Hydrosphere in the Himalayas is a significant component of the Cryosphere, the frozen form of water. The three major river basins include the Indus, the Ganga and the Brahmaputra from west to east. These three major river basins of India contribute more than 50 % of the river discharge of the country. These rivers produce almost double the amount of water discharge when compared to an equivalent length of peninsular rivers. The discharge from these three rivers and their tributaries influences over a billion people and affects supply of potable water and irrigation requirements as well as contributes significantly towards energy supplies. Reacting to the widely varying average annual precipitation data, we recently estimated average annual precipitations for the three basins and explained the reasons for variability of earlier estimates (Khan et al. 2017). The heterogeneous distribution of precipitation and influence of Indian Summer Monsoon has strategic implications for the hydrological budgeting of the westernmost Indus basin as bulk (>70per cent) of the annual precipitation is concentrated in the Indian geographical region in this basin. The heterogeneity of the precipitation pattern, though not as pronounced, is seen in the Brahmaputra basin and this combined with others, acquires significance for optimization of the hydrological resources. Such is not the situation with the Ganga basin despite a pronounced heterogeneity in precipitation as the influences on hydrological budget are largely within the geographical boundaries of India.

We conclude that a higher resolution hydrological estimation is essential in the three basins for effective and optimum long term development and utilization planning of this resource.