

# SOMALIA



Hafun, Somalia (8 January 2005). A Somali man walks through debris on the island of Hafun, the worst hit area in Somalia. Almost all its 4,500 inhabitants were made homeless. © Francesco Broli/World Food Programme/ Reuters



## 8. NATIONAL RAPID ENVIRONMENTAL DESK ASSESSMENT – SOMALIA

### 8.1 Introduction

Approximately 650 kilometres of the Somali coastline was impacted by the tsunami, primarily in the stretch between Xaafun (Hafun) (Bari region) and Garacad (Mudung region), with differing degrees of devastation. The tsunami resulted in the death of some 300 people and extensive destruction of shelters, houses and water sources as well as fishing gear. The tsunami came at a time when many parts of the country were beginning to recover from four years of consecutive drought and periodic floods in addition to chronic insecurity. The impact of the tsunami therefore posed a further assault to an already vulnerable population.

The livelihoods of many people residing in towns and small villages along the Somalia coastline, particularly in the northern regions, were devastated. About 18,000 households were estimated to be directly affected and in need of urgent humanitarian assistance. The tsunami disaster coincided with the peak of the fishing season which increased the number of those affected.

The immediate response by UN agencies and other organizations has focused on meeting the life saving needs of the affected population such as emergency food, medicines and non-food items. These were dispatched less than two days after the crisis started unfolding, whereby clean drinking water, shelter and non-food items were urgently needed because most of the wells had been submerged and contaminated by seawater and other debris whilst food items had been washed away. UN agencies, including UNDP, WFP, UNHCR, and OCHA as well as NGOs fielded a multi-agency assessment mission to the areas affected by the tsunami. Specifically, WFP, UNICEF, UNHCR and WHO have either pre-positioned or distributed relief items to some of the affected areas including food, medicines and emergency relief kits.



Hafun, Somalia (31 December 2004). Aerial view of the aftermath of the tsunami that struck Harun, Somalia on 26 December. The tsunami killed more than 300 people and destroyed homes, boats and fishing equipment. About 18,000 households were estimated to be directly affected and in need of urgent humanitarian assistance. © AFP/Getty Images

## **8.2 Overview of the Environmental Response**

On 17 January 2005, UNEP received an urgent request from the Ministry of Fisheries, Ports and Marine Transport of the Government of Puntland to assess environmental damage including habitat destruction, pollution and soil erosion in the affected coastal areas, as well as on Hafun Island, and to ensure environmental considerations are integrated within the recovery and reconstruction process.

In response to the request, UNEP held discussions with the Hon. Mohamed Osman Maye, Minister of Environment and Disaster Management of the Transitional Federal Government of Somalia. During the discussions, it was agreed that UNEP should send a fact finding mission to some of the areas affected by the tsunami, namely Xaafun (Hafun), Eyl, Bandarbeyla and Garacad. UNEP established a team of experts and made arrangements to travel to these areas on 7 February 2005. However, the mission could not be undertaken due to the security conditions in those areas. Consequently, this initial desk report has been prepared using information provided by some United Nations agencies and Non Governmental Organizations (NGOs) as well as from various independent sources. In addition, UNEP held a meeting on 17 February 2005 in Cairo, Egypt on Coastal Zone Rehabilitation Management for the Tsunami Affected Region. The Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA) hosted this meeting in conjunction with the UNEP Asian Tsunami Disaster Task Force and the UNEP Global Programme of Action (GPA). The purpose of the meeting, which involved the tsunami affected country focal points of Regional Seas and Experts, was to discuss at the highest possible political/institutional level, basic principles for coastal reconstruction and rehabilitation within the broader framework of integrated coastal zone management and to provide information on related policy tools and mechanisms aimed at reducing impacts of possible future disasters. Also, the meeting served as a forum for exchanging knowledge and fostering linkages between responsible national institutions to further enhance cooperation among the affected countries.

