
Climate change globally

Discussions about climate change are frequently accompanied by a mixture of myth and facts. Reading sources critically and verifying the information provided is therefore very important. The causes of observed climate changes are manifold and complicated with some activities lasting only a few years, others in turn lasting centuries, some repeating themselves regularly and others running for thousands or millions of years. International climate research is agreed: our climate changes both as a result of natural and man-made factors. Since the industrial revolution fossil fuels have been intensively used and agricultural changes have also had a huge impact. Advanced technological capabilities, increasing goods and services, population growth and rapid urbanization have all increased the demand for fossil fuels and the material welfare of many people.

The manifestations of climate change and its impact are equally complex. There are not only negative effects. Many regions of the world are experiencing the consequences of global warming. Wherever one finds oneself in the world, opportunities arise or people are presented with different demands. Therefore the opportunities and the burdens are not equally spread out. In less economically developed countries the consequences of climate change are especially noticeable due to geographical events, but also because of their poorer economic and social starting point. Above all, poorer people within the population of these countries are hit especially hard by the consequences of climate change.

Climate changes and economic marginalisation hasn't just played a role in Norse and Contemporary Greenland. The melting Greenland ice sheet is also one of the signifiers for global climate impacts on other countries in the world. In most cases, the impacts of climate change add to other already existing challenges like the demands of the global economy (especially for peripheral countries) or social and cultural change.

Therefore in the following exercises the pupils follow these issues and explore the impacts as well as the influence of social and economic structures on adaptive capacities in Tuvalu as well as in their home countries.

Tuvalu – a state in the South Pacific

In the Pacific Ocean lies the island state of Tuvalu. Consisting of a group of 9 islands, it is one of the smallest states in the world. The island group is very low-lying with the highest places only 3 metres above sea level. 12,000 inhabitants live close to the coast. The Inter-governmental Panel on Climate Change (IPCC) has highlighted the major challenges facing Tuvalu as a result of the rise in sea level. Already today the sea level rise endangers beaches and palm trees through the erosion of the coastline.

Increasing global warming leads to more frequent flooding as a result of the warming-related expansion of the volume of water, along with the melting of the Greenland ice sheet and Arctic sea ice. In the case of Tuvalu, these floods reach partly into the interior of the country. There,

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the sea water penetrates into the soil and turns the ground water salty. As a result, the availability of fresh water for drinking and for the cultivation of plants will become more difficult. For those people who live mainly on fishing and agriculture, these problems represent a big threat. Traditional methods are no longer sufficient to provide for the growing population. As a result Tuvalu has for some time imported food from overseas. The islands are now heavily dependent on imported foods and only export coconuts. This situation has resulted in a balance of trade deficit.

The capacity of the country to adapt to the impacts of climate change are limited due to low household and national incomes, as well as limited access to technology and infrastructure. Tuvalu's economy relies on donations from expatriate people and from international aid. There are few jobs on the islands. For example, many Tuvaluans work in shipping and are dependent on the strength of the world economy. The largest employer is the Government and therefore, it attracts many inhabitants into the capital Funafuti. The search for work, the dependency on imports as much as a wish for a change in lifestyle results in more and more people moving into the capital.

Climate change has been a theme in both government and in public for over 25 years. It is being continuously debated as to how the culture, identity and the right to self-determination of the people can remain and be maintained should the island group one day become uninhabitable. In 1990, Tuvalu founded, in conjunction with other nations, the Alliance of Small Island States (AOSIS) and joined the United Nations as well as the Pacific Adaptation to Climate Change programme (PACC) to get a voice internationally in relation to climate change. Nevertheless, the political power to influence the largest polluters has been limited, but environmental non-governmental organizations helped bring Tuvalu to media attention.

Numerous newspaper articles appeared in western media which reported on the upcoming inundation of the island states and about its inhabitants becoming environmental refugees. The publicity work indeed led to increased awareness. The media focused on the emigration of all Tuvaluans rather than long term adaptation methods with little coverage of the actual, local methods taken to adapt. Indeed many island residents have emigrated to New Zealand, however not predominantly because of the threatening sea level rise, rather because of individual opportunities in education, health and work in that area. Every year New Zealand takes in 75 people from Tuvalu. Again the media present this model as an environmental refugee programme. It is however an economic rather than a humanitarian project for the conditions are strict and there is no regard for the effects of climate change.

The inhabitants of Tuvalu do not like seeing themselves as environmental refugees. The term has negative connotations and sets the residents up as victims. At the same time they are presented as being culturally homogenous although every island community has its own dialect, own feast days, own handcrafts and representatives in Parliament. The people of Tuvalu wish above all for support in looking for better access to education and health provision. They seek solutions in order to be able to react appropriately and sustainably to environmental change. In 2000, Tuvalu decided to sell its coveted top-level internet domain ".tv" in order to reduce its dependence of international development funds. This allowed more expenditure in health, the education system and local infrastructure.

Europe

In European countries such as Denmark, Germany, England and Austria, discussions continue about both the causes and manifestations of climate change and appropriate adaptation measures. When considering the impacts of climate change, it is important to consider, that various groups are affected in different ways here, too. In the same way, possible adaptation measures impact the various groups differently. Thus, climate change and adaptation to it is not only an environmental issue but also a question of social justice. When working on cases in Europe, we recommend you choose local examples that include the relation between environmental change and the social and economic effects triggered.

Structure of the Exercises

Part three consists of four different exercises which can be either completed one after the other or independently of each other.

	Title/Methods	Outcome	Duration
K	Fact or opinion – climate change on Greenland	Awareness of climate change and its visibility on Greenland Judge the quality of contemporary sources. Learn to critique and evaluate contemporary sources	20 min.
L	Climate change globally	Get to know the general causes, manifestations and effects of climate change. Learn to distinguish anthropogenic and natural influences.	45 min.
M	Adaption at Tuvalu	Get to know about living conditions and adjustment measures in Tuvalu, respect towards different individual interpretations and reactions, discovering parallels to Greenland	120 min.
N	Theatre about impact at home	Get to know / learn the actual challenges of climate change such as means to adapt in Germany, Austria, Denmark and England	140 min.

If the exercises are introduced next to one another, the following narrative structure is suggested.

- **Introduction to exercise K:** Climate changes and economic marginalisation didn't just play a role in Greenland at the time of the Vikings, but are also important in today's Greenland. Also in our home countries there is a lot of discussion about climate change. In those discussions facts and opinions may be presented as having equal value. How can we separate facts from opinions?

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- **Introduction to exercise L:** You have already experienced some of the unique climate changes both in past and current Greenland. But which causes, manifestations and effects of climate change are world-wide? Can you provide an overview?
- **Introduction to exercise M:** Let's explore once again another place. Embark now on an imaginary journey, your destination is unknown at the moment, but are you ready for a change in perspective? Can you discover how in other countries of the world they have reacted to the actual challenges of climate change and globalisation.
- **Introduction to exercise N:** How far does climate change affect your environment? How do Denmark, Germany, England and Austria adapt? How far do economic and social structures hinder or further this adaptation?

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