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## **Factsheet: Climate Change**

### ***Climate change and the ocean***

- About 93 per cent of the excess heat energy stored by the Earth over the last 50 years is found in the ocean more than three quarters of the total exchange of water between the atmosphere and the Earth's surface through evaporation and precipitation takes place over the oceans.
- The ocean contains 50 times more carbon than the atmosphere and is at present acting to slow the rate of climate change by absorbing about 30 per cent of human emissions of carbon dioxide from fossil fuel burning, cement production, deforestation and other land use change.

### ***Ice melting in polar regions***

- Over the last two decades, the Greenland and Antarctic ice sheets have been losing mass, glaciers have continued to shrink almost worldwide, and Arctic sea ice and Northern Hemisphere spring snow cover have continued to decrease in extent).
- Over the past three decades, Arctic summer sea ice retreat was unprecedented and sea surface temperatures were anomalously high in at least the last 1,450 years.

### ***Sea level rise***

- Between 1901 and 2010, global sea level rise increased at an accelerating rate and recent sea level rise appears to have been the fastest in at least 2800 years.
- During the last four decades, 75 per cent of the sea level rise can be attributed to glacier mass loss and ocean thermal expansion. This gives Antarctica alone the potential to contribute more than a metre of sea level rise by 2100 and more than 15 metres by 2500.
- Sea level rise leads to coastal erosion, inundations, storm floods, tidal waters encroachment into estuaries and river systems, contamination of freshwater reserves and food crops, loss of nesting beaches, as well as displacement of coastal lowlands and wetlands. In particular, sea level rise poses a significant risk to coastal regions and communities.
- Almost two-thirds of the world's cities with populations of over five million are located in areas at risk of sea level rise.
- The potential costs associated with damage to harbours and ports due to sea level rise could be as high as \$US111.6 billion by 2050 and \$US367.2 billion by the end of the century.

### ***Extreme weather events***

- Ocean warming has been linked to extreme weather events as increasing seawater temperatures provide more energy for storms that develop at sea, leading to fewer but more intense tropical cyclones globally.
- Latest figures show that disasters—90 per cent of which are classed as climate related—now cost the world economy US\$520 billion per year and push 26 million people into poverty every year.

### *Displacement*

- It is estimated that at least 11 to 15 per cent of the population of Small Island Developing States live on land with an elevation of 5 meters or lower, and that a sea level rise of half a meter could displace 1.2 million people from low-lying islands in the Caribbean Sea and the Indian and Pacific Oceans; with that number almost doubling if the sea level rises by 2 metres.
- It has been reported that an annual average of 21.5 million people have been forcibly internally displaced by sudden weather-related hazards since 2008.