

Impacts of Climate Change on Agriculture in Fiji

Agriculture in Fiji

The agriculture sector in Fiji contributes around 28% to total employment in the formal sector and indirectly employing many more. The sector is the third largest economy in the country, contributing \$451 million (9%) annually to the nation's GDP. Sugarcane used to dominate the sector but this has been surpassed by other crops, horticulture, and livestock production and subsistence sector.

(Retrieved on 29 February 2016 from www.investmentfiji.org.fj)



Fact box

Climate projections for Fiji

- There is very high confidence that the annual mean temperatures and extremely daily temperatures will continue to rise.
- There is very high confidence that the mean sea level will continue to rise over the course of the 21st century.
- There is high confidence that the frequency and intensity of extreme rainfall events will increase.
- There is medium confidence that there will be a decrease in the frequency of tropical cyclones by the 21st century and an increase in the proportion of more intense storms.

(Source: Pacific Climate Science Report, 2014)



Impacts of climate change on agriculture

1. Loss of soil productivity

Increased temperature and extreme rainfall, alters soil structure, easily triggering erosion, and accelerating nutrient loss. Continuous coastal erosion and contamination of groundwater by saltwater intrusion will cause agricultural soils to become infertile.



With future projections indicating increase in temperature, agricultural production is expected to become an arduous and laborious task. Sigatoka valley farmers are now having to find more water to pump into the fields during dry conditions and farming supplements have increased significantly to keep their crops fresh during dry weather conditions.

2. Declining crop yield

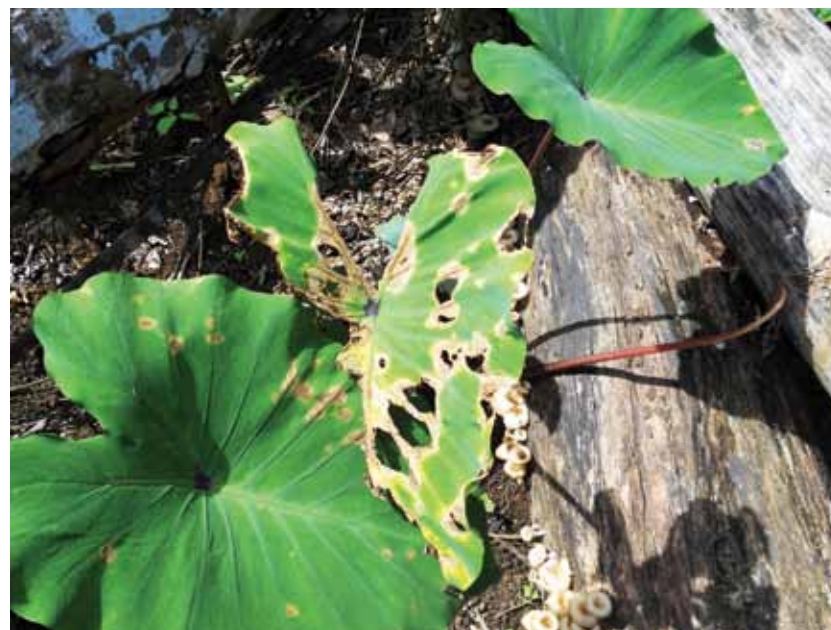
Extreme weather conditions will result in production losses due to high heat stress, prolonged drought conditions, frequent water logging and inundation, severe flooding of river catchments and increasing soil erosion.



Natural disasters and extreme weather events have cost the country about \$1.3 billion over the past two decades and the impact on the agriculture sector has been significant. Category 5 Tropical Cyclone Winston hit Fiji in February 2016 causing an estimated loss of FJD\$200 million to the agriculture sector. (Source; Fiji Times)

3. Introduction of new pests & diseases

Changes in rainfall patterns, increasing temperature and wind direction could result in the establishment and introduction of pests and diseases in new areas threatening crop production.



In Fiji, agricultural diseases such as anthracnose on chillies & capsicum (after rainy weather), powdery & downy mildew as well as bacterial wilting have increased. As a result of changing weather patterns foreign agricultural insects such as mealy bugs, aphids, caterpillar pests of leafy vegetables have been a nuisance to farmers (source; Koronivia research station).

4. Land degradation and desertification

With projected increase in extremely high daily temperatures and more severe drought conditions, land degradation will escalate and dry lands will be more prone to desertification.



In terms of climate change, the severity of desertification would largely be in the rain shadow areas of Fiji (Western Viti Levu and North-West of Vanua Levu).

5. Reduced water quality and supply

Saltwater intrusion caused by sea-level rise would eventuate in the contamination of freshwater lenses. This would deteriorate the quality of water needed by plants and animals and reduce freshwater supply.



In Narikoso Village, Kadavu, villagers can no longer plant vegetables beside their houses as the soil is too contaminated from saltwater inundation caused by frequent storm surges and coastal erosion. Vegetables planted usually turn brown, wilt and die.

6. Change in cropping season

Climatic variability will affect the traditional seasonal calendars that most farmers in the Pacific follow. Crops such as yam which is normally planted on the onset of wet season may not receive the anticipated rain due to a prolonged dry season. This highlights the need for different crop varieties to cope with the different weather conditions and the introduction of alternative crops.



In Draubuta, Navosa farmers have had to shift their whole planting seasons around as a result of the changing weather patterns. Farmers before relied on their traditional planting calendars passed down through the generations, now, it is not the case anymore. Farmers would now have to wait for periods of wet weather to plant their yaqona, dalo and vegetables.

7. Loss of cultural identity

The Fijian iTaukei have cultural totems that they are identified by. These totems include plants, fish and animals. With climate change adversely affecting these natural resources, people may stand to lose their traditional identities if these plants and animals cannot cope with the changing weather pattern.



Along the coral coast of Fiji, dead fish washed ashore in February 2016. One of the contributing factors to this is the unusually warm weather being experienced in the country. This is concerning as warm water holds less dissolved oxygen than cooler water and once the level of dissolved oxygen drops below a critical threshold, fish and invertebrates can effectively suffocate (source: SPC news). Some of the fish species affected are traditional totems of coastal villages.

Did you know?

The Agriculture Forestry & Other Land Uses (AFOLU) sector accounts for about a quarter (~10–12GtCO₂eq/yr) of net man-made greenhouse gas emissions mainly from deforestation, agricultural emissions from soil and nutrient management and livestock.

AFOLU plays a central role for food security and sustainable development. In agriculture, the most cost-effective mitigation options are cropland management, grazing land management, and restoration of organic soils. (Source: IPCC AR5)

For more information contact

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