thus leading them into rehabilitation.

From the outset the affected communities rallied together to make best use of the relief and aid that they soon began to receive from numerous sources. This process led to the formation of coherent small groups of women and many are now in existence. These have been brought under the umbrella of the Soba Diriya Women's Foundation, which has demonstrated its strength by making vital development decisions. It has led to successful coastal rehabilitation activities and the villages are now moving forward towards full reconstruction.

Restoring livelihoods in Hambantota district

The Hambantota district on the southern coast of Sri Lanka was one of the hardest hit coastal districts in the island, with over half of its coastline damaged, thousands of people killed and many more displaced, after their homes were either damaged or destroyed. With many poor people, almost half of the population are dependent on natural resources for a living, and rely on wood fuel.

The World Conservation Union, in collaboration with the Government of Sri Lanka, local government authorities, NGOs and community organizations restored coastal livelihoods in the district. This included the construction

of a cold room for the storage of fish, donation of boats and nets, restoration of home-gardens, construction of fuel efficient cooking stoves and grants for the rebuilding of small sales kiosks.

In addition IUCN assisted in the construction of a library and community centre and also provided educational grants for a number of local children orphaned by the tsunami.

Participatory restoration of lagoon ecosystems

The World Conservation Union in Sri Lanka has been supporting the restoration of six lagoon ecosystems, which provide a valuable livelihood to local fishing communities in Lahugala in eastern Sri Lanka.

Efforts have been concentrated on helping the local communities to re-establish sustainable livelihoods through their own efforts, by restoring the ecosystems that provide the vital natural resources. The restoration is part of an initiative funded by Dutch public charity funds in selected tsunami-affected countries in Southeast Asia, called *Green Coast for Nature and People after the Tsunami*.

Initially local communities cleared the debris from the six lagoon systems, which has significantly improved the lagoons' health, with corresponding effects on the lives of the communities living around them.

Now that the lagoons are cleared, the fisherfolk can cast their nets freely once more and the collected tsunami debris, piled in various points also now acts as new breeding grounds for fish. This very simple and low cost initiative, guided by the World Conservation Union, but carried out by the local people themselves, has had a profound effect upon restoring the livelihoods of these fishery communities.



Rehabilitation of sand dunes in Negombo and Muthurajawela

The tsunami did enormous damage to ecosystems in Negombo estuary in Sri Lanka, which resulted in severe hardship to the local people.

Furthermore, sand dunes that have acted as natural barriers, protecting the homes of 300,000 people, are now under severe pressure, due to indiscriminate sand mining.

Together with the project Green Coast for Nature and People after the Tsunami, the World Conservation Union has been engaged in enhancing the quality of life of affected communities by improving the productivity and sustainability of the Negombo lagoon and the adjacent Muthurajawela marshes.

The project has also mapped the sand dunes, assessed where rehabilitation would be required and facilitated in the re-planting of coastal vegetation in order to stabilise them.

The need to protect coastal resources, including the importance of safeguarding biodiversity, has been the subject of a programme of education and awareness, which has led to the community conducting its own clean up of the estuary and marshes, whilst increasing their awareness of the need to prevent further degradation of the dunes, to protect future generations.

Ecosystems and livelihoods intrinsically linked in Thailand

Ecosystems and livelihoods are intrinsically linked, so that in the aftermath of the tsunami, restoring sustainable livelihoods required restoring the environment. To that end, producing clear, well-defined development plans that ensured not only that livelihood were sustainable but also that ecosystems were not further damaged was essential.

As one example, the island of Phra Thong in the Andaman Sea, in Thailand, is rich in biodiversity. Whilst com-

munities are highly dependent on fishing and many of the people have no land rights, their plantation crops include coconut, rubber and cashew but these were badly affected by the tsunami.

Post-tsunami reconstruction was aimed at preparing the resettlement of over a hundred families. However recognising the possible environmental effects of reconstruction, the Swiss Agency for Development and Cooperation, who built boats, houses and social infrastructure, requested the World Conservation Union to ensure that environmental concerns were taken into consideration.

As part of this cooperation, the World Conservation Union also discovered that there was a need to empower communities to recover, and to identify further livelihood opportunities, ranging from fishing, livestock raising and organic farming, to eco-tourism activities.

The case of Moklen people in southern Thailand

The Moklen are an indigenous community of sea faring people, commonly referred to as sea gypsies, plying the south China seas. They lead a nomadic life, but some have settled along the Andaman coast of southern Thailand. Most of them hold Thai citizenship and have adopted Buddhism, whilst still practising their belief in ancestral spirits.

As one would expect, the Moklen are primarily dependent on fishing, whilst some have begun to work in rubber and coconut plantations.

Until the tsunami destroyed their housing and seafaring vessels, those on the island of Phra Thong, which has sandy soils with low fertility, continued to pursue fishing as their primary activity.

