

Second Report of the Vishwamitri Committee

(Constituted by the Hon'ble Gujarat State Human Rights Commission)

In the Matter of

HRC/2024/PRESS/205/Vadodara City/legal-1

20 July 2025

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Report

After the First Report and Supplementary Report 1A, this Committee continued the monitoring of the ongoing works by the VMC and Irrigation Department.

The table below shows the information requested and not received from concerned authorities.

Table 1: Information Requested and Not Received from Concerned Authorities

Sr. No.	Information Requested	Information Received
1	Superimposed map of all existing structures (temporary and permanent) within the demarcated 5 year and 10 year floodplain maps.	Not received
2	Map of all land parcels with ownership (public and private) within the demarcated 5 year and 10 year floodplain maps.	Not received
3	Reports and Observations submitted by the appointed wildlife volunteers, experts, and NGOs.	Not received
4	Superimposed map of debris dumping locations and its extent, as per GPCB reports of 2017, 2019, 2021 with an actual outline of the area.	Not received, but shared with VMC by this Committee
5	VMC action plan of debris and silt removal, detailed drawings of resectioning, maps of before and after commencement of works.	Not Received

6	Irrigation Department action plan of silt removal, detailed drawings of resectioning, maps of before and after commencement of works.	Not Received
7	<p>Spatial intervention action plan for crocodiles and other wildlife:</p> <ol style="list-style-type: none"> Locations of crocodile deaths that have occurred after January 2025. Post-mortem reports of crocodile deaths along with the inference drawn by the concerned authorities. Information on rescue, capture and/or translocation of crocodiles, if any. Cause of deaths of Fishes on and around 03.05.2025 in the river near Dena bridge (NH 48). We were informed about this by the wildlife volunteers during our visit on 03.05.2025. Cause of fire near Mangal Pandey bridge on 03.05.2025. 	Not Received
8	Biodiversity expert's suggestions action plan	Not Received
9	Superimposition of highway and bullet train project activity / interventions (temporary / permanent) on the floodplain map.	Not Received
10	NHAI action plan for pre monsoon and post completion of works.	Photos received but Report Not Received
11	Corrective measures on the Mumbai-Delhi Expressway at downstream junction with Dhadhar River, which obstructs the natural flow of storm waters from East to West creating	Verbally explained by NHAI, but document Not Received

	waterlogging conditions resulting in floods in Vadodara city-region.	
12	Related documents, Tender, Specification, Fixing details, operation and maintenance plan for bank stabilization using coir and coco logs addressing wildlife concerns.	Documents Not Received; fixing details discussed during site visits.
13	Detail action plan for plantation from Forest Department.	Not Received
14	Log book of rescue events and other observations related to wildlife activities from Zoo Authorities.	Received basic information; Need detailed information
15	Related documents, Tender, Specification, Fixing details, operation and maintenance plan for bank stabilization using gabion walls.	Not Received
16	Drone surveys of works done in the tributaries – Bhukhi and its tributaries, Bahucharaji, Mashia kaans, Ruparel kaans, Undera – Gotri kaans, T.B. Hospital – Vasna kaans, Kalali kaans, Gotri-Bhayali kaans, Maneja Kaans, Airforce kaans, Vasna – Banco kaans, Jambuva and its tributaries, etc. (as per document received from VMC).	Not Received
17	Contour (topography) data of the entire Watershed.	Not Received
18	Data pertaining to aquifer (confined and unconfined) and subsurface flow regimes.	Not Received

The table below shows the information requested and received from concerned authorities.

Table 2: Information Requested and Received from Concerned Authorities

Sr. No.	Information Requested	Information Received
1	Floodplain maps (5 and 10 year return period) created by SECON	Received from VMC
2	Maps of ongoing "desilting" and "resectioning" works across the 4 sections in VMC jurisdiction and 6 packages in the downstream areas under the jurisdiction of the Irrigation Department. - print and soft copy	Received
3	Drone videos dated February 2025, March 2025, April 2025, May 2025 (2), of before, during and post "desilting" and "resectioning" works in respective jurisdictions.	Received
4	Drone survey of Vishwamitri River outfalls from GPCB, September 2024.	Received from GPCB
5	Relevant documents pertaining to the Vishwamitri River in connection with ongoing construction activities under NHRCL Project (Bullet Train) in the floodplains.	Received from NHRCL
6	Drone survey of Vishwamitri River outfalls from VMC, May 2025.	Received from VMC

