Limitations of catchment area estimates and river basin boundaries from the Central Water Commission and the water resources information system

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Geospatial information on river gauging stations, such as station locations, catchment boundaries, river flow paths and other hydrographic data are basic building blocks of hydrological analyses. Such information for India's river basins is available from Central Water Commission (CWC) and water resources information system (WRIS), but is limited in extent and unreliable. Using widely used global hydrography products, catchment boundaries were delineated for 100 gauging stations in the Ganga river basin (GRB), and their catchment areas were estimated. The delineated boundary for the GRB, and also station-wise catchment areas from the present study were much more consistent with global hydrography products than those available from CWC and WRIS. Lack of reliable, analysis-ready hydrography data is a hindrance to hydro-climatological research. The long-term objective of this study is to help build such a needed dataset using high-resolution remote sensing products.

Keywords: Catchment area, Central Water Commission, Ganga, hydrology, remote sensing