

Expert Committee Report Summary

Guidelines for works on desiltation of river Ganga

- An Expert Committee (Chair: Dr. M.A. Chitale) submitted its report on 'Preparation of Guidelines for Works on Desiltation from Bhimgauda (Uttarakhand) to Farakka (West Bengal) of river Ganga' to the Ministry of Water Resources, River Development and Ganga Rejuvenation in May 2017.
- The terms of reference of the Committee included: (i) establishing the need for desilting for ecology and flow of river Ganga, and (ii) forming guidelines for works on desiltation of river Ganga. Key observations and recommendations of the Committee include:
 - **Desiltation and ecology:** The Committee noted that siltation is a natural phenomenon in rivers. However, factors such as heavy rainfall, deforestation, structural interventions and enclosure of water in reservoirs increases the rate of siltation in rivers. Siltation results in the reduction in the carrying capacity of rivers and results in floods and loss of created useful storage. Desilting is the removal of fine silt and sediment that has collected in a river in order to restore its natural capacity, without widening or deepening of the river. Desiltation works have the potential to improve the hydraulic performance of a river. However, indiscriminate desilting can cause adverse impacts on a river's ecology and flow.
 - **Principles for desiltation works:** The Committee proposed basic principles for planning and execution of desiltation works in rivers. These include:
 - (i) Catchment area treatment and watershed development activities, along with suitable agricultural practices and river bank protection/anti-erosion activities are necessary to reduce silt inflow into the river system and must be undertaken in a comprehensive manner;
 - (ii) Erosion, movement and deposition of sediment in a river occur naturally. Arrangements should be made to pass the incoming sediment into a river to downstream of the dams/ barrage structures to maintain the sediment equilibrium;
- (iii) Dredging (desilting) should generally be avoided. The desiltation quantity should not exceed the deposition rate, i.e., the amount of boulders, pebbles, and sand deposited in river bed minus the amount transported downstream each year;
- (iv) Rivers should be provided with sufficient corridor for meandering without any hindrance to their flow; and
- (v) Precautions must be taken to avoid deposition of sediment loads within the river, and instead they should be deposited on other suitable land.
- **Guidelines for desiltation works:** For better assessment and management of desiltation works, the Committee recommended some measures that should be undertaken:
 - (i) Sediment transport (sediment transported through the basin of the river) processes must be studied along with establishing annual sediment budgets to guide desilting activities; and
 - (ii) A technical institute must be entrusted to prepare the sediment budget, and flood routing studies to substantiate the necessity of undertaking desilting activities.
- **Desiltation works in river Ganga:** With regard to river Ganga, some of the guidelines suggested by the Committee include:
 - (i) The river should be provided with sufficient area for flood plain and lakes along it to moderate the flood level. Any encroachment of flood plain, and reclamation of lakes should be avoided. Instead, adjoining lakes should be desilted to increase their storage capacities.
 - (ii) In cases when constriction works (e.g., barrages/bridges) cause large scale siltation, desiltation along a pre-selected channel can be undertaken to deepen the river flow, thus guiding its main course of flow. The dredged material can be dumped along an alternate channel.

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