## **8.3 Preliminary Findings: Impact on Natural Resources**

Since 1991, Somalia has been subjected to extreme environmental degradation both natural and man-made associated with the current war and lawlessness. The affected areas included Lower and Middle Shabelle, Lower Juba, Bay, Bakool and Puntland. Other areas can be identified through closer inquiry.

There is a growing danger of deterioration of the environment and personal health. The economic crisis, high population pressure, competition over limited resources and poverty are root causes leading to hundreds of thousands of Somali people destroying the fragile ecosystems and misusing resources they depend upon for their survival and well-being.

Among other things, the challenges facing Somalia today are growing deterioration of forest land, desertification and depletion of wildlife. The economic potential of Somalia's marine resources has been seriously affected and threatened, whilst dumping of toxic and harmful waste is rampant in the sea, on the shores and in the hinterland.

Somalia has suffered triple disasters. First, it had been affected by four years of successive drought which displaced many people from their areas of origin. Then their livestock perished in considerable numbers following the drought and finally came the tsunami which devastated homes, roads, other infrastructure and fishing gear. The livelihoods of many people residing in small villages along the coastline, particularly in the northeastern regions were worst affected.

## **Mangroves and Coastal Vegetation**

Although Somalia is not well endowed with natural resources that can be profitably marketed internationally, it has ecosystems that are key to its social and economic development to meet the needs of the population. One of the major ecosystems includes mangroves, which have high productivity levels as they receive nutrients from both sea and land. Mangrove forests are home to a rich assortment of wildlife, such as birds and many aquatic species, but they also provide another crucial and often overlooked service to their ecosystems: they are natural buffers that shelter coastal communities and wildlife from the brunt of storms and waves, such as tsunamis. The patches of mangroves in Somalia play a vital role in reducing shoreline erosion. Also, mangroves perform several other ecological and hydrological functions including water supply, erosion protection and habitats for fish. They are critical for the conservation of biological diversity.

Once common in the Horn of Africa and extreme south of Somalia particularly along the coast from Kismaayo (Chisimayu) to near the border with Kenya, the patches of mangrove forests are now degraded. One of the major factors changing the characteristics of mangroves in Somalia is the over-exploitation for firewood and construction purposes, which leads to more sedimentation and excessive nutrient loads. Somalia depends principally on domestic wood and charcoal to meet its household energy needs. Some areas have been destroyed, with clearing so extreme that no large areas of vegetation have survived, leaving the land barren. The function of the mangroves as coastal buffers and the effects of their removal along the coastline may have exacerbated the impacts of the aftermath of the tsunami. The extent of the damage is still not known and it may take some time before the impacts are known since the deposits of silt could clog the pores of the aerial roots of mangroves and suffocate them.

Domestic and foreign demand for forest products is growing. The heavy dependence on wood for firewood and building materials with an increase in charcoal exports to the Middle East has contributed to the destruction of the forests, woodlands, mangroves and the entire natural habitat in Somalia. Currently, there very limited alternative energy sources.

Oil pollution could also be one of the threats to the mangroves as there are tanker lanes along the Somalia coast linking the Gulf to the Atlantic Ocean. In its ports, Somalia lacks the basic facilities for handling bilge, and small oil spills are common.

Overall, the regenerative capacity of the mangrove systems may have declined considerably and the ability to provide fishing grounds for fish, molluscs and crustaceans could have dramatically decreased as a result of uncontrolled harvesting. However, an assessment of the extent of damage to the patches of mangroves and coastal vegetation as well as detailed impacts and risk analysis needs to be undertaken.

## **Coral Reefs**

Somalia has excellent fringing and patches of coral reefs along the Gulf of Aden coastline and southern Somalia near the Kenyan border which are highly biodiverse. The rock-like structure of coral reefs serve as a natural water break; a physical barrier near the ocean's surface that breaks waves offshore and dissipates most of their force before they reach the land. Therefore, they have the capacity to create rigid, wave-resisting structures that modify their physical environment, thus creating a wide variety of associated depositional movements.