7	Log book of rescue events and other observations related to wildlife activities from Zoo Authorities.	Received but Need detailed data
8	Post mortem reports of 3 species: flapshell turtle, checkered keelback, monitor lizard.	Awaiting reports of crocodile deaths.
9	Details of coir installations to address erosion – GPS locations, extent and quantifications, including photographs.	Drone videos received
10	Drone survey of the desilting works from the reservoirs of Ajwa, Pratapura to Maretha, dated 10.06.2025, 11.06.2025, and 22.06.2025	Received from VMC
11	Drone survey of 2024 floods.	Received from VMC
12	Photographs of Action taken by NHRCL towards removal of silt at Bullet Train Columns as per Reports of Vishwamitri Committee and discussions during meetings.	Received from NHRCL
13	Periodic drone surveys after rain events of the desilting works from VMC, at the reservoirs of Ajwa, Pratapura and new detention pond at Dena village, and within VMC boundaries.	Received from VMC
14	Periodic drone surveys after rain events of the desilting works from Irrigation Department, downstream of Maretha.	Received from Irrigation Department

The table below logs the course of events which have been elaborated upon later as Annexure I.

Table 3: Site Visits and Meetings

Sr. No.	Date	Events	Particulars
1	14.06.2025	Site Visit with Irrigation Department - Downstream	
2	16.06.2025	Meeting with Irrigation Department and Bullet Train Officials	
3	21.06.2025	Site Visit with Irrigation Department - Downstream	
4	28.06.2025	Site Visit with VMC Officials - Downstream of Vadsar	
5	30.06.2025	Site Visit with VMC Officials - Dena pond to Narhari Bridge	
6	01.07.2025	Meeting with VMC Municipal Commissioner VMC Officials, NHRCL Officials, and NHA I Officials	

Observations and Recommendations

The following are the observation of this committee:

1. The riverine ecosystem is a major contributor for ground water recharge and biodiversity wherein, the riparian region of a river is the epicenter of floral and faunal diversity. The upper watershed of Vishwamitri River (Pavagadh hills) sustains dry-deciduous forests of central Gujarat as evidenced by the studies conducted by The Maharaja Sayajirao University of Baroda on Flora and Fauna of Central Gujarat. The riparian zone of Vishwamitri River sustains healthy and wide range of faunal biodiversity including, but not limited to, ants, bees, aphids, locusts, grasshoppers, lizards, calotes, toads, frogs, snakes, civets, porcupine, mongoose, jackal, fish, mollusks, turtle, crocodile and microscopic forms such as protozoa, planktons, rotifers. This ecosystem also supports a healthy biodiversity of resident and migratory species of terrestrial birds and waders viz. king fishers, woodpeckers, parakeets, sparrows, mynah, egrets, herons, storks and ibises to name a few. These faunal forms constitute an intricate food web in the Vishwamitri ecosystem. The improvement of water quality will further enhance growth of phytoplankton, rotifers, algae, emergent plants, herbs, shrubs, climbers and trees along the river flood plains. This magnificent biodiversity also calls for a comprehensive study and documentation of faunal and floral diversity.

This committee would like to emphasise the importance of the river biodiversity to maintain healthy river water quality. Some examples of plant species with their dependent faunal forms are mentioned herein:

Floating and emergent plants in riverine ecosystem:-

- a. *Neptunia oleracea* (Water Mimosa- Jal risamani) sustain various species of butterflies, bees, damsel flies, dragon flies, etc.
- b. *Ipomoea aquatica* (Water spinach- Kalmi shaak) sustains diverse species of bees, and ants. Few spider species get shelter in flowers, leaves and branches.
- c. *Typha angustifolia* (Narrow-leaved cattail- Gha bajariyu) attracts bush-chats and baya for building their nests.
- d. *Alternanthera philoxeroides* (Alligator weed- Magaru gha) attracts butterflies due to high content of nectar. It provides pedestal support to water birds like Jacana, Water Murhen etc.
- e. *Pontederia crassipes* (Water hyacinth - Jal kumbhi) This species supports population of wading birds and diverse insects such as dragon flies, butterflies, etc.
- f. *Ipomoea carnea* (Bush morning glory- Besharam) the nectar attracts insects and butterflies.
- g. *Phyllanthus reticulatus* (Reticulated leaf flaver- Kamboi) support a healthy population of birds.

