

Information and Support

United Nations Environment Programme (UNEP)
www.unep.org

UNEP is the principal environment organization of the United Nations system. It supports governments and their partners to develop and implement environment policies and activities.

United Nations Human Settlements Programme (UN-HABITAT)
www.unhabitat.org

UN-HABITAT is the United Nations agency for human settlements. It promotes socially and environmentally sustainable towns and cities with the goal of providing adequate shelter for all.

Regional Agreements and Action Plans related to the pollution of coastal areas

Abidjan Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the **West and Central African Region**

Antigua Convention for Cooperation in the Protection and Sustainable Development of the Marine and Coastal Environment of the **Northeast Pacific**

Arctic Council for the Protection of the **Arctic Marine Environment**

Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the **Mediterranean**

Bucharest Convention on the Protection of the **Black Sea** Against Pollution

Cartagena Convention for the Protection and Development of the Marine Environment of the **Wider Caribbean Region**
Convention on the Conservation of **Antarctic** Marine Living Resources (CCAMLR), Protocol on Environmental Protection to the **Antarctic Treaty**

East Asian Seas Action Plan

Framework Convention for the Protection of the Marine Environment of the **Caspian Sea**

Jeddah Convention for the Conservation of the **Red Sea and Gulf of Aden** Environment

Kuwait Regional Convention for Cooperation on the Protection of the Marine Environment from Pollution

Lima Convention for the Protection of the Marine Environment and Coastal Areas of the **South-East Pacific**

Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the **Eastern Africa Region**

North-West Pacific Action Plan/NOWPAP

Noumea Convention for the Protection of Natural Resources and Environment of the **South Pacific Region**

Helsinki Convention on the Protection of the Marine Environment of the **Baltic Sea** Area, The Baltic Sea Joint Comprehensive Environmental Action Programme

OSPAR Convention for the Protection of the Marine Environment of the **North-East Atlantic** (Oslo and Paris conventions)

South Asian Seas Action Plan

The UNEP Regional Seas Programme fosters regional cooperation to address the accelerating degradation of the world's oceans and coastal areas. It stimulates the creation of 'action plans' which are coordinated and implemented by countries sharing a common body of water. More information on this Programme is available at www.unep.org/regionalseas/index.html

UNEP – Global International Water Assessment (GIWA)
www.giwa.net

GIWA is a comprehensive and integrated global assessment of international waters, focusing on the ecological status of and the causes of environmental problems in 66 water areas in the world. Financed by the Global Environment Facility, GIWA will present its final Global Report in 2005.

Global Programme of Action (GPA) for the Protection of the Marine Environment from Land-Based Activities
www.gpa.unep.org

The GPA provides conceptual and practical guidance to national and regional authorities for devising and implementing sustained action to prevent, reduce, control and eliminate marine degradation from land-based activities.

Coastal Regions and Small Islands (CSI) platform (UNESCO)
www.unesco.org/csi

The CSI platform for intersectoral action contributes to environmentally sustainable, socially equitable, culturally respectful and economically viable development in small islands and coastal regions.

Food and Agricultural Organization (FAO), Fisheries Department
www.fao.org/ft/default.asp

FAO's Major Programme on Fisheries aims to promote sustainable development of responsible fisheries and contribute to food security.

International Maritime Organization (IMO)
www.imo.org/home.asp

The IMO is responsible for improving maritime safety and preventing pollution from ships.

Global Environmental Facility
www.gefweb.org

The GEF supports activities that protect the global environment, including activities related to the protection and management of international waters. UNDP, UNEP and the World Bank are the three Implementing Agencies of the GEF.

UN Atlas of the Oceans
www.oceansatlas.org/index.jsp

The Atlas provides information on the sustainable development of the oceans.

International Coral Reef Initiative (ICRI)
www.icriforum.org

ICRI is a partnership among governments, international organizations, and non-government organizations which works to preserve coral reefs and related ecosystems.