The coral reefs have suffered natural disturbances in the past, including those caused by the recent tsunami. The tsunami could have reduced some of the coral reefs to rubble due to the crushing force of the waves. There could also be significant damage to the coral reefs as a result of land runoff of wastes and pollutants, debris, soil and organic matter, particularly, those near the coastal towns of Kismaayo (Chisimayu) and Mogadishu. Due to the absence of appropriate national institutions there are no mechanisms to assess the damage to coral reefs by natural hydrological related disasters and human

## Priority Ecosystems and Protected Areas in Somalia



website: [www.unep-wcmc.org](http://www.unep-wcmc.org)  
 please contact Kavesh Zahedi or  
 Phyllis Frix for further details

All data on Protected Areas, Coral Reefs, Seagrasses and Mangroves  
 are available from UNEP-WCMC databases.  
 Data on population density kindly provided by CIESIN.

email: [cll@unep-wcmc.org](mailto:cll@unep-wcmc.org)  
 tel: +44 (0) 1223 277314  
 fax: +44 (0) 1223 277136  
 © UNEP-WCMC, 2005

activity and plans for their protection. An assessment of the coral reefs is therefore needed to determine the extent of damage caused by the tsunami and other natural disasters such as El Niño as well as general degradation arising from long years of pressure from human activities and management neglect. IUCN is working with local authorities and NGOs to monitor fisheries and establish a protected area in the Saad ed Din Islands.

### **Surface and groundwater**

Surface and groundwater were hard hit by the impacts of the tsunami. Specifically, freshwater bodies and fishery breeding grounds were contaminated with the saline water. Wells located in the coastal areas where seawater has penetrated have become clogged or buried by sand washed in by the giant waves, resulting in brackish and polluted waters. The sea water may have also invaded the porous rocks thus contaminating the underground water with salt. The coastal communities depend on surface and groundwater for survival. This is a serious public health issue because local water sources have been contaminated. The long-term impacts or reversibility of this situation are unknown at this stage. Coastal communities will have to wait for rains to flush out the saline water from the aquifers and the porous rocks that hold the groundwater. It may take years for the rains to cleanse the rocks. An assessment and detailed analysis of surface and groundwater quality is urgently needed and its outcome will serve as a basis for developing appropriate intervention measures.



Hafun, Somalia. Nurto Ibrahim Mudey outside a makeshift house in the village of Hafun, Somalia. Mudey's house was destroyed by the tsunami on 26 December, and she lost her husband and six-month-old son. © Mugo Njeru/Daily Nation

## **Soils**

It is estimated that from 46 to 56 per cent of Somalia's land area can be considered permanent pasture. About 14 per cent is classified as forest and approximately 13 per cent is suitable for cultivation, but most of that area would require additional investments in wells and roads for it to be usable. The remaining land is not economically exploitable. In the highlands around Hargeysa, relatively high rainfall has raised the organic content of the sandy calcareous soils characteristic of the northern plains, and these soils have supported some dry farming. The area between the Jubba and Shabeelle rivers has soils varying from reddish to dark clays, with some alluvial deposits and fine black soil. This is the area of plantation agriculture and subsistence agropastoralism. South of Hargeysa begins the Haud, whose red calcareous soils continue into the Ethiopian Ogaden. These soils support vegetation ideal for camel grazing. To the east of the Haud is the Mudug plain, leading to the Indian Ocean coast; this region, too, supports pastoral grazing. The coastal areas of the Mudung plain were impacted by the tsunami. This may have caused contamination of the soil with sea water.

In general there is soil degradation in Somalia due to poor land use. Degradation is mainly caused by natural phenomena for example drought and floods giving rise to soil erosion which in turn is exacerbated by overgrazing, deforestation (uncontrolled firewood and charcoal production for domestic use and exports) and human population pressures (settlements and refugee and IDP camps). Proper land use and good soil management is therefore key to the development of agriculture in Somalia on which the livelihoods of the majority of the population depend. Assessment of land utilization and management and detailed analysis of impacts of disasters and other activities is crucial.