In the riparian region:-

- a. *Tamarix aphylla* (Athel tamariks) insects and birds in riparian habitat find shelter.
- b. *Syzygium salicifolium* (Jal-jambu) Shelter to water birds.
- c. *Vachellia nilotica* (Gum arabic) baya use these perches for nest building. This tree also sustains bees, ants and insect diversity.

Palms along the banks:-

- a. *Phoenix sylvestris* (Wild date palm) large water birds like ibis, egrets, storks build nests; flowering provide surgery saps to bees.

- b. *Borassus flabellifer* (Toddy palm). Ibises use it for roosting and nesting.
- c. *Hyphaene dichotoma* (Doum palm) Birds use for perching and vantage points. Squirrel consume fruits of this palm.

Trees along the banks:-

- a. *Ficus hispida* (Wild fig- Dhed umbaro) Provide shelter to birds whereas, the insect feed on figs.
- b. *Pithecellobium dulce* (Manila Tamarind- Goras-ambli, Jungal jalebi) birds feed on fruits, insects attracted with sugary glands. This species is preferred by Rosy Starlings that migrate from Europe.
- c. *Tamarindus indica* (Tamarind) large birds shelter, roosting for most of heronry birds, fruits and foliage consumed by animals.
- d. *Ficus racemosa* (Umbaro) fruits are consumed by a variety of tree dwelling birds and canopy is frequented by small mammals.
- e. *Ficus religiosa* (Piplo) figs acts as a major source of food for frugivorous birds especially during early summer.
- f. *Ficus benghalensis* (Vad) canopy provide shelter to many small birds and roosting locations for water birds. This tree also is key for roosting of frugivorous Bats like the Flying Fox.

Other important native trees along the river those provide shelter to many birds, bats and monkeys are:-

Holoptelia integrifolia (Kanajo); *Anogeissus sericea* var. *sericea* (Andrakh); *Cordia dichotoma* (Gunda); *Disopyros cordifolia* (Dheki, Makrol); *Millettia pinnata* (Karanj); *Allangium salvifolium* (Ankol); *Cordia gharaf* (Gundi); *Clerodendron phlomidis* (Arni); *Azadirachta indica* (Limdo); *Streblus asper* (Saredo).

2. The list of the plants intended to be planted by VMC along the river was procured on 14 June 2025. The list was found to be compatible with the native species of the riparian habitat of Vishwamitri as well as the Forests of Central Gujarat. The same should be rectified urgently. A list of plants for the riparian vegetation of the river was shared to the Parks and Garden Department on 19 June 2025 as annexed in Annexure XII.
3. Field visits and interactions with officials had revealed plantation of a single of trees within and adjacent to the riparian region. The efforts to enhance scenic beauty and indulging in avenue plantation is contrary to the ethos of biodiversity conservation. Inputs from the studies carried out by The Maharaja Sayajirao University of Baroda and Gujarat Ecology Society regarding the Vishwamitri ecosystem should be taken into account. For example, gauchar lands, kharabo lands, fallow lands, oxbows, etc with or without natural vegetation can be developed as potential biodiversity park and a botanical garden that can be used for educative and recreational activities. This is also mandated under the Biodiversity Act (2000) for the urban area.
4. There is a scientific difference between natural vegetation, guided afforestation, and plantation. A meaningful intervention in the riverine area requires a nurturing system that encompasses regular monitoring of native, adaptive and invasive species, conservation of natural biodiversity by a dedicated and qualified team. This includes efforts to eliminate sewage, effluent, and solid waste dumping, manage waste, and to restore natural habitats with a potential to sustain plant and animal life. Hence, this committee recommends:
 - a. Ecological studies should be undertaken to inform development initiatives. Continuous monitoring of the Vishwamitri

Watershed should provide leads for further studies for sustainable future.

