



# PARYAVARAN MITRA

(Regd No. E/20934/Ahmedabad)

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Date: May 6, 2022

To,

Shri Narendra Modi,  
Hon'ble Prime Minister of India  
The Prime Minister's Office,  
South Block, Secretariat Building,  
Raisina Hill, New Delhi, India.

Subject: Urgent Need to desilting Sardar Sarovar and others Dams, stop illegal river sand mining and protection of ponds/wetlands in Gujarat

Respected Narendrabhai,

Namaskar !

First of All, I would like to congratulate you on the occasion of 75<sup>th</sup> anniversary of India's Independence. On the occasion of "Azadi Ka Amrut Mahotsav", we welcome your suggestion of constructing at least 75 water reservoirs in each district for the celebration of Amrut Mahotsav. In the "Mann Ki Baat" Sessions of 27 March 2022, 29 June 2021, 25 November 2021 and 29, June 2019, the emphasis on water reservoirs was taken forward on Azadi ka Amrut Mahotsav.

Within 17 days of your being Prime Minister, the decision to increase the height of Sardar Sarovar Dam to 138 meters With an objective of abating scarcity of drinking and irrigation water. This would also contribute to Saurashtra Narmada Avtaran Irrigation (SAUNI) launched during your chief ministership in the state of Gujarat.

However, I would like to draw your attention to the fact that desilting is the first and foremost requirement of reservoirs as continuous silting reduces the storage capacity. According to a recent report in a local newspaper, the Sardar Sarovar dam is filled with 53% of its capacity and only 39% of storage is available in the reservoir for usage. In consecutive past two years 2020-2021, the Gujarat has witnessed almost



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102% of rainfall in monsoon. Various dams of Saurashtra also have silted significantly leading to reduced storage capacities of water. If the monsoon is prolonged, there will be an acute scarcity of water.

In the last year's Gujarat State Legislative Assembly session dated March 9, 2021, in one of the Star Questions, it was mentioned that the survey about the present silt level in Sardar Sarovar Dam is not conducted yet. (Attachment 1)

In addition to this, the information is derived from the un-star question of the Gujarat State Legislative Assembly dated March 24, 2022, which mentions that the silt survey of many large and medium dams of Gujarat was conducted in 2021( Attachment 2) While for some dams, the survey has taken place in the years 2001, 2009, 2017-18, no action is taken for removal of silt The reason stated for non-removal of silt was that the desilting process is done ad hoc manner and not scheduled. Hence, the budget allocation for this activity is not regular and will be done, when this activity is to be taken up.

As per the handbook for Assessing and Managing Reservoir Sediment, published by CWC in February 2019, the same issue is discussed and we quote: (Page no. 23 – 24, Attachment 3).

“Sediment-induced problems induce a number of adverse impacts not only within reservoirs but also in both upstream and downstream areas of river systems with dams. Some of the adverse effects, induced by sedimentation and erosion processes in a river system with reservoirs, are outlined as follows:

- Reduction of storage volume in reservoirs due to o sediment deposits.
- Flood level increase upstream of the reservoir (higher than estimated during design) due to changed river slope.
- For flood control dams and reservoirs, reduction of storage implies altered regulation and operational strategies leading to less effectiveness of flow/flood management, and thus more risk.
- Erosion and shifting of river banks and bed incision in downstream areas.
- Coastline erosion due to the lack of fertile silt and nutrient supply.
- Adverse effects on agricultural activities in downstream areas due to lack of fertile silt and nutrient supply.
- Impact on aquaculture like fisheries, and aquatic plants in downstream areas.
- Possible alteration in static and dynamic loads on structures due to large deposition in front of dam/spillway.
- Erosion of turbines and its accessories.
- Malfunctioning and clogging of hydro-mechanical equipment, such as flow control gates, sluice outlets and vents.