Intergovernmental Oceanographic Commission of UNESCO
<http://ioc.unesco.org/iocweb/index.php>

UNESCO's Intergovernmental Oceanographic Commission provides the Member States of the United Nations with an essential mechanism for global cooperation in the study of the ocean. The IOC assists governments to address their individual and collective ocean and coastal problems through the sharing of knowledge, information and technology and through the coordination of national programmes.

EUCC - The Coastal Union
www.eucc.net

EUCC - The Coastal Union promotes coastal conservation by bridging the gap between scientists, environmentalists, site managers, planners and policy makers.

MEDCOAST
www.medcoast.org.tr

MEDCOAST contributes to coastal and marine conservation in the Mediterranean and the Black Sea, through improved coastal management practices.

The Coastal Guide, European Union for Coastal Conservation (EUCC)
www.coastalguide.org

An information service of the EUCC and Coastinfo International for professionals in coastal management, planning, conservation and research in Europe.

ICLEI – Local Governments for Sustainability
www.iclei.org

ICLEI is a worldwide movement of local governments, working to achieve tangible improvements in global sustainability, and focusing on environmental conditions.

Cities Alliance
www.citiesalliance.org

The Cities Alliance is a global alliance of cities and their development partners committed to improve the living conditions of the urban poor through City development strategies (CDS) and slum upgrading

United Cities and Local Governments
www.cities-localgovernments.org/uclg

United Cities and Local Governments is the global voice of cities and the main local government partner of the United Nations.



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This brochure is published by UNEP and UN-HABITAT to raise awareness and strengthen initiatives within cities regarding local-global linkages. With mandates drawn from the UN-HABITAT-led initiative 'Local Capacities for Global Agendas', established as one of the outcomes of the World Summit for Sustainable Development (WSSD), the Millennium Development Goals and UNEP's Bali Strategic Plan, both UNEP and UN-HABITAT work to integrate local level perspectives into global policies. Both agencies emphasize the important role of cities at the national, regional and global levels.

Brochures are also available on *Ecosystems and Biodiversity*, and *Climate Change*.

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Coastal Area Pollution The Role of Cities

involvement
influence
implementation



From space, the earth looks blue. Over 70 percent of the planet's surface is covered by water, the majority of which is in the world's seas and oceans. Half the world's population lives within 100 km of the sea, and three-quarters of all large cities are located on the coast. However, the seas and oceans are under increasing pressure from pollution. Much of this pollution comes from urban centres, and it creates environmental problems which threaten the viability of the cities themselves. Local action to address the pollution of coastal areas is vital if cities are to take full advantage of the economic, social and environmental benefits of their locations. Since most of the earth's water resources are shared by two or more countries, coordinated action, locally, nationally and internationally is equally important.

Local capacities for global agendas



Every year, sewage treatment facilities discharge 5.9 trillion gallons of sewage into coastal waters, and an estimated 160,000 factories dump between 41,000 to 57,000 tons of toxic organic chemicals and 68,000 tons of toxic metals into coastal waters.

UNDP, Conserving Biodiversity, Sustaining Livelihoods: Experiences from GEF-UNDP Biological Diversity Projects

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Coastal zone pollution and cities

A polluted coastal area creates many problems for the cities it hosts. Damage to mangroves, coral reefs, seagrass beds and sand dunes destabilizes the coastline, leading to erosion in some cases, and excessive siltation in others. Infrastructure can be lost, and the commercial viability of ports and harbours compromised. Damaged mangroves and seagrass beds render coastal areas more vulnerable to storms and natural disasters – events which cause significant economic damage in coastal cities, and which may even result in widespread loss of life. The pollution of coastal areas affects fish resource stocks, which can lead to food and employment shortages in coastal cities. Without mangroves and seagrass beds, fish lose important breeding and nursery areas. Fish resources are also influenced by runoff from farmlands which degrades water quality. Overuse of fertiliser can result in eutrophication, and in extreme cases, the creation of ‘dead zones’. In dead zones, huge growths of algae reduce oxygen in the water to levels so low that nothing can live.

