

**PENANG SANGAM HIGH SCHOOL**  
**P.O.BOX 44, RAKIRAKI**  
**LESSON NOTES WEEK 11**

Subject: Home Economics      Year/Level: 12

<b>Strand</b>	Food and Nutrition
<b>Sub Strand</b>	Food Supply
<b>Content Learning Outcome</b>	1. Discuss the effects of climate change in food availability. 2. Recommend ways on which families can promote sustainable food supply.

**Effect of Climate Change on Food availability**

1. Vulnerable Island States

- A high ratio of coast line to land area, high population density, and minimal elevation above sea level puts large parts of the population at risk from storms, flooding and erosion.
- Scarce freshwater supplies are at risk from even relatively small shifts in precipitation patterns or sea level: for example, in Tarawa Atoll, Kiribati, the combination of a 25% reduction in rainfall and 50 cm of sea level rise is expected to reduce the size of the freshwater lens by 65%.
- In addition, small island states often depend on coastal ecosystems, including mangroves and coral reefs, for household income, revenue from tourism, and food.
- These ecosystems are threatened by rising sea surface temperatures, ocean acidification, and increased storm intensity.
- The vulnerability of small island states to the physical impacts of climate change is exacerbated by a number of socioeconomic stressors: high population growth and high population densities, for example, strain water resources through over-pumping of groundwater, excessive damming, and
- Pollution as well as placing additional stress on food supplies, utilities, infrastructure, coastal settlements and waste disposal facilities.
- Over-development of coastal infrastructure, including seawalls, groins, and causeways, often results in net erosion by interfering

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with the natural patterns of sediment flows, despite the fact that these structures are intended to prevent erosion and preserve island structure.

- Finally, the threat to mangrove forests and coral reefs posed by climate change is exacerbated by coastal development, marine pollution, runoff of sediment and nutrients, overfishing, mining, and dynamiting.
2. Food Scarcity
- Climate change may affect food systems in several ways ranging from direct effects on crop production (e.g. changes in rainfall leading to drought or flooding, or warmer or cooler temperatures leading to changes in the length of growing season), to changes in markets, food prices and supply chain infrastructure.
  - For example, in Kiribati, climate is among the most frequently cited drivers of food insecurity because of landlessness.
3. Land fertility/ deforestation
- Massive amounts of carbon are stored in tropical forests.
  - When we destroy these areas to clear land for ranches or farms, that carbon gets released into the atmosphere and accelerates climate change.
  - Studies show that deforestation accounts for 11% of all human-caused greenhouse gas emissions.
4. Disrupted Food Calendar
- Climate change poses the most significant long-term threat to food security and traditional livelihoods in the region, and adaptation costs will be disproportionately high relative to national incomes.
  - Appropriate policies and strategies need to be put in place to ensure that communities are equipped with the necessary skills and tools to adapt to these changes in order to minimize the economic, social and cultural costs associated with climate change.
  - Land-use change, in particular deforestation, also contributes to the problem and appropriate incentives need to be put in place to reduce the current rates of forest loss and degradation.

- Climate induced changes in rainfall pattern, temperature and wind directions could also result in the introduction and establishment of new pests and disease carrying vectors, especially insects, further threatening production.
- These diseases can include zoonotic diseases, diseases that can be transmitted between animals and humans threatening livestock populations and human health.
- Predicted increases in humidity levels, which are supportive of plant fungal diseases, are capable of wiping out crops, as occurred with taro leaf blight in Samoa in the 1990s.
- These changes in pest and disease status and occurrences can also affect a country's ability to access export markets or lose existing markets.
- Sea-level rises will increase coastal erosion and saltwater intrusion will contaminate groundwater sources leading to the loss of productive land.
- Atolls countries are in a uniquely vulnerable position to sea-level rises given the limited agricultural land currently available.
- Managing water resources may become more difficult and costly as a result of changes in rainfall patterns and salt water intrusion.
- Climate change will also contribute to the erosion of genetic diversity in the region and the interaction of agro-biodiversity within food and agriculture ecosystems.
- Disruption to ecosystem services such as pollination, soil fertilization and the natural biological control of plant and animal pests will also threaten food production.

#### Challenges for the South Pacific Countries

- The South Pacific Countries have limited resources, biosecurity capacities and more vulnerable to the impact of climate change
- Globalization of trade and market uncertainties.
- The spread of introduced weeds, pests and diseases and invasion species.

#### Recommendations

#### 1. Water tanks:

- In the rural it has been experienced that due to long drought they face lot of difficulties in getting sufficient water supply throughout the day.
- Hence, a better option could be to have water tanks put in place as contingency plan to curb the problem of shortage of water.
- The tanks can be filled by the trucks which usually supplies or distributes water to these areas.

#### 2. Fishing Bans and Marine Reserves

- Laws and regulations can be put in place in order to see that small fish is **not** caught and sold.
- In doing so we will have better supply of bigger fish around the year and secondly over fishing will not take place.
- Marine reserve should be secured enough to see that the neighboring countries do not exceed the right to fish or overfish and catching of small fish in our waters.

#### 1. Land

- Proper land use planning is the systematic assessment of bio – physical, social and economic factors – for the purpose of selecting and adopting land use options that are most beneficial to land users.
- Involving stakeholders especially land owners and users in all facets of land planning. Assist landowners and users to make quality informed decisions on land users.