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- Abrasion and cavitations of concrete structures like spillways, roller buckets, cut-off wall, and sediment bypass tunnels and channels etc.
- Deterioration of aquatic environments, ecology, water and sediment quality leading to eutrophication, contamination of sediments in the reservoir (this is usually the case due to industrial effluents, reaching the reservoir)”

Also, On page number 30 of this report, in figure 2.2 (Attachment 4), it is shown that there are 60 dams in Gujarat whose storage capacity has been reduced by 2.4 billion m<sup>3</sup>. This situation depicts that, if the silt from the Sardar Sarovar Dam and from other dams is not removed then it will directly affect the efficiency and usefulness of SAUNI Yojana.

**The second issue, we wish to draw your attention to is about High level of Illegal Sand Mining in river beds in Gujarat.**

We wish to draw your attention to illegal mining in the rivers of Gujarat. A local newspaper reported that 182 rivers of Gujarat are excessively mined leading to desertification and reduced flow of water. This has directly impacted groundwater levels too. The sand present on the banks of the river curtails the velocity of the flow water-reducing soil erosion. Sand mining will result in flowing away of river water into the ocean. This impacts the base flow of water in the river, resulting in immediate drying of rivers post-monsoon.

**The third issue, we wish to draw your attention to is about the level of river pollution in rivers of Gujarat.**

On 28/6/2019, In the Lok Sabha, as a reply to the Un-starred Question, the Ministry of Environment, Forest and Climate Change (MoEFCC) has answered that there are 20 heavily polluted rivers in Gujarat.

On 5/12/2019, The Ministry of Jal Shakti also reply to an Un-starred Question that there are 20 rivers in Gujarat that are highly polluted.

Pollution in rivers coupled with uncontrolled mining of sand would result in water scarcity across the state. Untreated sewage is dumped in freshwater relentless making potable water so polluted that it can not be used for drinking.

**The fourth issue, we wish to draw your attention preservation of water reservoirs (Ponds/Wetlands)**

We sincerely welcome your appeal of making at least 75 lakes/ponds/water reservoirs in each district. But, In Gujarat, there are many lakes and ponds which are filled and converted in land for town planning and other development schemes. In this context, the Paryavaran Mitra has drawn the attention of the government of Gujarat and the hon'ble court. In this matter, we had approached hon'ble Gujarat High Court through WP(PIL)144/2021. On which the Hon'ble High Court gave a oral order on 17/2/2022, in which it has directed the Gujarat Government on the issue of “preservation of water reservoirs” . We have also enclosed a brief crux of those judgements (Attachment 5) in this letter.



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We strongly believe that "Nal Se Jal" Yojana will achieve its objectives, if the following suggested works are carried out effectively. We kindly request you to consider the following suggestions in solve water crisis of Gujarat.

- (1) The silting survey of Sardar Sarovar Dam should be done on an immediate basis and followed by this, the desilting process should be carried out by proper method. (As per directed by Handbook for Assessing and Managing Reservoir Sedimentation published by CWC)
- (2) The desilting Process should be carried out in all the medium as well as small dams of Gujarat.
- (3) Illegal sand mining must be stopped as soon as possible.

Please give a direction to the Government of Gujarat to follow and implementation of the following judgement of honourable Gujarat High Court for protection of wetlands/ponds/water reservoirs:

- (4) Paryavaran Mitra versus State Of Gujarat R/WRIT PETITION (PIL) NO. 144 Of 2021 Dated: 17/2/2022
- (5) Shailesh R. Shah versus State Of Gujarat and others reported in 2002(3) GLR 2295

Thanking You

Mahesh Pandya  
Director



CC :

Shri Bhupendrabhai Patel,  
Hon'ble Cheif Minister of Gujarat,  
Gandhinagar-382010

➤ Attachment enclosure 1 to 5

Fourteenth Gujarat State Legislative Assembly

Eight Session, 2021

Starred Questions

Tuesday, Date: 09 March, 2021

Matter of Removing the Silt from Sardar Sarovar Dam

**Starred :** 33469 Dr. C.J. Chawda (Gandhinagar North)

Hon'ble Deputy C.M. (Narmada) requested to answer that-

- (1) How much silt is gathered in Sardar Sarovar Dam as on the date 31-12-2020
- (2) Which procedure is decided to remove this silt, and
- (3) In how much time all the gathered silt is being removed ?

Hon'ble Deputy C.M.