## **Marine and Coastal Environment**

The coastline of Somalia is 3,898 kilometres long and about 55 per cent of its population lives along this coastline. With an area of continental shelf of 40,392 square kilometres and territorial sea of 68,849 square kilometres, it produces about 900 metric tonnes (1997 estimate) of molluscs and crustaceans and 20,000 metric tonnes (2000 estimate) of marine fish. The coastline consists of patches of swamp and related vegetation which includes mangroves and savannah related vegetation. The coastal and marine environments have been subjected to a variety of pressures including erosion, oil pollution, waste dumps, human settlements and the discharge of municipal waste water due to the lack of proper water and sanitation facilities.

Somali waters have a high potential for fishing. As a result, the Fisheries and Marine Resources Minister has indicated that a study by his ministry had shown a large number of foreign vessels illegally fishing in Somali waters and serious pollution caused by vessels discharging toxic waste. Heavily armed foreign boats have often tried to exploit the breakdown of law and order in Somalia since the overthrow of President Mohammed Siad Barre in 1991 by fishing in the rich Somali waters, thus depriving coastal communities of resources. However, there has not yet been any fish stock assessment undertaken for the country to enhance better management decisions for the efficient utilization of this resource.

## **8.4 Preliminary Findings: Human Environmental Impacts**

### **Waste**

Prior to the civil war, domestic and commercial solid waste in cities was collected and transported for disposal. However, the system of waste collection and disposal eventually collapsed due to lawlessness and lack of proper central government to efficiently manage the system. During the civil war, waste collection services ceased to function and the collection vehicles and equipment were either looted or destroyed. The garbage transfer stations and depots were also damaged. As a result, mountains of waste accumulated, which continue to pose serious human health risks and environmental hazards.

Further, Somalia is one of the many Least Developed Countries that reportedly received countless shipments of illegal nuclear and toxic waste dumped along the coastline. Starting from the early 1980s and continuing into the civil war, the hazardous waste dumped along Somalia's coast comprised uranium radioactive waste, lead, cadmium, mercury, industrial, hospital, chemical, leather treatment and other toxic waste. Most of the waste was simply dumped on the beaches in containers and disposable leaking barrels which ranged from small to big tanks without regard to the health of the local population and any environmentally devastating impacts.

The issue of dumping in Somalia is contentious as it raises both legal and moral questions. First, there is a violation of international treaties in the export of hazardous waste to Somalia. Second, it is ethically questionable to negotiate a hazardous waste disposal contract with a country in the midst of a protracted civil war and with a factionalized government that could not sustain a functional legal and proper waste management system.

The impact of the tsunami stirred up hazardous waste deposits on the beaches around North Hoby (South Mudug) and Warsheik (North of Benadir). Contamination from the waste deposits has thus caused health and environmental problems to the surrounding local fishing communities including contamination of groundwater. Many people in these towns have complained of unusual health problems as a result of the tsunami winds blowing towards inland villages. The health problems include acute respiratory infections, dry heavy coughing and mouth bleeding, abdominal haemorrhages, unusual skin chemical reactions, and sudden death after inhaling toxic materials.

It is important to underscore that since 1998, the Indian Ocean has experienced frequent cyclones and heavy tidal waves in the coastal regions of Somalia. Natural disasters are short-term catastrophes, but the contamination of the environment by radioactive waste can cause serious long-term effects on human health as well as severe impacts on groundwater, soil, agriculture and fisheries for many years. Therefore, the current situation along the Somali coastline poses a very serious environmental hazard, not only in Somalia but also in the eastern Africa sub-region.