Using traditional knowledge of the value of the ecosystem they have taken care to keep mangroves in good order to enable them to carry on with their fishery-based livelihoods, in particular, crab trapping. Though in despair after the tsunami, the Moklen were amongst the first to return to the island to begin rebuilding their lives.

Assistance through the Swiss Agency for Development and Cooperation soon brought them homes and replaced lost fishing boats and gear, enabling them to recommence their main livelihoods.

Being a sea-faring community, they had very little knowledge of land-based livelihoods, so the World Conservation Union undertook a series of participatory needs assessment exercises, after which it was agreed that they would benefit from being trained in home gardening. Several families were then persuaded to plant vegetables in their home gardens, something they had never done before.

As sandy soils are very low in fertility, they were first taught how to change this by incorporating organic matter, such as household refuse as fertilizer and are now successfully producing a wide variety of produce.

With this new form of livelihood for the Moklen now established, the World Conservation Union has followed up with training in making liquid bio-fertilizers and such organic farming methods, including the preparation of plant-based natural pesticides, have proved most successful in helping to further improve soil fertility and maintain productivity.

“No” to plastic in Phra Thong island

The beautiful island of Phra Thong, located 150km north of Phuket in Thailand, consists of many diverse and important habitats that attract wildlife. Prior to the tsunami wreaked such havoc, the Thailand Tourism Authority was actively promoting the island for its natural beauty.

In addition to saline intrusion in fresh and ground water, the debris created by the disaster generated large quantities of solid and liquid waste, from damaged sewage tanks, cesspits and overflowing mains, together with waste material blocking water drainage systems and sewers, increasing the threat of water borne diseases.

Deeply concerned about the waste disposal mechanism and its cascading effect, the World Conservation Union took up the challenge of creating awareness about solid waste disposal among community members.



Plastic re-use in Phra Thong island, in Thailand © IUCN

IUCN has, to date, trained over eighty people in waste management practices in the island of Phra Thong, to say “no” to plastic bags, to separate waste into recyclable, non-recyclable and reusable waste, to sell waste for income generation and to use fruit scraps and other organic garbage to make detergents.

A Mangrove Ambassador for the World Conservation Union

Shortly after the tsunami, Dr. Thanpuying Suthawan Sathirathai, President of the Foundation for the Good Governance for Social Development and the Environment Institute became the Mangrove Ambassador of the World Conservation Union in Thailand.

Thanpuying Suthawan Sathirathai toured Phra Thong island and tsunami-affected areas on the Andaman coast, a year after the disaster, to stress the need for urgent rehabilitation of mangrove swamps damaged by the tsunami.

Thanpuying Suthawan congratulated local authorities and representatives of the community in Kuraburi district, Phangnga province, on the condition of the mangroves and on the re-planting efforts, and encouraged people to continue.

The Government of Thailand, through the Department of Marine and Coastal Resources has conducted extensive, ecosystem assessments on the island of Phra Thong over the years.

In addition both the Department of National Parks and Marine and Coastal Resources have been involved in developing master plans for the area.

Mangroves for the Future

Reducing vulnerability and improving livelihoods after the Indian Ocean tsunami

Mangroves for the Future is the World Conservation Union's flagship initiative for coastal ecosystem management in a post-tsunami context. It aims to work with communities in twelve countries of South and Southeast Asia and the Western Indian Ocean, and to commence implementation in 2007. The initiative will restore and conserve important coastal ecosystems such as mangroves, coral reefs, wetlands, forests, lagoons, estuaries, beaches and sandy shores, in order to strengthen the livelihoods and reduce the vulnerability of coastal populations.

A partnership for action

Mangroves for the Future provides a platform of collaboration to work together towards a common goal to conserve and restore coastal ecosystems and to sustain human livelihoods, well being and security in the Indian Ocean Region. It involves many different agencies, sectors and countries who are concerned with conserving ecosystems, sustaining livelihoods and reducing vulnerability. The initiative identifies strategies and actions which will take their work beyond the immediate needs for reconstruction, to long-term sustainable coastal development.

Mangroves have been selected as the flagship for the initiative because of their great importance in ecological and economic terms. However, recognising that coastal management priorities vary, and that issues such as disaster mitigation and provision of sustainable livelihoods in coastal regions need urgent attention, *Mangroves for the Future* takes a broad approach. Issues to be addressed therefore include: support for sustainable livelihoods, vulnerability assessment and risk management, protected areas, restoration of coastal ecosystems, integrated coastal zone management planning, ecosystem valuation, and research, monitoring and assessment. Through these actions, it is intended that the initiative will make a substantial contribution to long-term sustainable development processes across tsunami-affected countries.

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Crab trapping in the mangrove in
Phra Thong island, Thailand
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