The United Nations Environment Programme has identified some 150 dead zones around the world. Some are less than a square kilometre in size, while others are up to 70,000 square kilometres. Oxygen-starved areas in bays and coastal waters have been expanding since the 1960s. The number of known dead zone locations around the world has doubled since 1990. While many of these sites are small coastal bays and estuaries, seabed areas in marginal seas of up to 70 000 km² are also affected. Increased flows of nitrogen from agricultural run-off and the deposition in coastal areas of airborne nitrogen compounds from fossil-fuel burning stimulate blooms of algae in these waters. The algae sink to the bottom where they are decomposed by micro-organisms that use up most of the oxygen in the system, creating an inhospitable habitat for fish, shellfish, and most other living things. In recent decades, large areas of coastal waters with

Although marine products such as seafood, sand and oil have been valued for decades, it is only recently that we have begun to appreciate the oceans' vital services in maintaining ecological diversity and regulating climate. A recent calculation, based on more than 100 studies over the past two decades, suggests that ocean services are worth US \$23 trillion a year - only slightly less than the world's total GNP. It is estimated that the seas and oceans provide two-thirds of the value of all the natural services provided by our environment. Damage caused by the introduction of non-indigenous organisms to coastal and marine environments totals hundreds of millions of US dollars.

GRID-Arendal, Vital Water Graphics, <http://www.unep.org/vitalwater/36.htm>



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harmful algal blooms, severely depleted oxygen levels, and disappearing seagrass beds have been identified and clearly linked with increased inputs from the nitrogen cascade.

Tourism is an important economic component in many coastal cities, and this can be severely affected by pollution. Littered beaches, dying coral reefs and uncontrolled discharge of sewage into coastal waters do not make an attractive holiday environment. Nor does rampant construction – it is estimated that by 2020, half of the 46,000 km of Mediterranean coastline will be built upon, with much of the development linked to the tourism sector. These ‘concrete coasts’ are a significant form of visual pollution, have negative sociocultural impacts, and are also responsible for the decline of biodiversity and natural habitats.

How cities add to the pollution of coastal areas

Throughout history, people have settled on the coasts to take advantage of the amenities the oceans offer – a food supply, a source of transport, a defensible position and a healthy location. However, as coastal cities grow, they become detached from their environmental surroundings, while still requiring services from their local ecosystem. The demands placed on the host ecosystem threaten the viability of the cities themselves. Today, it is estimated that almost 50 per cent of the world’s coasts are threatened by development-related activities. The health, well-being and, in some cases, the very survival of coastal populations depends upon the health and well-being of coastal systems such as estuaries and wetlands. However, almost 80 per cent of the pollution load in the oceans comes from land-based activities, both in coastal areas and further inland. Municipal, industrial and agricultural wastes and run-off, as well as atmospheric deposition, affect the most productive areas of the marine environment, including estuaries and near-shore coastal waters. Physical alterations to the coastal zone also threaten the marine environment.

One of the most damaging ways in which cities pollute coastal areas is the discharge of wastewater and sewage. Many coastal cities discharge sewage, industrial effluent and other wastewater directly into their surrounding seas. Worldwide, two-thirds of the sewage from urban areas is discharged untreated into lakes, rivers and coastal waters. In Latin America and the Caribbean, for example, treatment plants process only an estimated 14 per cent of wastewater. In South Africa, some 63 ocean outfalls discharge approximately 800,000 cubic metres of sewage and industrial effluent into the sea every day. It is not only cities on the coast which contribute to coastal zone pollution, however. UNEP’s Atlas of Freshwater Agreements identifies some 150 river basins – areas or regions through which important rivers run and



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which cross or demarcate international borders – upon which millions of people depend for drinking water, irrigation, wastewater disposal, industrial uses, and in some cases energy. Any urban activity within these river basins can affect the oceans, such as the discharge of sewage or industrial wastes into rivers, or activities which increase silt loads.

Lastly, inappropriate construction, under-regulated harbour and ports activities, overextraction of natural materials through, for example, sand mining, and unsustainable agricultural practices also have the potential to damage coastlines, leading to erosion, the destruction of natural habitats and an increase in siltation.

