## Theme 10: Impact of climate change on wetlands

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# IMPACTS OF CLIMATE CHANGE IN WETLANDS

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Changes in the atmospheric concentrations of GHGs and aerosols, land cover and solar radiation alter the energy balance of the climate system and are drivers of climate change. As per the inter-Governmental panel on climate change (IPCC) report, global green house gas (GHG) emissions have grown by 70 % between 1970 and 2004 ($4^{th}$ IPCC Assessment Report, 2007).

For Indian scenario, it has been predicted of a general trend of increase over West coast and northeast India. It has been estimated that there would be 20% rise in all India summer monsoon rainfall in future scenarios except in Punjab, Rajasthan and Tamil Nadu which would show decrease in precipitation.

Wetlands, estimated to cover about 6% of the earth's terrestrial area provide invaluable services and benefits for human populations including the regulation of climate. Climate change would threaten wetlands in a number of ways. Increased temperatures would adversely affect temperature sensitive plant and animal species. Decreased precipitation in wetlands would result in shrinkage of wetlands consequently releasing more carbon into atmosphere due to decay of organic matter. Climate change may also lead to shifts in the geographical distribution of wetlands. Moreover, wetlands are highly dependent on water levels, so changes in climatic conditions affecting water availability will influence the nature and function of specific wetlands including the type of plant and animal species. Climate change, therefore, is an important issue for wetland management. Conservation and wide use of wetlands can no longer be achieved without taking climate change into account.

The present paper primarily brings out possible impacts due to climate change in relation to Ramsar sites of Punjab (Harike, Kanjli, & Ropar). Initially there may be increased frequency and magnitude of freshwater floods due to melting of glaciers. Subsequently due to rising temperatures & less rainfall there may be increased frequency and magnitude of droughts.