

Introduction to the Worksheets on Climate Change

Anthropogenic climate change is one of the most important global environmental risks for and obstacles to development. The lifestyle and economic activities in the industrialised countries in particular, which are also being practised increasingly by the wealthier population groups in emerging and developing countries, is responsible for this. The main victims of the expected impacts are, however, primarily the people in developing countries and in particular their poorest population groups. Unlike almost any other phenomena of our time, the human-induced greenhouse effect and its consequences are therefore exemplary for the challenges facing a globalised world.

In 2013, the Intergovernmental Panel on Climate Change (IPCC) published the first of three reports as part of its Fifth Assessment Report. This report provides the scientific certainty that human activity is the most probable cause of climate change (95% probability).

With its constant presence in television, radio, newspapers and magazines this subject is of course also of interest for young people and many of them know the term “climate change” from the media. We cannot necessarily expect, however, that school pupils have sufficient in-depth knowledge about the emergence of the anthropogenic greenhouse effect and how it works, of climate impacts and the situation of those concerned, or about opportunities for personal and political action to protect the Earth’s atmosphere.

Education for Sustainable Development: Everyday life and action towards sustainability

Education for sustainable development shows that local action in many cases also has global consequences. Naturally, school pupils are best taught about environmental issues by taking into consideration their own living environment, because environmental activities are things that can and should be done in everyday life (waste, energy, consumption, water, air, etc.) both in school and outside school (clubs, holidays...). But also the links to developmental issues must also be shown and made aware, which means to reflect our own actions within the context of global economic and social parameters and models. With respect to the anthropogenic greenhouse effect and

its implications in particular, the following central points of reference must be dealt with:

- the limits to vital natural resources;
- the boundaries of the global ecosystem (planetary boundaries);
- the adaptation capacities of human societies, which greatly depend on the socio-economic conditions (e.g. the extent of absolute poverty), and
- the question of equity, both now and in a changing world.

Given the growth in world population and the increasing, but regionally unequal distribution of material wealth, all these aspects will gain in importance in the future. In addition to the general presentation of the anthropogenic greenhouse effect, school pupils should be made aware of the current and anticipated impacts of climate change, above all for the people in the poorer countries of our Earth. From the perspective of “Education for Sustainable Development” it is necessary to provide a meaningful orientation for action, i.e. identify incentives or proposals for action. Instruction in social sciences (e.g. social studies), ethics/religion, but also in the natural sciences and especially in the field of geography, is one way of achieving this. The subject geography is particularly committed to addressing this issue, as it aims – like no other subject – to explain the relationships and interaction between humans and the environment. Against the background of the decade of “Education for Sustainable Development” (2005–2014) initiated by the United Nations and of global learning, the aim is to raise awareness among school pupils at an early stage about options for thinking and acting in a global and long-term perspective. The present Germanwatch Worksheets for lessons serve as an aid.

Structure of the worksheets

The curricula and guidelines of many countries include the topics “climate change” or “anthropogenic greenhouse effect”. These worksheets are suited for natural and social science lessons for upper secondary education (some also suitable for pupils from the tenth grade onwards). In addition to the general description of the interactions and causes, they address the possible effects of climate change, especially in their regional differentiation. It is important to look at the issue of “climate change” not only

from an environmental point of view but also to include the development dimension and the question of equity. This is the focus of the worksheets and the corresponding materials **(M)** by offering the opportunity to draw up different case studies from developing countries, which the pupils can use in the exercises. Although a detailed awareness of specific options for action to reduce the greenhouse effect – such as energy-saving campaigns at schools, for example, or the establishment of school partnerships between schools in developed, emerging and developing countries – is not the focus of these teaching materials, such matters do appear in the case studies at several places.

First of all, general issues of climate change are considered in an introductory worksheet titled **“Global climate change – General issues”**. These issues look at the causes, culprits, consequences and possible solutions. In the subsequent case studies, the current situations in industrialised and developing countries and the question of why these are affected differently by climate change are analysed in a more focussed manner. In addition to the mentioned worksheet on general issues of global climate change, there are numerous case studies and topic-oriented approaches. These are composed of the following six worksheets, which can be used separately or combined as teaching modules:

- **The melting glaciers – Glacial lake outburst floods in Nepal and Switzerland**
- **Sea level rise – Consequences for coastal and low-land areas: Bangladesh and the Netherlands**
- **Going under! The threat of rising sea levels for the small island nation of Tuvalu**
- **The threat to tropical rainforests and international climate protection**
- **Climate change and food security – Trends and key challenges**
- **Extreme events and climate change – Insurances for developing countries**

All worksheets consist of a brief introduction to the topic, short didactic explanations of possible teaching methods and how to use materials, exercises, further reading sug-

gestions and the actual materials **(M)** themselves on separate sheets. The materials are designed in such a way that each worksheet can be dealt with in at least one but also in several lessons. All materials may be used separately or combined with one another. Teachers and school pupils can also develop the objectives, work steps and methods of the lessons together and decide what goals and methods they want to select. The materials can be used as master copies and require no modification by the teachers. In addition to the printed version, the worksheets are also available in digital form on the Internet. School pupils can use them as printouts or show them using a beamer. Since the materials have a modular structure, it is possible to use a variety of teaching methods when working with them. Many modules are designed in such a way that the pupils can work on their own, for example, in groups with a subsequent presentation or in the form of a project.

Additional information

The website www.germanwatch.org offers updated materials that provide more in-depth information on the respective issues.

The Germanwatch Climate Expedition is carried out by Germanwatch in cooperation with Geoscopia and shows live satellite images in 90-minute presentations and compares these with archived recordings. Consequences of human action are shown and school pupils can develop and discuss various options for action. The Climate Expedition can be used before and during the lessons or for a subsequent review. Different contents can be discussed with the speakers. In addition to the Germanwatch Climate Expedition, a Germanwatch Resource Expedition and modules from a Germanwatch Food Expedition are available.

Information on the Germanwatch Expeditions can be found on: www.germanwatch.org/klimaexpedition
Our website also offers worksheets on the subject of resources (rare earth, IT industry and raw materials, electronic waste and recycling, etc.)

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