Holistic river conservation through maintaining of minimum environmental/ ecological flow in rivers

Problem statement: Most rivers in India except the Himalayan rivers have become seasonal with no flow in them during the lean season. They only have flow in them during the months of June-February. In the lean season, they almost have no flow. pollutants have an assimilative property and river water dilutes the pollutants. Hence, when there are very low levels of surface water, the pollution level measured in terms of BOD and COD will be high. It is important to maintain a minimum environmental or

ecological flow in the rivers to dissipate the pollutants. This is currently not under the purview of NRCP scheme.

Intervention: NMCG has provisions for Aviral Dhara or Wholesome River. Environmental water requirement (EWR) assessment methods, for ascertaining how much water should be retained in rivers to sustain ecological functioning and desired levels of biodiversity, have been developed under Aviral Dhara. Under NMCG, there is special focus on increasing base flow and aquifer recharge. Minimum environmental flows have been notified for different sections of the Ganga and violation of the e-flow norms would lead to closure of respective water-consuming projects such as hydroelectric projects and/ or imposing heavy penalties.

For non-perennial rivers it is often difficult to get data on hydrology, and ecological functioning. However, many tributaries of Ganga like the Damodar, Hindon, Kali etc are non-perennial. Hence the learnings from “Aviral Dhara” programme remains applicable.

For non-perennial rivers a case study through a method known as “DRIFT-ARID”[1] was adopted in South Africa which needs to be looked upon in the case of NRCP as well. This method explores refining the normal technique of EWR measurements over a period, through different types of non-perennial rivers. Many non-perennial rivers have enough water even during the dry season to carry out EWR measurements to be extrapolated using the DRIFT model data of perennial rivers. The fundamental requirement of such method is availability of enough data. Hence this needs to be adopted initially in select non-perennial rivers with a minimum e-flow and be replicated to others over time.

Impact: Adoption of such measures will ensure a minimum ecological flow in the rivers throughout the year and help reduce pollution in river water.

Sustainability: Additional project components for inclusion of the measures discussed above is needed for the NRCP scheme. This will help improve efficacy of the scheme and enhance sustainability.

(Reference: KII with National Mission for Clean Ganga and Environmental Water Requirements of Non-Perennial Rivers, Michael C Grenfell)

[1] Environmental Water Requirements of Non-Perennial Rivers, Michael C Grenfell