



## CETACEAN SPECIALIST GROUP

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Supreme Court of Nepal,  
Kathmandu,  
Nepal

13<sup>th</sup> August, 2023

### **RE: Letter of Concern Regarding Hydropower Dams on the Karnali River and Endangered Ganges River Dolphins**

This message is sent on behalf of the IUCN Species Survival Commission's Cetacean Specialist Group regarding plans of the Government of Nepal to construct a number of mega-hydropower projects on the Karnali River, including the Upper Karnali (900MW), Phuket Karnali (480MW), Mugu Karnali (1902 MW), and Betan Karnali (439MW). We understand the immediate benefits of such developments for the growth of the Nepalese economy, however, we also believe the long-term negative impacts of these structures on the ecology of the Karnali River and surrounding areas must be taken into consideration.

The lower Karnali River has exceptionally rich biodiversity, amongst the highest in all of Nepal, and it is also revered for cultural and social values by local Sonaha and Tharu indigenous communities living along the river corridor. Close to 200 fish species, many of them economically important, occur in the Karnali River, and it is also home to globally threatened freshwater species, such as the endangered Ganges River dolphin (*Platanista gangetica*), the critically endangered gharial crocodilian (*Gavialis gangeticus*), and the endangered golden mahseer (*Tor putitora*) that rely on the river for their survival.

Despite being a land-locked mountain nation, Nepal is in the unique position of having freshwater dolphins in its lowland rivers, and the Ganges dolphin population in the Karnali River is the largest and most important dolphin population in Nepal (Khanal et al. 2015; Paudel et al. 2015). The species is found only in the rivers of India, Bangladesh and Nepal, and it is recognized by IUCN as globally endangered and declining (Kelkar et al. 2022). It is among the dolphin species of greatest global conservation concern (Taylor et al. 2020).

I am sure that you are aware of studies conducted by the World Commission on Dams (<https://drive.google.com/file/d/1CNpMrtQrylsd3yHHvyCBaBRc1MBGGpVV/view>) and numerous others showing that large dams have profound and often irreversible environmental impacts. Their construction and operation cause major changes in the flow regime, sediment load, and water quality of rivers. Dams often cause erosion of downstream areas due to a reduced supply of sediment. Reduced sediment supply combined with changes in flow alters river morphology and hydrology, potentially degrading or even eliminating the preferred pool habitats of Gangetic dolphins. The extreme fluctuations in discharge associated with hydropower generation have been proven to reduce fish diversity, potentially causing dolphins to abandon the affected portions of rivers. The often-dramatic negative impacts of dams on migratory and resident fish populations can also threaten the livelihoods of local fishermen.

The negative impact of hydro-electric or diversion dams on river dolphins is well documented in several parts of the world, including in India (for example, Sone River to its confluence with Ganga, between Haridwar and middle Ganga Barrage; lower Ganga Barrage to Kanpur), where the river habitat immediately downstream of several hydroelectric dams was so modified by the changed flow that resident dolphins abandoned that habitat and local dolphin populations were extirpated (Smith and Reeves 2000; Paudel et al. 2020a; Kelkar et al. 2022). At present, only the Karnali and its tributaries support a viable river dolphin population in Nepal.

Studies of the habitat of dolphins in the Karnali show the great importance of a natural flow regime and maintaining sufficient, consistent river discharge, especially in the dry season, for dolphins to persist (Smith 1993; Khanal et al. 2016; Paudel et al. 2020b). The IUCN Cetacean Specialist Group is gravely concerned that the water diversion and habitat alteration resulting from the planned hydropower dams on the upper Karnali River will eliminate Ganges River dolphins, irreversibly, from Nepal's Karnali River system.

We stand ready to support your efforts to conserve and promote recovery of Gangetic dolphins in Nepal. In order to achieve a sustainable future for this remarkable species in Nepal we commend to you that before any plans for construction and operation of the dams are approved, the following measures should be taken:

- (1) a comprehensive environmental impact assessment be undertaken focusing on flow-ecology relationships that explicitly includes potential downstream impacts on Gangetic dolphins of the dams both individually and cumulatively;
- (2) a river basin approach be taken towards managing water development in the Karnali Basin such that efforts to conserve Gangetic dolphins in one area are not undermined by dam construction in another area; and
- (3) if the anticipated impacts of one or more of the dams are judged to be severe and cannot be reduced to acceptable levels, then the option of not constructing them be considered.

We understand that due to demands for water and energy, maintaining ecological systems has become increasingly challenging, however, retaining the Karnali River as one of the few remaining free-flowing rivers in Asia will have long-term benefits for both people and nature.

Again, I can assure you that members of the Cetacean Specialist Group are available to assist in your efforts to evaluate the potential impacts of these proposed dams on Gangetic dolphins.

Thank you for your attention to this matter. Please do not hesitate to contact us if you have any questions.



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## References

- Kelkar N, Smith BD, Alom M, Dey S, Paudel S, Braulik GT. 2022. *Platanista gangetica*. The IUCN Red List of Threatened Species 2022: e.T41756A50383346. <https://dx.doi.org/10.2305/IUCN.UK.2022-1.RLTS.T41756A50383346.en>. Accessed on 07 October 2022.
- Khanal G, Suryawanshi K, Dutt Awasthi K, Dhakal M, Subedi N, Nath D, Chandra Kandel R, Kelkar N. 2016. Irrigation demands aggravate fishing threats to river dolphins in Nepal. *Biological Conservation* **204**.
- Paudel S, Koprowski, JL. 2020a. Factors affecting the persistence of endangered Ganges River dolphins (*Platanista gangetica gangetica*). *Ecology and evolution*, 10(6), pp.3138-3148.
- Paudel S, Koprowski, JL, Thakuri U, Sigdel R, Gautam RC. 2020b. Ecological responses to flow variation inform river dolphin conservation. *Scientific Reports*, 10(1), 22348.
- Paudel S, Timilsina YP, Lewis J, Ingersoll T, Jnawali SR. 2015. Population status and habitat occupancy of endangered river dolphins in the Karnali River system of Nepal during low water season. *Marine Mammal Science*, 31(2), 707-719.
- Smith BD. 1993. 1990 Status and conservation of the Ganges River dolphin *Platanista gangetica* in the Karnali River, Nepal. *Biological Conservation* **66**:159-169.
- Smith BD, Reeves RR. 2000. Report of the Workshop on the Effects of Water Development on River Cetaceans, 26-28 February 1997, Rajendrapur, Bangladesh. Pages 15-21 in Reeves RR, Smith BD, and Kasuya T, editors. *Biology and Conservation of Freshwater Cetaceans in Asia*. IUCN, Gland, Switzerland & Cambridge, U.K.
- Taylor BL, et al. 2020. Ex situ options for cetacean conservation. IUCN, Gland, Switzerland.