## **Water and Sanitation**

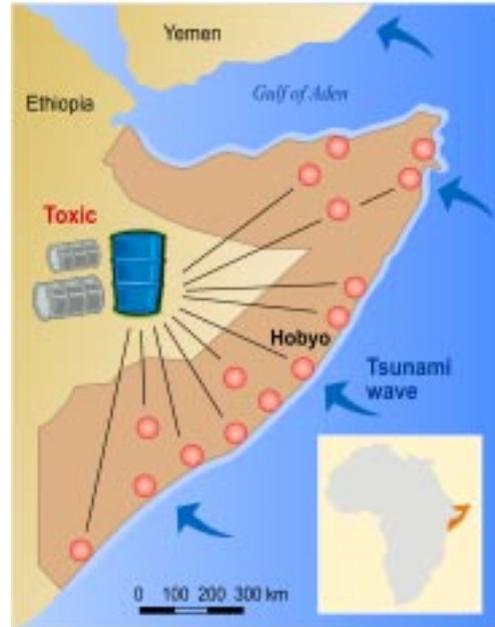
Access to safe water is a significant problem in Somalia, aggravated by the destruction and looting of water supply installations during the civil war, the continued conflict and the general lack of maintenance. This situation is compounded by erratic rainfall patterns that exacerbate both drought and sporadic flooding. It is estimated that 65 per cent of the population does not have reliable access to safe water throughout the year. Less than 50 per cent of Somalis live in households with sanitary means of disposing excreta.

The poor water supply has resulted in communities and families digging independent uncontrolled wells. This has led to the heavy reliance on ground water and risks to human health, resulting from poor sanitation and the total breakdown in solid waste management.

The impact of poor environmental sanitation is particularly felt in the cities, towns and large villages or other places where people live in close proximity to each other. Human and household waste disposal sites are generally close to dwellings and water sources. Lack of garbage collection and proliferation of plastic bags has considerably affected the urban environment and water sources. Seepage from the garbage continues to contaminate ground and surface water thereby posing risks to human health and the environment.

There is no information yet available regarding the impacts of the tsunami on local-level water and sanitation infrastructure. However, there is a good probability that groundwater wells may be contaminated with salt. In addition, if the tsunami ruptured or flooded traditional toilets, sewage contamination of groundwater can also be expected, with serious risks to human health. This would be in addition to any background level of contamination that might already exist from poor waste management practices.

## Case Study: Hazardous waste dumping in Somalia



Photos courtesy of Minister for Parliamentary Affairs Transitional Federal Government of Somalia (top) and Abdiashid Abdillahi, resident of Indaan, North Hobyo (bottom)

Industrialised countries generate about 90 per cent of the world's hazardous wastes. The amount of waste crossing national frontiers is increasing and is likely to continue, due to the high growth of industries in developed countries accompanied by a high increase in the production of hazardous waste. Reportedly, some European firms are known to be engaged in the business of dumping hazardous waste in Africa. The primary cause of this is cost. It has been estimated that it costs as little as \$2.50 per tonne to dump hazardous waste in Africa as opposed to \$250 per tonne in Europe.

During the Somalia civil war, hazardous waste was dumped in the country by industrialized countries. Somalia appeared attractive for hazardous waste dumping due to:

- *Political instability.* Since 1991 Somalia lacked a central government to safeguard its long coastlines and territories.
- *Availability of dumping sites.* There is a general problem of finding suitable dumping sites within the countries generating these wastes as well as high cost of recycling or incinerating. Somalia happens to have abundant sites for dumping waste.
- *Low public awareness.* The public were hardly informed about dumping of wastes in the country. Besides the people were trying to eke their living in the midst of extreme social problems and poverty created by the war.

The impacts of the December 2004 tsunami stirred up hazardous waste deposits on the beaches around North Hobyo causing some health and environmental problems in the area.

