

UNDERSTANDING COMPLEX CONNECTIONS

In order to understand the global challenges we face, we must understand the complex ways in which the phenomena are interconnected.

Connection 1. Industrial meat production causes deforestation that reduces regional rains affecting the production and economy in a large area.

- The expansion of the Amazon forest fires into record-breaking numbers in 2019 was mainly caused by intensive meat production because forests were being cut down to make way for pastures and fodder crops. As a result of deforestation, carbon dioxide that forests have absorbed, releases into the atmosphere. This accelerates climate change even more. A rainforest has an important role in the circulation of water. 70% of the economy of the area is dependent on the water supply sustained by rainforests. Thus, if rainforests were to be destroyed, it would affect the production and economy of the whole area. In addition, 10% of the world's species would become extinct and numerous important medicinal plants would disappear.

Connection 2. Pesticides cause bee deaths that affect food production. If food production collapses, people will go hungry.

- When insects pollinate seed plants, they carry the pollen from the stamen to the stigma of the pistil of another plant. Some of the plants do not produce seeds or crops without pollination. Over 75% of the most important food plants on the planet are dependent on or benefit from pollinators. Without pollinators our diet would lack berries, fruit, many vegetables, nuts, coffee and cocoa, among other things. Pollinators are threatened by changes in land use, intensive agriculture and **the usage of pesticides**, pollution of the environment, invasive alien species, pathogens and climate change. In the biological cycle, the effect of pollinators is enormous. Thus, losing them would most likely cause even more sizeable effects than the collapse of our food production.

Connection 3. Climate change causes drought which is the reason for the loss of crops – people will have to move into cities where conflicts arise and drive people into exile.

- During 2006-2010, Syria faced a severe drought that reduced the country's agriculture production by a third. As many as 1,5 million people had to leave the countryside to live on the outskirts of cities. Since the year 1900, the region has warmed 1-1,2 degrees, and the rains during the rainy season have reduced by 10%. According to scientists, natural variation alone does not explain this. Migration resulted in local overpopulation, unemployment and political unrest. Finally, the situation led to a civil war that forced people to flee. The drought caused by climate change did not cause the war by itself, but it was one of the factors that contributed to the situation. The refugee crisis was noticeable in many parts of Europe. In Finland, in 2015 the number of asylum seekers increased nearly tenfold from approximately 3000 to over 32 000 people compared to the previous year.

Connection 4. Glaciers melt, the sealevel rises, the salt content and density of water change, which affects ocean currents and change climate conditions.

- As a result of climate change, glaciers are melting. As the water bodies expand, sea levels rise. A growing amount of fresh water is mixed in surface waters, which causes the salinity of the water to change and thus its density to change. The less dense water does not sink and consequently, there are disruptions in ocean currents. Ocean currents have a significant impact on local weather. For example, in Finland, the weather would be a lot colder without the Golf stream. How strongly climate change is going to affect our ocean currents, is uncertain.