UN-Habitat Contribution to the report of the Secretary-General on oceans and the law of the sea

18 January 2016

Effects of climate change on the oceans – environmental, social and economic

1. Ocean warming

i. Effects on marine ecosystems and biodiversity
- Social and economic

Ocean warming leads to the loss of coral reefs. The loss of the coral reefs significantly increases the vulnerability of urban areas, especially coastal cities' essential infrastructure and utilities to storm surge, and sea level rise.

ii. Effects on marine species
- Social and economic

Potential loss or changes in marine species will significantly jeopardize the marine-oriented 'blue' economy of coastal communities and settlements, and thus endanger their livelihoods and sustainable development opportunities.

iii. Sea-level rise
- Environmental

Sea level rise will significantly endanger the coastal environment, which acts as protective barrier to coastal cities, communities and settlements.

- Social and economic

Coastal cities and settlements are under severe threat of sea level rise. UN-Habitat (conservative) estimates suggest that around 11%-15% in SIDS live on land with an elevation of 5 meters or lower. A large proportion of inhabitants and socio-economic assets are thus at risk from sea-level rise.

iv. Melting ice in Polar regions
- Environmental /biodiversity
- Social and economic

v. Extreme weather events
- Social and economic

Coastal cities and areas are vulnerable to the impacts of extreme weather events as they tend to be located at low elevations, especially to flooding, storm surges and Hurricanes/Typhoons.

2. Carbon dioxide flux and ocean acidification
n/a

3. Cumulative impacts i. interaction with other drivers

Action undertaken to address the effects of climate change on the oceans and to foster climate resilient sustainable development of oceans and seas

1. Science, data collection and awareness raising

UN-Habitat, through periodic reports, papers and publications, is contributing to the expansion of science and evidence base to help foster sustainable urbanization, including urban mitigation and adaptation measures encompassing coastal cities and areas.

Urbanization and climate change in Small Island Developing States: http://unhabitat.org/books/urbanization-and-climate-change-in-small-island-developing-states/

Cities and Climate Change: Global Report on Human Settlements 2011: http://unhabitat.org/books/cities-and-climate-change-global-report-on-human-settlements-2011/

2. Overview of existing legal and policy frameworks

The New Urban Agenda adopted in October 2016 in Quito, Ecuador, will guide UN-Habitat work towards sustainable urbanization, including coastal areas and coastal cities, as stated in paragraphs 64, 68, 69, 71 and 114. The New Urban Agenda can be accessed at: https://habitat3.org/the-new-urban-agenda/.

3. Action aimed at fostering climate resilient sustainable development of oceans and seas

Through the sustainable development of coastal cities, UN-Habitat contributes to efforts for protecting and sustainably developing oceans and seas.

4. Ocean-based adaptation actions Ocean-based mitigation action

UN-Habitat is working on ecosystem-based adaptation to climate change in coastal cities, for example through the protection of natural zones (i.e Mangroves) along coastlines, actively protecting oceans and seas.

5. Capacity-building, partnerships and financing

Further action necessary to address the effects of climate change on the oceans

Promote more sustainable urban planning and design

SIDS and countries with coastal cities and human settlements should embrace policies that promote compact urban form and connected settlements to reduce the pressure on limited land resources. Compact settlements also yield other environmental benefits such as reduced greenhouse gas emissions and minimized surface sealing and degradation, which fragments ecosystems and reduces rainwater infiltration and groundwater regenerative capacity. Integrated and inclusive settlements could yield further social and economic benefits, supporting sustainable development. A compact development pattern may also increase the access to marine resources, on which many SIDS' inhabitants rely.

Consider ecosystems-based approaches to adaptation

The cities and towns of Small Islands Developing States, and coastal cities in general, should consider their natural resources and give attention to their protection or careful occupation in the urban expansion process. The natural ecosystems can be a useful and cost-effective tool in climate change adaptation. Coastal ecosystems can help reduce risks and minimize the area vulnerable to natural disasters and therefore support the urban resilience of coastal settlements. National and local climate action can enable planners and managers to protect existing ecosystems and rehabilitate degraded areas, incorporating such systems into strategies for adapting to climate change. Ecosystem-based adaptation is emerging as a viable option for local and national governments to increase resilience to climate change impacts. Ecosystem-based adaptation ensures ecosystems remain healthy, allowing local populations to benefit from the provided environmental services such as provision of clean water, improved habitat for fish supplies and, more notably, protection from extreme weather and sea-level events. Healthy ecosystems may also serve as carbon sinks and thus provide the added benefit of mitigating local greenhouse gas emissions.