

## **Impact of Climate Change in the Pacific Region**

The Pacific region is changing rapidly, and “we know already in the Pacific as in many other parts of the world from bitter and harsh experience what the consequences of climate change are and these will only become more severe if not enough is done,”<sup>i</sup>

The Pacific islands all share in the same negative severe impacts of climate change which are evident in the low lying land, sea level rising, heavy rains, drought, cyclone, natural disasters etc. are more frequent and more devastating and felt by the vulnerable poor. “Without environmental sustainability, we cannot end poverty, the poor are too deeply affected by natural disasters and too dependent on deteriorating ocean, forest, and soils”.<sup>ii</sup>

To bring us closely to the reality of the impact of climate change in the Pacific Region, I would like to briefly share on the environmental impact in Tonga.

Tonga has a population of 106,000 (2006) with 748 square kilometers (2006). Tonga like other small Island States is highly susceptible to - Climate change and natural disasters impact seriously on the environment, the people and their livelihood. Scientific findings revealed that these impacts will be exacerbated by future climate change.

### ***Impact***

#### **Sea level rise**

The report<sup>iii</sup> from the Government of Tonga stated that: There is a general increase in sea level of 6.4 mm/yr since records started in 1993 up to 2007. The coastal areas are affected by erosion and coastal vegetation are salt sprayed and destroyed, forcing the farming to move inland. Other contributing factors include low altitude, the increase denudation of mangroves and coastal trees. Some villagers in Tonga are less than 2 metres above sea level. You can imagine what is happening in those villagers.

#### **Increased and decreased Rainfall**

Tonga occasionally has heavy rainfall and this has caused flooding and soil erosion. Prolonged pounding of water poses health risks with the outbreak of water borne and vector disease such as dengue fever. The agricultural sector has also been affected.

Droughts (decreased rainfall) Tonga's climate pattern is very much affected by the EL Nino phenomenon. Severe droughts seriously affected the revenue earning capacity and livelihood of the people.

## **Increased temperature**

In the last five years up to now Tongans have experienced heat stress due to increased temperature. There has been an increase in the number of Tongans suffering from asthma due to this climatic factor. The heat also reduced soil moisture and fertility which is unfavorable to crops.

Coral bleaching is becoming common and has recently increased partially due to the increase in sea temperature. This incidence resulted in coral mortality, destruction of habitats for reef species, reduction in diversity of reef species which in turn affected the fisheries sector and hence the economy of the country.

Cyclones, the intensity of cyclones has increased since the 1980's in Tonga . These cyclones caused severe damages to crops and food supply, infrastructures, tourist resorts, the environment, buildings and disrupt essential services and the wellbeing of the people of the affected community for a prolonged period of time. Tropical cyclone damage to the island groups of Tonga in the past have amounted to millions of dollars.

Tonga is highly vulnerable to volcanic and tsunami hazards because of its geographical location and geological constitution. The Niuatoputapu island tsunami (29 Sept 2010) reached maximum height of 16.9m on the southeast coast. Lives lost, 60% of dwellings destroyed, crops and trees destroyed, contaminated water and emergency drinking water had to be brought in.

To combat the impact caused by climate change, the Tongan Government developed a Joint National Action Plan on Climate Change Adaptation and Disaster Risk Management. It was financed and supported by different donor agencies and partners.

### ***Best practice that has the potential for replication and make a difference:***

- Communities were informed of the development of the National Action Plan for Climate Change Adaptation and Disaster Risk Management. The Tongan Government took a “bottoms-up” approach and consulted the town officers, district officers, representatives from youth groups, churches, women’s groups, farmers, fishermen, and teachers and they were invited to discuss and to identify the vulnerable sectors and their impacts. They were encouraged to develop their plans, which the government was able to incorporate into their national development plans.
- “In August 2013 – Dec. 2015 measures like constructing permeable groynes and short offshore breakwaters supplemented with beach replenishment and coastal planting is being trialed to save Tonga’s east coast from gradual erosion and land loss. The team that monitors the effectiveness of these measure every three months. The results so far indicate that these sedi-tunnels, offshore breakwaters and coastal planting are working. They are hoping to be able to calculate the rate of beach replenishment as direct result of the engineering measures we have put into place. They are replicating this to save the shoreline project from Tongatapu’s east coast to the island’s western coastline” There are plans to replicate the coastline protection

project to other islands namely Ha'apai and Vava'u groups. It was estimated that 4,000 people are benefiting from this project on the east coast of Tongatapu".<sup>iv</sup>

- Planting Mangroves = 350 ppm campaign for the Pacific Islands to plant trees, mangroves. In 2010 Tonga was among the many islands who join in the campaign. The Tongan National youth Congress mobilized an ambitious plan of coastal planting to protect themselves from the impacts of climate change. On every Saturday in the lead up to, and on Oct 10<sup>th</sup> they did coastal planting, and at the same time cleaning up the beach and inspiring communities around them to get involved.
- There was also an e-waste collection day. Meanwhile in the island of Ha'apai locals go to work on the local nursery where it supplying for themselves fresh and healthy fruit and vegetables, and keeping their local ecosystems health.
- Religious leaders create awareness about the moral and humanitarian dimensions of environmental protection. Poverty caused by climate change needs to be addressed.
- Communication and public awareness e.g. conduct media awareness on radio and tv, produce and distribute awareness materials e.g brochures, CD and billboards on many roadsides with maps that show areas affected by sea level rise,
- Already people are more aware and together we can find solutions that help us to fight poverty. E.g Fish are so important to our way of life and the information I received from Tonga shows just how much we will need to change our way of fishing.

I have been impressed by the way Tonga and other Pacific islands collaborate and continue with future plans in order to contribute to global effort on mitigation and adaptation to climate change. " We have had a wealth of practical, exciting and groundbreaking experiences presented this week. The case studies and presentations show how much exciting work and innovation is underway in our region".  
<sup>v</sup>(Pacific Region)

Can we hear this tiny voice of Tonga in the world's biggest Ocean.

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<sup>i</sup> Prime Minister Samoa – UN 2013

<sup>ii</sup> UN's High Level Panel , post Development 2015

<sup>iii</sup> Joint National Action Plan on Climate Change Adaptation and Disaster Risk Management 2010-2015

<sup>iv</sup> Lu'isa Tu'iafitu Malolo, senior official of Tong's Ministry of Meteorology, Environment and Climate Change PCCR 14 May 2015 Apia Samoa.

<sup>v</sup> David Sheppard, Director-General of the Secretariat of the Pacific Regional Environment Programme (SPREP)