## 8.5 Conclusions and Recommendations

On the basis of this initial desk report, the following conclusions have been made:

1. The tsunami caused some damage to the environment along the coast which may have been exacerbated by previous levels of environmental degradation.
2. A multi-agency mission is needed on the environment to be led by UNEP with broader terms of reference which will include, among others:
  - Assessment of the environmental impacts of the tsunami-affected areas.
  - Assessment of the environmental impacts of drought and flood-affected areas.
  - Assessment of the impacts of toxic and other waste.
  - Exploring possibilities of creating biodiversity protected and/or heritage sites for the Horn of Africa (“Horn of Africa Heritage”).
3. The outcome of the mission should include recommendations focusing on short, medium and long term measures covering the following areas: institutional development, development of policy and legislation, awareness raising and capacity-building, land use and soil management (including desertification control), freshwater resources and sanitation, marine and coastal ecosystems management, forest resources and biodiversity (including wildlife conservation), waste management, disaster management (prevention, preparedness, assessment, response and mitigation) and disaster risk reduction.
4. Environmental vulnerability is likely to intensify in Somalia with the incidence of recurrent drought and flood disasters arising from climate variability and climate change. This will have drastic effects on well-intentioned development efforts of the government, local communities and international organizations. Also, it will set back development gains, perpetuate the existing poverty cycle and reduce the chances of attaining the Millennium Development Goals (MDGs).
5. Coping with the aftermath of the tsunami seems to indicate that Somalia lacks the capacity to deal with such disaster events and would therefore need to put in place aggressive programmes to develop and/or strengthen both institutional and human capacities for disaster management.

## References

1. Personal communication with OCHA Somalia officer in Nairobi, February 2005.
2. Personal communication with the UN Field Security Coordination officer for Somalia in Nairobi, February 2005.
3. Personal communication with the UN Resident Representative/Humanitarian Coordinator for Somalia in Nairobi, February 2005.
4. SOMALIA CENTRE FOR WATER AND ENVIRONMENT, 2001. *Somalia's Degrading Environment: Legal and Moral Perspectives of Deforestation and Hazardous Waste Dumping in Somalia*. Abdullahi Elmi Mohamed (ed.). Available from: <http://www.somwat.com/Essay.html>.
5. UNICEF, 2004. *Water, Environment and Sanitation in Somalia*. Available from: [www.unicef.org/somalia/wes.html](http://www.unicef.org/somalia/wes.html).
6. UNITED NATIONS DEVELOPMENT PROGRAMME, 2002. Somalia Environment Programme. UNDP Somalia.
7. UNITED NATIONS DEVELOPMENT PROGRAMME, 2004. *The Atlas of Somalia*. UNDP Somalia.

8. UNITED NATIONS ENVIRONMENT PROGRAMME, 1985. UNEP Regional Seas Reports and Studies No.57: *Oil spills and shoreline clean-up on the coasts of the Eastern African region*. Nairobi: UNEP.
9. UNITED NATIONS ENVIRONMENT PROGRAMME, 1985. UNEP Regional Seas Reports and Studies No.66: *Management and conservation of renewable marine resources in the Eastern African region*. Nairobi: UNEP.
10. UNITED NATIONS ENVIRONMENT PROGRAMME, 1987. UNEP Regional Seas Reports and Studies No.84: *Coastal and marine environmental problems in Somalia*. Nairobi: UNEP.
11. UNITED NATIONS FOOD AND AGRICULTURAL ORGANIZATION, 2005. *Rehabilitation of agricultural production and fisheries, food security, Somalia*. Available from: [http://www.fao.org/docs/eims/upload//173378/Agency%20Report\\_Somalia1.doc](http://www.fao.org/docs/eims/upload//173378/Agency%20Report_Somalia1.doc).
12. UNITED NATIONS FOOD AND AGRICULTURAL ORGANIZATION, 2005. Situation reports on Somalia. Available from:  
<http://www.fao.org/tsunami/fisheries/forum/main/viewForum.jsp?forum=25>
13. UNITED NATIONS, 2005. Know Risk. Leicester: Tudor Rose Publishers.
14. WORLD RESOURCE INSTITUTE, 2003. Earth Trends. The environmental information portal. Available from: <http://earthtrends.wri.org/text/coastal-marine/country-profile-164.html>.