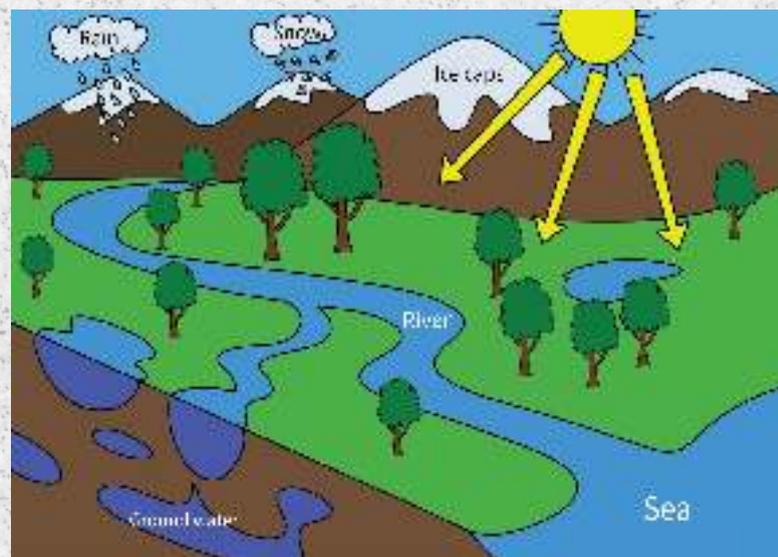




Climate Change and Water

IX-XI Grades

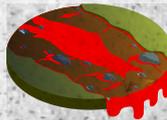
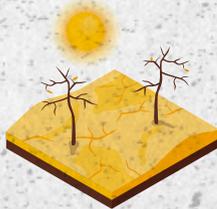




Among the current challenges, climate change is the greatest one for human development and safety. Generally speaking, climate change is not a new phenomenon for the Earth. Climate always changes and historically there have been dramatic changes. However, these changes usually happened gradually (over the course of hundreds and thousands of years) and thus living organisms adapted to the new environment over time. While current-day changes, which scientists link to human activities, occur at an accelerated rate and create significant impacts on living organisms, which have very little time to adapt to these new conditions.



The changes, which are mainly a result of human activities, are connected to the unprecedented accumulation of greenhouse gases in the atmosphere within a short period. Over the last century, the invariable increase in usage of fossil fuel (coal, oil) to operate cars and other means of transportation, has led to an unprecedented increase in the amount of so called greenhouses gases (Carbon Dioxide (CO₂), Methane (CH₄), water vapor, and Nitrous oxide (N₂O)), which traps in the energy of the Sun on the Earth's surface and creates a greenhouse effect causing the warming of atmosphere, which in turn increases the temperature on the Earth. According to the existing scientific data these processes increased the average global temperate by 0.85°C on the Earth from 1880 to 2012. The scientists think that climate change will dramatically affect the lives of humans. Experts assume that melting glaciers will cause the sea level to rise between 0.3 to 1.2 meter, which will negatively affect the coastline population, and people will witness frequent and more dangerous natural disasters. Climate change also has other negative effects, such as decreased flow in rivers, desertification of land, spread of diseases, changes in biodiversity and ecosystem function, etc. Unfortunately, it is impossible to identify all the negative effects of climate change.



It is Interesting

Sources of greenhouse gases: energy (35% of the gas emissions), agriculture (24%), industry (21%), transport (14%), and construction sector (6.4%).

According to the data available, in the Kura Basin the average increase in temperature in the recent decade amounted to 0.7°C while precipitation decreased. Glacier melting has intensified (by 30% over the past 50 years, which led to decrease of water level in rivers.)

Scientists use climate models (software) to predict climate change. These models help us identify how fast and to what extent climate can change under existing circumstances and how such changes will impact other components of environment (water, glaciers, living organisms, etc.). Scientists, who base their analyses on such climate models estimate that the annual average temperature is not expected to increase in Eastern Georgia and Azerbaijan, but the rate of water flow is expected to decrease in the Kura River and in its tributaries. The agricultural sector will be relatively more sensitive to the climate change. It is expected that glaciers will continue melting, and if the current melting rate is maintained,



the glaciers in Georgia and Azerbaijan will disappear by 2160. If melting of glaciers continues, water flow will significantly change as well. The number of hot days will increase in urban settlements. All other cities in the basin will be affected in this regard.

According to the scientists, climate change will continue throughout 21st century and afterwards. As to how problematic this change will be, it will depend on how humans will adapt to the changed environmental conditions and if mankind succeeds in stopping the continued increase in the atmospheric temperature.

Climate change is a global challenge that does not recognize any geographical boundaries. The greenhouse gasses emitted in various countries have a cumulative impact on the whole world. Therefore, only joint efforts of countries can reduce greenhouse gases, slowing the rise in temperature and giving more time for our planet to adapt to the change in climate. Notwithstanding the global nature of our efforts, the contribution of each person in combating climate change at the local level is important.

Combating climate change involves two main strategies:

Adaptation, which means to adjust to climate change and prepare communities for future climate conditions.

Mitigation is action to reduce those factors which cause climate change (for instance, reducing greenhouse gas emissions).



DO IT YOURSELF

- 💧 Think of some measures you can take individually, with regard to your water use, to adapt to climate change.
- 💧 Think of measures you can take individually with regard to water resources where you live, to mitigate climate change.
- 💧 Prepare group presentations with your classmates on steps community stakeholders can take to mitigate the effects of climate change where you live and present your ideas in discussion facilitated by your teacher.





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