(1), (2), and (3) As per the situation on the date 31-12-2020, the Silt Survey of Sardar Sarovar Dam is not carried yet. As directed by CWC in "Handbook for Assessing and Managing Reservoir Sediment" published in 2019, the Capacity Survey is to be carried in every 5 years. After the construction of Sardar Sarovar Dam, the gates of dam are closed in 2017. Thus, the Capacity Survey is to be carried out after 2022.

## Fourteenth Gujarat State Legislative Assembly

10<sup>th</sup> Session – 2022

Un-starred Questions, Date:- 14-03-2022

	Name Of Districts	Name Of Dam	Type Of Dam	Year in which the silt survey is conducted	Amount of Silt (in Cubic Meter)
1	Kheda	Raska Viyar	Medium	Survey not Conducted	-
2	Mahisagar	Kadanaa Bhadar(P)	Large Medium	2001 2009	4,26,90,000 12,20,000
3	Patan	Khokhla Si.Talav Chaveli Si.Talav Jamanpur Si.Talav	Small Irrigation Small Irrigation Small Irrigation	2018-19 2018-19 2018-19	4024.02 5636.40 1200.38
4	Narmada	Karjan Chopadvaav Kaakdi Amba	Large Medium Medium	2013 2020 2020	91.249 4.87 2.06
5	Navsari	Juuj Keliya	Medium Medium	2020 2020	3.806 2.515
6	Panchmahal	Dev Paanam Hadaf Karad	Medium Large Medium Medium	2005 2012 2009 2009	16.14 160.00 10.00 2.37
7	Bhavnagar	Shetrunji Rajaavad Maalan Ronjki Kharo Laakhanka Hamirpara	Large Medium Medium Medium Medium Small Irrigation Small Irrigation	2018 2003 1986 1986 2003 2004 2004	73960000 2800000 4000000 2790000 2385000 572900 20000
8	Chotta Udaipur	Sukhi Raami	Large Small Irrigation	2001 1999	3920000 2530000
9	Dahod	PaataDungri Umariya Vankleshwar-(Bhe) Adalwada Kabutari Machadnaadaa Kaali-(2)	Medium Medium Medium Medium Medium Medium Medium	The Process of Silt Survey is still in progress. Which when finished will give the amount of gathered silt.	
10	Dang	---	---	----	---
11	DevBhumi Dwarka	Saani Ghee	Medium Small	2010 2003	16.06 2.87
12	Sabarkantha	Hathmati Guhaai Harnaav	Large Medium Medium	2021 2021 2021	12.559 1.014 1.154
13	Surat	Vher-2	Medium	2020	6.424
14	Surendranagar	Vadhvana Bhogavo-1 (Naykya) Vadhvana Bhogavo-2 (DhodiDhaja) Limdi Bhogavo-1 (Dhoriyaadi)	Medium  Medium  Medium	2002  1986  1986	5.80  0.24  6.80

## Chapter 1. INTRODUCTION

Dams and reservoirs are important infrastructures, particularly for the countries like India with strong seasonal variation in flow pattern as well as rapid growth of economy and population leading to increasing water and energy demand. It is obvious that any intervention to a natural system induces adverse impacts as well. Nevertheless, the negative (social and environmental) impacts of dams and reservoirs can also be attributed to their mismanagement and improper consideration (or negligence) of mitigation options and conditions. The importance of dams and reservoirs, their positive and negative impacts shall objectively be weighed considering multi-sectorial benefits, demands and criteria. This was probably not easy to quantify during last century, but presently rapid development of innovative tools and technologies enables us to incorporate all available knowledge, concepts and approaches to address multi-sectorial aspects in an integrated manner.

Present situation around the world with increasing water and energy demand on one hand, while catchment degradation and sediment-induced problems in reservoirs on the other hand leads to the fact that there is a need for a major shift towards the concept of integrated and optimized dam and reservoir management considering collective benefits, safety and water security. Another important fact is that nowadays construction of new dams and reservoirs has become more difficult due to increasing social and environmental constraints and compliances. Consequently, dam safety and rehabilitation efforts have become indispensable in many countries with large number of dams.

Reservoir sedimentation is one of the major issues to be earnestly considered in dam improvement and rehabilitation efforts.

