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STRATEGIC PROGRAM FOR BIODIVERSITY AND WATER RESOURCE MANAGEMENT AND CLIMATE CHANGE ADAPTATION IN PAKISTAN

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Population pressure, climate change and resulting extreme weather scenarios, armed con?ict and economic pressure have put the situation of Pakistan's biodiversity at risk. Melting glaciers, deforestation, erosion, landslides and depletion of agricultural areas are aggravating the regulation of water ?ow in Pakistan. In Pakistan agro-biodiversity is central to human survival and play vital role in the economy of the country. It contributes 21% to the GDP, employs 45% of the labor force and contributes 71% of the export earnings. Agro- biodiversity in Pakistan is greatly affected by short term climate variability and could be harmed signi?cantly by long-term climate change. As the duration of crop growth cycle is related to temperature, an increase in temperature will speed up crop growth and shorten the duration between sowing and harvesting. This shortening could have an adverse effect on productivity of crops. The present assessment also revealed that hydrological cycle is also likely to be in?uenced by global warming. Since the agricultural crops are heavily dependent on the water, and water resources are inextricably linked with climate; therefore, the projected climate change has serious implications for water resources of the country. The freshwater resources, in Pakistan, are based on snow- and glacier-melt and monsoon rains, both being highly sensitive to climate change. The country speci?c current information strongly suggests that: decrease in glacier volume and snow cover leading to alterations in the seasonal ?ow pattern of Indus River System; increased annual ?ows for a few decades followed by decline in ?ows in subsequent years; increase in the formation and burst of glacial lakes; higher frequency and intensity of extreme climate events coupled with irregular monsoon rains causing frequent ?oods and droughts; and greater demand of water due to higher evapotranspiration rates at elevated temperatures. These trends will have large impact on the spatial and temporal distribution of water resources on annual and inter-annual basis in the country. To address the impact of climate change on ago-biodiversity and water resources, the present study was initiated with the aim to increase awareness to adapt to changing water resources situation due to climate change. Secondly to build climate change resilience into Pakistan agriculture system and also to enhance the understanding of climate change issues by farmers, and policy makers to enable them to make informed decision. Our assessment revealed a gap in our knowledge on the climate change vulnerability of mountain agro-biodiversity and institutional setups, as well as lack of policy imperatives to address the issues. Therefore, the 2014 generally assembly of EGU will provide a forum for our further understanding of the relevant scienti?c and geopolitical issues. This forum will not only establish a social network for future collaborative research but will also enable us to devise better strategies for both biodiversity and water-resource management and climate change adaptation.