How cities can contribute to a solution

Cities are taking steps to ameliorate their effect on their coastal surroundings. Direct actions include participation in programmes to capture, treat and reuse urban stormwater runoff, campaigns against beach littering, and the enforcement of regulations governing industrial, municipal and agricultural pollution. Cities which do not discharge untreated sewage into their seas play an important part in lessening the effects of coastal zone pollution. Planning and building regulations which prevent construction in unsuitable areas are vital in coastal cities.

Homebush Bay, the international showpiece for the Sydney 2000 Olympic Games, boasts innovative water treatment and conservation measures. Stormwater run-off from within Homebush Bay is treated using gross pollutant traps, swales and wetland systems. Wastewater is also treated using a water reclamation plant inside the complex. The treated stormwater and wastewater are stored in a disused brick pit. The treated water is available and used as an alternative water supply for water features, irrigation purposes, toilet flushing and fire fighting within Sydney Olympic Park. The use of this alternative water resource, combined with water saving appliances, can help reduce water use by up to 50 per cent.

<http://www.deh.gov.au/coasts/pollution/usi/newsletter-5.html>

Coastal cities are also learning to implement both integrated water resources management (IWRM) and integrated coastal zone management (ICZM) strategies, which incorporate a wide range of ecological, social, cultural, governance and economic considerations. Community participation is essential, and local

stakeholders should share their experiences and responsibilities with national government.

Networking

Coastal area pollution is a transboundary issue, requiring concerted efforts by all the cities located around a particular water body for effective action. Cities may also choose to cooperate within a particular river basin. UNEP has identified some 3,000 agreements between cities over the centuries, regarding the peaceful and sustainable use of shared river basins. Cooperation is facilitated by the sharing of information between cities, in particular at the regional level. Regional information sharing is essential for the development of appropriate regional policies and action plans, which in turn can ensure that city needs and responsibilities are reflected effectively in global policies. UNEP’s Regional Seas Programme, which fosters regional cooperation to address the accelerating degradation of the world’s oceans and coastal areas, works closely with regional organizations and regional fisheries bodies. These organizations promote regional cooperation for the protection and development of their shared coastal and marine resources and can provide cities with a regional platform to discuss issues of coastal zone pollution with other affected cities.

Support

Support is available to cities which can link their activities to the reduction of coastal zone pollution. The Global Environment Facility (GEF) helps developing countries fund projects that protect the global environment, including international waters. Projects aim to achieve a comprehensive, ecosystem-based approach to the sustainable management of international waters, incorporating both developmental and ecological needs. In most cases, regional and international agreements provide guidance and the legal framework for developing projects in this focal area. In cooperation with their national governments, cities can access support from GEF for activities related to international waters.

UNEP’s Regional Seas Programme, mentioned above, stimulates the creation of ‘action plans’ – recommendations for sound environmental management to be coordinated and implemented by countries sharing a common body of water. Usually, the action plan is underpinned by a strong legal framework in the form of a regional convention and associated protocols on specific problems. Today, the Regional Seas Programme works closely with more than 140 coastal states and territories, which are participating in 13 Regional Seas and five partner programmes. Each programme is tailored to suit particular regional environmental challenges.

UNEP also coordinates the Global Programme of Action for the Protection of the Marine Environment from Land Based Activities (GPA), which was adopted by 108 governments and the European Commission. The GPA aims to prevent the degradation of the marine environment from land-based activities by facilitating the duty of states to preserve and protect the marine environment. Among others, it provides key guidance for

local and national action on municipal wastewater, supported by guidelines, checklists, a knowledge base and training courses.