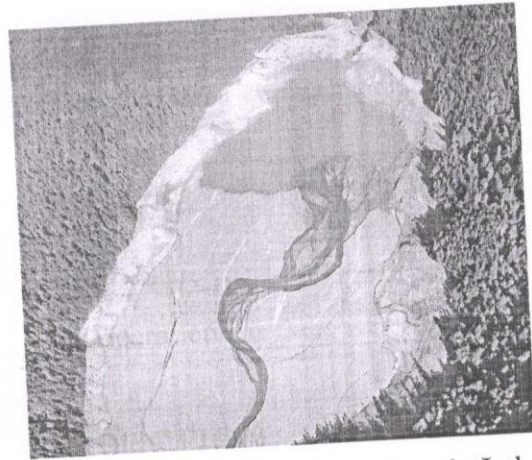


Figure 1-1. Sediment deposition in Lake Mill reservoir (Photo Courtesy of Tom Roorda)

### 1.1 Sediment-Induced Problems in Reservoirs

The global net amount of reservoir storage has been decreased in recent years because the sediment management was not a standard practice in the past. As per the finding of International Commission of High Dams (ICOLD), 50% of the storage would be lost globally by 2050 and 100% within 200 to 300 years due to sedimentation. Such situation would be endangering water security and livelihood.

Sediment-induced problems induce a number of adverse impacts not only within reservoirs, but also in both upstream and downstream areas of river systems with dams. Some of the adverse effects, induced by sedimentation and erosion processes in river system with reservoirs, are outlined as follows:

- Reduction of storage volume in reservoirs due to sediment deposits
- Flood level increase in upstream of the reservoir (higher than estimated during design) due to changed river slope

- For flood control dams and reservoirs, reduction of storage implies altered regulation and operational strategies leading to less effectiveness of flow/flood management, and thus more risk
- Erosion and shifting of river banks and bed incision in downstream areas
- Coastline erosion due to the lack of sediment supply from rivers
- Adverse effects on agricultural activities in downstream areas due to lack of fertile silt and nutrient supply
- Impact on aquaculture like fisheries, aquatic plants etc. at downstream areas
- Possible alteration in static and dynamic loads on structures due to large deposition in front of dam/spillway
- Erosion of turbines and its accessories
- Malfunctioning and clogging of hydro-mechanical equipment, such as flow control gates, sluice outlets and vents
- Abrasion and cavitation of concrete structures like spillways, roller buckets, cut-off wall, sediment bypass tunnels and channels etc.
- Deterioration of aquatic environments,

ecology, water and sediment quality leading to eutrophication, contamination of sediments in the reservoir (this is usually the case due to industrial effluents, reaching the reservoir)

- Concerns related to random sediment removal activities (like uncontrolled and irregular flushing) with large turbidity may have an effect on water quality and aquatic environment as well as may cause other sediment hazards in downstream area.

An example of changes in natural sediment balance due to dams and their operation is depicted in Figure 1-2.

The sediment-induced concerns worldwide can be attributed to some of the following factors:

- Deforestation and land use changes
- Selection of location and design approach without considering river morphology and sediment transport
- Underestimation and ignorance of sediment and morphology-related issues and their impacts
- Lack of proper knowledge and technology for application of integrated

