The Hungry Tide: Climate Change and small island states

Climate Change is a planetary emergency that threatens the survival of many small island states. For low lying states like the Maldives, Kiribati, Tuvalu and the Bahamas, the risks from sea level rise threaten their physical existence.

Rising seas have several major impacts: Coastal zones are damaged through erosion and inundation. Storm surges exacerbate this damage and contaminate the fresh groundwater. This impacts on the drinking water and affects crop production.

Climate change also results in increases in ocean acidification and rising temperature and leads to the destruction to coral reefs and their fisheries habitats. Health and biodiversity deteriorates.

Global warming

The major finding of the Fourth Assessment Report (AR4), published in 2007 of the Intergovernmental Panel on Climate Change (IPCC) was that warming of the climate system is 'unequivocal', and that temperature increases since the mid-20th century are very likely due to anthropogenic increases in atmospheric greenhouse gas concentrations.

Carbon dioxide, which is the main greenhouse gas, has increased in atmospheric concentration from 278 parts per million (ppm) before the industrial revolution (the mid-19th century) to 392 ppm as of March 2011, and continues to rise by an average of about 2 ppm annually.

Limiting global warming to below 1.5°C would require long-term stabilization of atmospheric greenhouse gas concentrations at below 350 parts per million (ppm) of CO2-equivalent. This has already been exceeded.

The Alliance of Small Island states (AOSIS) of which Kiribati is a member has proposed that global emissions should peak by 2015 at the latest, and decrease thereafter to at least 85% below 1990 levels by 2050.

Sea level rise

Analysis of historical observations confirms that the oceans have warmed since 1950 and that they have stored more than 90 percent of the increase in heat associated with global warming. The IPCC Report noted that the total sea level rise during the 20th century was 170mm, but that over the past two decades it has been rising quite rapidly.

In 2007, the IPCC estimated that the sea level rise for a no – mitigation scenario would be 26-59 cm by 2100. However recent scientific measurements have indicated that sea level rise is tracking near the upper limit of IPCC projections, and this has raised concerns that the IPCC figures may be a conservative estimate. A selection of new studies all give rates of sea rise greater than the IPCC projections, with upper estimates as high as 1.9 meters by 2100. The biggest concern for long term sea level rise is the ongoing melt – well beyond 2100 – of the Greenland and West Antarctic ice sheets which contain enough water to raise global sea levels by 13mm, (IPCC). The melting of the Greenland Ice Sheet, once it commences, may be irreversible.

Due to rising concern over the scale and rapidity of impacts AOSIS has called for limiting global average temperature increases to well below 1.5°C above pre-industrial levels,

Impacts on low-lying island states

Significant and sometimes severe impacts are already being experienced by small island nations. Coral bleaching has already led to a loss of about 16 percent of the world's coral reefs, with adverse effects on many islands. Intense tropical cyclones have become more frequent and stronger, and have caused much damage in the Pacific and Caribbean. Kiribati and the Maldives have already lost some of their islands to rising waters, and land losses have been reported in other Pacific Island countries as well as in the Caribbean. Shoreline erosion and flooding has caused major damage to roads, public utilities and households, and salt-water damage to agricultural crops and fresh water lens has caused severe food and fresh water shortages in a number of low-lying islands.

These impacts are predicted to intensify and worsen rapidly in coming decades. Sea levels will rise, combined with the effects of

more intense tropical storms, will threaten the territorial integrity of many countries. In some cases the very existence of countries into the future is in doubt.

Coral Islands growing or sinking?

The Applied Geoscience Commission in Fiji released a study in 2010 on the dynamic response of reef islands to sea level rise in the central Pacific. The study showed that seven islands there have increased their size by an average 3 per cent since the 1950s. This led to erroneous widespread media reports that low-lying Pacific islands are growing rather than sinking.

One of the authors of the study Dr. Arthur Webb says that "Our research does not provide any evidence that larger atoll islands are capable of vertical growth, we do not suggest this is occurring. I sadly see no evidence of substantive vertical growth in any larger atoll islands. Atoll island susceptibility to inundation through sea level rise remains unchanged. All low lying atoll islands are directly threatened by sea level rise given their land elevation is very low and rates of sea level rise are increasing."

Kiribati and Climate Change

Kiribati is expected to be the first country in which all land territory disappears due to global climate change.

President Anote Tong says an increasing number of coastal villages are asking to be relocated because of rising seawaters. Kiribati is in urgent need of funding to manage rising sea levels and communities need help to move. One of Tong's tasks is to try and convince his own people that the future of the island nation is in jeopardy. He has raised concerns that some of the nation's young people in many remote parts of the country have limited access to information about climate change, causing them confusion and anxiety.

Kiribati has been an active participant in international diplomatic efforts relating to climate change, most importantly the United Nations Convention on Climate Change UNFCCC. Kiribati is also a member of AOSIS. AOSIS put forward the first draft text in the Kyoto Protocol negotiations in 1994.

In November 2010, Kiribati hosted the Tarawa Climate Change Conference (TCCC), an initiative of the President of Kiribati, Anote Tong. The Conference was a major advocacy and partnership-building event with countries in the region. The Conference gave birth to the Ambo Declaration, a resolution of grave concern on the climate crisis calling for an immediate action on climate change funds.

Adaptation

To address the vulnerability of small islands to the effects of climate change, governments of small island nations are undertaking adaptation programmes. In Kiribati the program called KAP11 is supported by the World Bank, Ausaid, NZ Aid and UNDP. The funds are used partly for shoreline protection (maintaining seawalls around public assets that are at risk eg.roads, hospitals), and partly to fund projects to guarantee an adequate supply of drinking water for the entire population.

As is seen in the film, funds available for shoreline protection are vastly inadequate for the scale that is needed. No assistance has yet been forthcoming from the newly set-up Green Climate Fund.

If nothing is done, the World Bank estimates that by 2050 Kiribati may suffer climate change induced economic losses equal to US$ 8–16 million a year (17–34 percent of the nation's 1998 GDP).

Link to Kiribati govt climate change website http://climate.gov.ki/