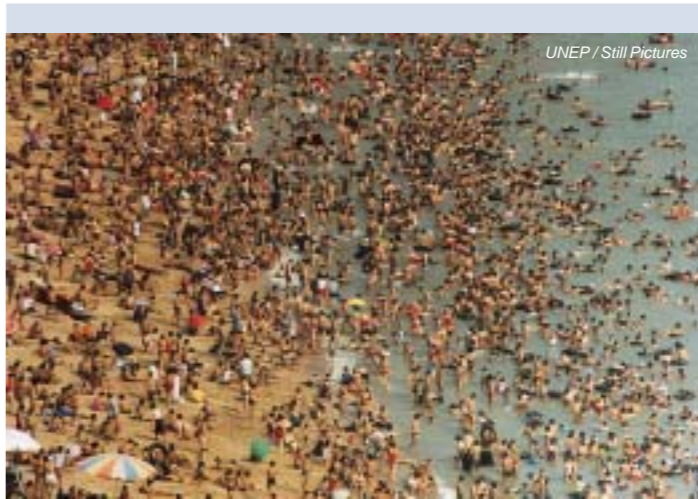
How cities can influence the development of global policy

The inclusion of city level experiences in preventing or reducing coastal zone pollution improves national policies, and results in a better understanding of the capacities and needs of both the local and national levels. This leads to more targeted support and improved policy implementation, as city experiences are an important resource for decision-makers at the national level. City participation in national level meetings ensures that information flows freely between the two levels. The process of decentralization can also ensure that local level activities and expertise are recognized, supported and utilized.

By integrating coastal zone pollution issues into policy documents such as City Development Strategies (Cities Alliance) or Poverty Reduction Strategy Papers (International Monetary Fund, World Bank), and by participating in UNEP’s Global Environment Outlook (GEO) process in cities, local governments can ensure that coastal zone pollution is included in local, national and regional development strategies from the start. The Global Environment Outlook (GEO) process is designed to analyze the state of the environment, and to assess the effects of cities on the local, national and global environment. The joint UN-HABITAT/UNEP Sustainable Cities Programme (SCP) provides support to many coastal cities world wide in their efforts to integrate coastal management into city development strategies

In addition, taking part in organizations such as United Cities and Local Governments (UCLG) allows cities to speak with one voice from a global platform. UCLG is the global voice of cities and the main local government partner of the United Nations, spearheading the United Nations Advisory Committee of Local Authorities (UNACLA). ICLEI – Local Governments for Sustainability also supports local governments through their various campaigns and global and regional networks.

National governments can use their cities’ experiences to improve regional and global policies to address coastal zone



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The UNEP/GEF project, Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand, is supporting action among Cambodia, China, Indonesia, Malaysia, Philippines, Thailand and Viet Nam, to address major environmental problems facing the region. The South China Sea represents an area of globally significant marine biodiversity that in turn supports a significant world fishery important to the food security and export income of the countries bordering this sea. 270 million people live in the coastal sub-regions, concentrating in 93 cities with over 100,000 inhabitants each, including Bangkok, Manila and Hong Kong. The project is supporting development of regionally co-ordinated programmes of action designed to reverse environmental degradation particularly in the area of coastal habitat degradation and loss, halt land-based pollution and address the issue of fisheries over-exploitation.

www.unepscs.org



Adams/UNEP / Still Pictures

pollution. Participation in intergovernmental meetings allows concrete experiences from the city level to feed into and inform the formulation of global policies. With the coordinated input of local authorities, global agendas are better prepared to respond to urban needs and to take advantage of urban strengths.

Conclusion

Coastal area pollution threatens the economic, social and environmental sustainability of coastal cities across national boundaries. To address this problem effectively, concrete action is particularly important at the city and regional levels. If cities are to undertake their important role in combating coastal pollution, strong linkages between the local, national, regional and global levels are essential to ensure that cities receive the cooperation and support they need to carry out coordinated regional actions. Urban needs and abilities must be fully integrated into relevant conventions and multilateral environmental agreements.

In a sense, all cities are coastal cities. Urban residents use the oceans for food, recreation and transport, and ultimately, all waste discharged into rivers ends up in the seas. The oceans of the world are already threatened. To ensure their protection and conservation, concrete actions must be included in cities’ formal work programmes and plans. With the cooperation and support of partners at all levels, including the United Nations, city activities will be at the forefront of global efforts to protect coastal areas and to preserve the world’s seas and oceans.