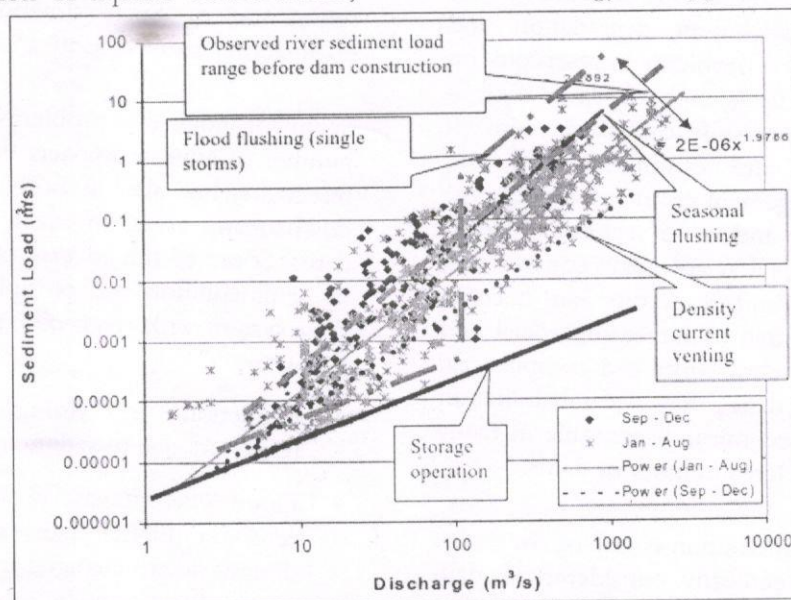


Figure 1-2 Change in sediment load – discharge relationship due to dams and their operations (ICOLD, 2007)



- Average rate of sedimentation, storage loss and other information of each reservoir
- Original and latest observed trap efficiency for some selected reservoirs
- The list of reservoirs which have served for more than 50 years
- List of reservoirs which have lost more than 25% of their gross storage
- Vertical distribution of sediment deposits (volumes) for 21 selected reservoirs
- Spatial variability in grain-size distribution for 32 selected reservoirs
- Sediment volume distribution curves for 28 selected reservoirs

rate of 0.42% (gross storage loss). Based on the sedimentation rate of 86 reservoirs, the average annual rate of dead and live storage losses is 0.494% and 0.04% respectively.

- Figure 2-2 shows loss of storage volume in some selected reservoirs in eight States of India with large number of reservoirs, which has revealed that the reservoirs in Odisha have largest volume loss, apparently due to the presence of large reservoirs in this State.
- Figure 2-3 shows the level of storage loss for 239 reservoirs, which has revealed that more than 40% of the surveyed reservoirs have lost more than 20% of the storage.

**Key Findings**

Based on collected data (by CWC, 2015), observation and analyses, some key findings are summarized as follows:

- Most of the reservoir data reveals that the actual rate of sedimentation is larger than design value (reaching more than 5 times for 23 reservoirs).
- 239 reservoirs out of 243 have lost their storage capacity with an average annual

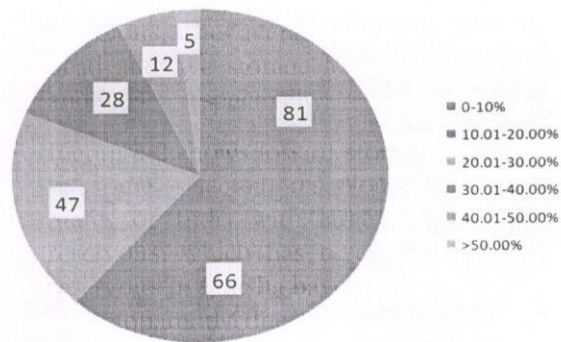


Figure 2-3. Categorization of storage loss of 243 reservoirs (CWC, 2015)

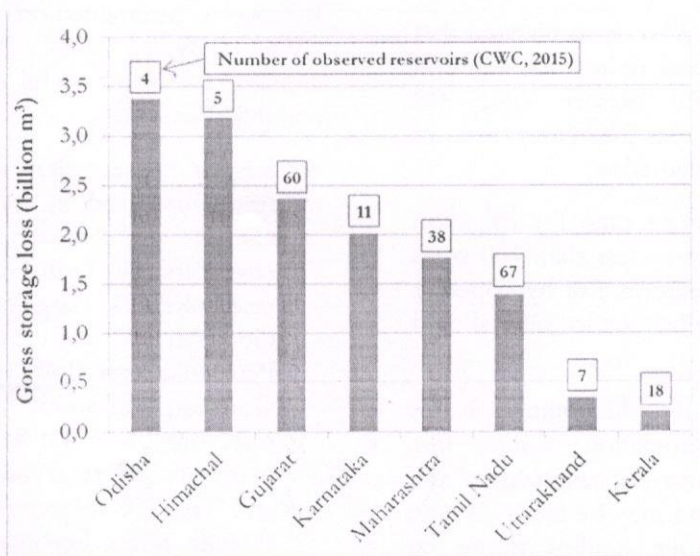


Figure 2-2. Reservoir gross storage in some States of India (based on data of CWC, 2015)

