CLIMATE PATHWAY

CLIMATE CRISIS AND FOOD SYSTEMS

INTRODUCTION

Climate change is a global concern that impacts food security and the potential for food sovereignty for all people. Agriculture is a major contributor to the climate crisis in a number of ways. For instance, while the industrialization of agriculture did improve crop yields (e.g. rice, wheat) over several decades, it also led to greenhouse gas production and other pollution due to such practices as heavy use of chemical fertilizers and pesticides. Furthermore, industrial agriculture also reduces soil health and biodiversity. Agriculture, forestry and land use account for at least 24% of greenhouse gases -- the compounds responsible for global warming. Small-scale and family farmers are unable to compete with massive industrial farms and many have been displaced.

Consider the following **inquiry questions** in relation to climate and food:

1. How does climate change affect food systems and food security/sovereignty?
2. How does pollution affect food systems and food security/sovereignty?
3. What are some alternatives to using chemical pesticides and chemical fertilizers?
4. Why do you think many governments encourage the use of chemical pesticides and chemical fertilizers when they are known to kill the soil over time and encourage pests that are resistant to these chemicals?
5. How do GMO (genetically modified organism) crops hurt small-scale farmers?
6. Think of the food you eat: do you eat food that supports the use of chemicals and GMO crops? How can you tell?
7. Think about the food you have eaten in your life. Can you think of any foods that have been impacted by climate change?

Student Activities: The challenges

Below are reflections from project participants that highlight the challenges surrounding food security and sovereignty in relation to climate change. These serve as discussion points and potential research project options for students. Choose two or three that might be of interest for students to discuss or consider posting all of them and having students choose. Each point could be the focus of an individual or team research project.

Slide decks, infographics, topic videos, blogs, podcasts and other resources on this and related topics can be found on our website.

Challenges that impact all settings

A common challenge is the use of chemical pesticides. Not only are chemical pesticides expensive but, when they are introduced, *superpests* can develop which no chemical will get rid of:

- Josephine (South Africa) reflects on pesticides and how they cannot grow tomatoes anymore because of the *superpests*, so they must grow spinach, onion and beetroot.
- Maphephu (South Africa) suggests that spinach, onion and beetroot do not have as much nutrients as tomato, so this is a problem. They are getting less nutrients, but cannot go back to traditional farming methods because of the pests.
- Fatima (Jordan) believes that the use of chemical pesticides and chemical fertilizers might be causing a rise in cancers. Instead of chemical fertilizers, many of the communities have learned about using compost instead.

Challenges that impact all settings (cont'd)

The change in climate and pollution also impact these communities. For example:

- Fatima (Jordan) says: “Due to climate change, it's becoming evident that some plants are not coping well as others with the change in the environment, with the increased heat and the fluctuations from hot to cold.”
- Josephine (T’Sou-ke): “There is outside pressure, there is pollution from the industries that go into the ocean, this pollution is not good for our food and environment.”
- Basani reflects that this is the same in South Africa.

Challenges that impact South Africa

- Severe climate changes coupled with the current state of economics is destabilizing the region.
- Marginal changes in the ability of the agricultural sector to support rural populations and economics will result in a drastic increase in civil conflict, the spread of disease, and hunger.
- Temperature:
    - World's highest level of emissions per capita at 10.3 tCO2 per person vs. the global average of 6.3. (This is skewed by large industries.)
    - SA predicted to warm by 1.2°C in 2020, and 2.4°C by 2050, and 4.2°C by 2080.
    - Temperature increases are impacting ecosystems and increase the uneven distribution of water. N*ote: for more on water, see the Water Pathway.*

Challenges that impact South Africa (cont'd)

- The South African government has adopted initiatives and programs aimed at reducing pollution, but these do not fully address the climate crisis and also disadvantage black rural populations. Financial support for these initiatives is largely given to corporations and the commercial sector.
- As the climate crisis worsens, Africa will continue to be seen as more hunger struck and impoverished, which will therefore encourage foreign intervention. Foreign intervention means new trade agreements and the increase of efficient and productive commercial agriculture, including GMO's, fertilizer, and pesticides.
- GMO's are seen as a one step solution to the climate crisis, but are highly problematic since they encourage monoculture food systems and do not incorporate traditional diets, cultures or small scale diversified operations. GMO's are seen as viable and sustainable so they entrench commercial farming operations which pushes out the small-scale farmer, or forces the small-scale farmer to adopt similar monoculture farming methods in order to compete in the market and receive any state support.

Challenges that impact South Africa (cont'd)

- Women make up 61% of agricultural workers, and operate 60% of all the small farm operations, but are at more of a disadvantage when it comes to the climate crisis. The work women do is not recognized as equal, or considered labour, to tribal governments. The land distribution programmes favour men over women so men generally receive three times more than women (91.5 hectares for men vs. 20.4 hectares for women). Women also only make up about 23% of the people who get land in the land distribution programs, despite being the majority in the agriculture sector of work. *Note: see Power Pathway for additional resources on gender issues and food.*
- There is dead soil due to climate change, lack of water, and use of chemicals. Basani says in one dirt sample they found that the soil is dead and the chemical fertilizer that they had used for a year had killed everything. They were prescribed a new compost to heal the soil but there is still no solution for the pests.

Student Activities: Solutions

- Fatima (Jordan) suggests using greenhouses as a means of dealing with the challenges of climate. She argues that in greenhouses the climate can be regulated and it is easier to keep pests away, so harsh chemicals do not need to be used. What new challenges might arise with Fatima's suggestion, particularly in countries that are less developed or poor communities? How might theft play a role?
- Considering the comments above, can you think of any solutions to climate challenges? What could you do to make a difference in your own community?