Hydrological responses to climate and land use change at watershed scale_ Malaysia

ABSTRACT

The hydrological effects of climate variation and land use conversion can occur at various spatial scales, but the most important sources of these changes are at the regional or watershed scale. In addition, the managerial and technical measures are primarily implemented at local and watershed scales in order to mitigate adverse impacts of human activities on the renewable resources of the watershed. Therefore, quantitative estimation of the possible hydrological consequences of potential land use and climate changes on hydrological regime at watershed scale is of tremendous importance. This paper focuses on the impacts of climate change as well as land use change on the hydrological processes of river basin based on pertinent published literature which were precisely scrutinized. The various causes, forms, and consequences of such impacts were discussed to synthesize the key findings of literature in reputable sources and to identify gaps in the knowledge where further research is required. Results indicate that the watershed-scale studies were found as a gap in tropical regions. Also, these studies are important to facilitate the application of results to real environment. Watershed scale studies are essential to measure the extent of influences made to the hydrological conditions and understanding of causes and effects of climate variation and land use conversion on hydrological cycle and water resources.

Keyword: Climate change; Land use conversion; Hydrological response; Watershed scale