De-siltation of Ganga

Why in news?

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A committee on Desiltation of Ganga has recommended study of sediment transport processes along with establishing annual sediment budgets to guide de-silting activities.

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About the committee:

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- The committee was constituted in July 2016 by the Ministry of Water Resources River Development and Ganga Rejuvenation to prepare guidelines for desiltation of river Ganga from Bhimgauda (Uttarakhand) to Farakka (West Bengal).
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- Shri Madhav Chitale (Expert Member, NGRBA) was appointed as Chairman of the committee.
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- The committee was asked to establish difference between desilting and sand mining and also to establish need for desilting for ecology and e-flow of the river Ganga.
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What is desiltation?

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- Silts are earthy matter, fine sand, or the like carried by moving or running water and deposited as a sediment, removal such silts for the proper flow of river is known as desilting.
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- The basic reasons given for necessity of desilting are **increasing the storage capacity and checking eutrophic conditions.**

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- What is done in the name of de-silting is practically digging or excavation of lake bed.
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- Increasing storage capacity by digging lake bed is the most costly proposal when compared to other alternatives.
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- Desilting, if not done in a planned way, **creates isolated pits of considerable size** in the submergence area which may have lower bottom levels than the main storage.
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- Thus, desilting said to be carried out for increasing storage capacity, practically reduces the actual utilizable storage in most of the cases.
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What are the key findings of the report?

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- The committee in its report says erosion, sediment transport and siltation are very complex phenomena.
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- It is **impossible to apply a one-size-fits-all approach** to sediment management and control, because the issues involved are frequently very regionally-specific.
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- Local factors such as topography, river control structures, soil and water conservation measures, tree cover, and riparian land-use or land disturbance can have a large impact on sediment loads in rivers.
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- River control structures (such as reservoirs), soil conservation measures and sediment control programmes can cause downstream sediment loads to decrease, while factors such as land disturbance or agricultural practices can cause increased sediment loads.
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What are the points to be followed during desiltation?

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- It is necessary to **provide the river sufficient areas of flood plain** and

lakes along the river to moderate the flood level.
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- De-silting of the confluence points, especially with huge silt carrying tributaries, such as Ghagra, Sone, etc., may be necessary to make confluence hydraulically efficient.
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- A **quantitative long term forecast** with decision support system to be established for optimum reservoir operations.
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- **River morphological studies** should be carried out to initiate in-stream channel improvement works.
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- Any bridges across River Ganga which are causing large afflux (more than 1% of normal depth) should be modified to reduce the afflux, which in turn will also reduce the sediment deposition and erosion of banks on the upstream.
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- Restrictions presented in the Report need to be enforced before planning and executing any dredging/de-silting/mining activities.
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What is the way forward?

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- Instead of desilting, the long term solution is to **treat the catchment area** so that silt load in the incoming flow is permanently reduced.
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- This can be done by **contour bunding, check dams, massive plantation, etc.** which will be less costly and will have far reaching positive effects of permanent nature.
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- When used in farms and gardens, silt acts as a natural manure and increases water holding capacity of the soil. It is also an essential ingredient of the soil mix used for making bricks, tiles, etc.
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- Instead of spending money on desilting, the government should **charge royalty for the silt used** by beneficiaries considering it as a mineral. This will generate funds for regular maintenance of lakes.
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- Thus **Catchment Area Treatment** and **Watershed Development works,** along with good agricultural practices and river bank protection/anti-erosion

works, are necessary to reduce silt inflow into the river system and must be undertaken in a comprehensive way.
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Source: PIB

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