4

**Crux of the judgment dated 17/02/2022 passed in WPPIL No. 144 Of 2021**

Submissions made by the Advocate for the Petitioner:

- That despite notifications and circulars having been issued for protecting the water bodies across the State and also to maintain vegetative bio-diversity as well as retaining flora and fauna yet, indiscriminately the developmental activities are being carried out.
- That existing policies are to be re-visited so that there should not be any damage to the biological diversity.
- Instead of undertaking felling of trees for the purpose of forming a street or road can explore the possibility of formation of zigzag roads.
- all efforts should be made by all the stake-holders to increase the number of water bodies and as such, man-made water bodies with green vegetation cover is not to be destroyed under the guise of so-called development and sustainable development should be the word of the Government rather than ignoring the demand for stoppage of indiscriminate closure of water bodies or cutting of trees.
- To substantiate the State in "Xavier Kelvani Mandal" has proposed to construct a road over the land bearing survey No.88/BP and before bringing this road in the Town Planning Scheme, no notice was served and this indiscriminate construction of road by roping the same in the Town Planning Scheme would not only be hazardous to the existing lake but it would also result in the existing water bodies being damaged.
- Circulars and notifications issued by the State are to be strictly followed which is the need of the hour namely, to extend protection to all water bodies, whether natural or man-made.
- Reference was made to the directions issued by the coordinate bench in the case of Shailesh R. Shah Vs. State of Gujarat and others reported in 2002(3) GLR 2295.
- under Article 51-A(g) of the Constitution of India, a fundamental duty is cast upon every citizen including the State to protect and improve the natural environment and as such, the State and its authorities cannot damage or demolish the existing water bodies as it would result in irreversible situation which cannot be compensated in any manner whatsoever.

Submissions of AGP:

- Respondent State by itself and through its officers are ensuring strict implementation of said circulars, notifications and resolutions with the sole aim and object of protecting the water bodies.

- All stake-holders like Senior Town Planner, Deputy Town Planner, the Collectors and all other authorities, who are required to implement the action plan for maintaining rivers, lakes, ponds, nalas, canals or any other water bodies in the State of Gujarat are ensuring its maintenance.
- As and when infraction of any circulars issued by the State is brought to its notice, immediate steps to prevent such illegalities being perpetrated are being taken and penal action is also being initiated against such person or persons indulging in causing damage to the existing water bodies.
- Guidelines/directions issued in Shailesh Shah's (supra) case is being implemented and enforced in its true letter and spirit

Findings and Directions given by the Hon'ble'ble Court:

- Sustainable development means what type of extent of development can taken place which can be sustained by nature or ecology with or without mitigation.
- Mitigating steps can be taken to preserve the ecological balance.
- In the year 1999 i.e. on 15.3.1999, it has been made very clear by State that the authorities while making the original development plan or revised development plan in the area of any development authority or at the time of framing the proposal, would not include rivers, lakes, ponds, nalas, canals or any other water bodies existing in such development plan and clear instructions have been issued in this regard. It has been further clarified there under that such water bodies are to be maintained and not to be altered in the final plot.
- State being conscious of the fact that water is the basis of life and not only inevitable for drinking but also necessary for carrying out agriculture, irrigation, factory purposes, cleaning, etc. and taking note of depletion of water level in the existing water bodies has passed the resolution on 27.8.2001 by issuing instructions to all officers of the Revenue Department, District Collectors/District Development Officers.
- Above resolution issued for placing a restriction on the disposal of the land where ponds, lakes, small lakes or any other water bodies within the State are located and ensuring continuous vigilance as also ensuring that there would be no encroachment and if any such encroachment being there, to take immediate steps for removal of said encroachment. Said Government Resolution has been made applicable to be in force on permanent basis.
- Liberty is granted to the petitioners to bring it to the notice of the jurisdictional revenue authorities if there are any infraction.
- State is not only directed to implement the said resolutions and circulars in its true letter and spirit but should also take all steps as expected of a prudent welfare State to implement the directions.