Public information concerning the climate impact on water resources in Lithuania

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Abstract

A wide variety of available information concerning the climate change impact on water resources is available in communication networks and the Internet. Researches of the climate change are very complicated since many factors are indefinite or unknown. Global change and its reasons are closely associated with regional characteristics. The evaluation of the past and future changes of Lithuanian rivers’ runoff and their consistent patterns during the XXI century was done using the accumulative database of meteorological and hydrological observation, ECHAM5 and HadCM3 global climate circulation models and A1B, A2 and B1 emission scenarios, statistical methods and hydrological modelling (HBV software). Changes of climate elements (temperature and precipitation) directly influence conditions of river runoff formation. The average annual temperature increased about 0.9 °C during the last decades in Lithuania. The most significant temperature increase was in the winter and spring seasons. The cycle change has been estimated in the long time period series of precipitation. Average durations of wet and dry periods are 14 and 13 years accordingly. Precipitation of the winter season increases only from 1961 till now in all territory of Lithuania. The cyclic wateriness change is characteristic of the river annual runoff. The increase of winter season runoff, decrease of spring season runoff and maximum discharges of the spring floods have been observed in the last decades. In the forecasted period (2010-2100) average annual temperature will increase to 4.6 °C. Significant tendencies are not estimated in the precipitation change. The average annual runoff of the biggest Lithuanian river Nemunas is forecasted to decrease to 14% during the century.

Rapid flow of such kind of climate-change information from scientists to water managers would be useful and needful for solving many problems. Many sectors (water supply, agriculture, energy, industry, human health, transportation, infrastructure, tourism) are dependent on water resources and their possible variability due to climate change. Water managers, politicians and lower orders could get full-scale information concerning to impact of climate change on freshwater resources.

New Information and Communication Technologies (ICT) enable the users to search out a wide variety of available information. Unfortunately, the found papers, opinions and hypotheses could be not reliable and confidence. There is no official web-site concerning the climate change impact on the environment in Lithuania. The rubric “Climate Change” is in the web-site of Ministry of Environment of the Republic of Lithuania but the content of this rubric is related to the government activity in this field. The Environmental Protection Agency of Lithuania has a wide web-site regarding monitoring data of environment. There is no special rubric on climate change except some “references” to the web-sites of other organizations. In my point of view the official web-sites could be expanded with the wide and confident information from scientific community (papers, reports, projects et al.) concerning the climate change impact on environment.