- b. Emphasis on natural vegetation growth rather than visual promenade approach.
- c. Plantation of native flowering flora in mixed plantations should be encouraged to develop leisure spots for wildlife viewing viz. muggar observation points and recreational places.
- d. Biodiversity of the natural system must be left undisturbed and should be given adequate opportunity for rejuvenation.
- e. A scientific plan for initiating plantation drives should be formulated as mentioned in the comprehensive list of flora viz. herbs, shrubs, lianas, climbers and trees. This activity should be carried out for a minimum period of 5 years with rigorous monitoring to ensure a long-term sustainable achievement.





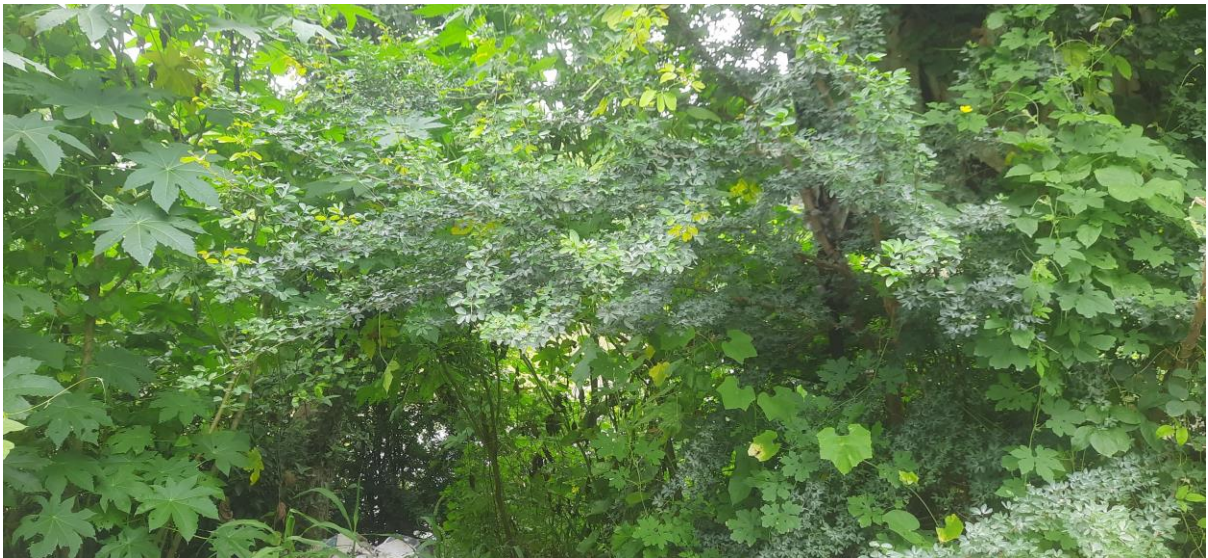
Selected Floral Spices



Combratum ovalifolium (brighter bigger leaves in opposite pairs) *Passiflora foetida* (angular broad, alternate leaves) both are extensive climbers on shrubs, barrier to rain splash, also provide shady habitat to small birds and other animals.



Passiflora foetida (leaves with three tips) is a climber that has covered *Ficus hispida* (big leaves)



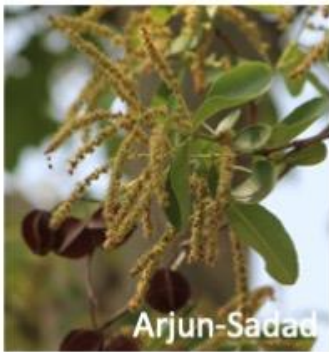
Ricinus communis (castor) has invaded river banks long ago. There are other common plants like those small leaved *Pithecellobium dulce* (fruits of Goras-ambli that feed frugivorous birds to great extent) and *Coccinia grandis* (jangli gilodi) with 5 angular leaves. The fruit of which is relished by variety of fauna.



Sapling of *Streblus asper* (sand paper tree) is native species in central India, including Gujarat. It forms thick evergreen canopy of dark green leaves that provide shelter to small birds. Fruits are relished by bulbul, koel and mynah.



Kirganelia reticulata (Kamboi, Shivi) plant grows on bank slopes along with *Streblus asper* (Haredo, sand paper tree) and *Ficus* species as seen here *Ficus religiosa* (Piplo) in the background. All these native plants provide resilient ecosystem supportive of native fauna.



Arjun-Sadaa



Kickxia



Ceropogia



Strobilanthes



Woodfordia



Rohida



Ragat



Dhavdo



Haldu



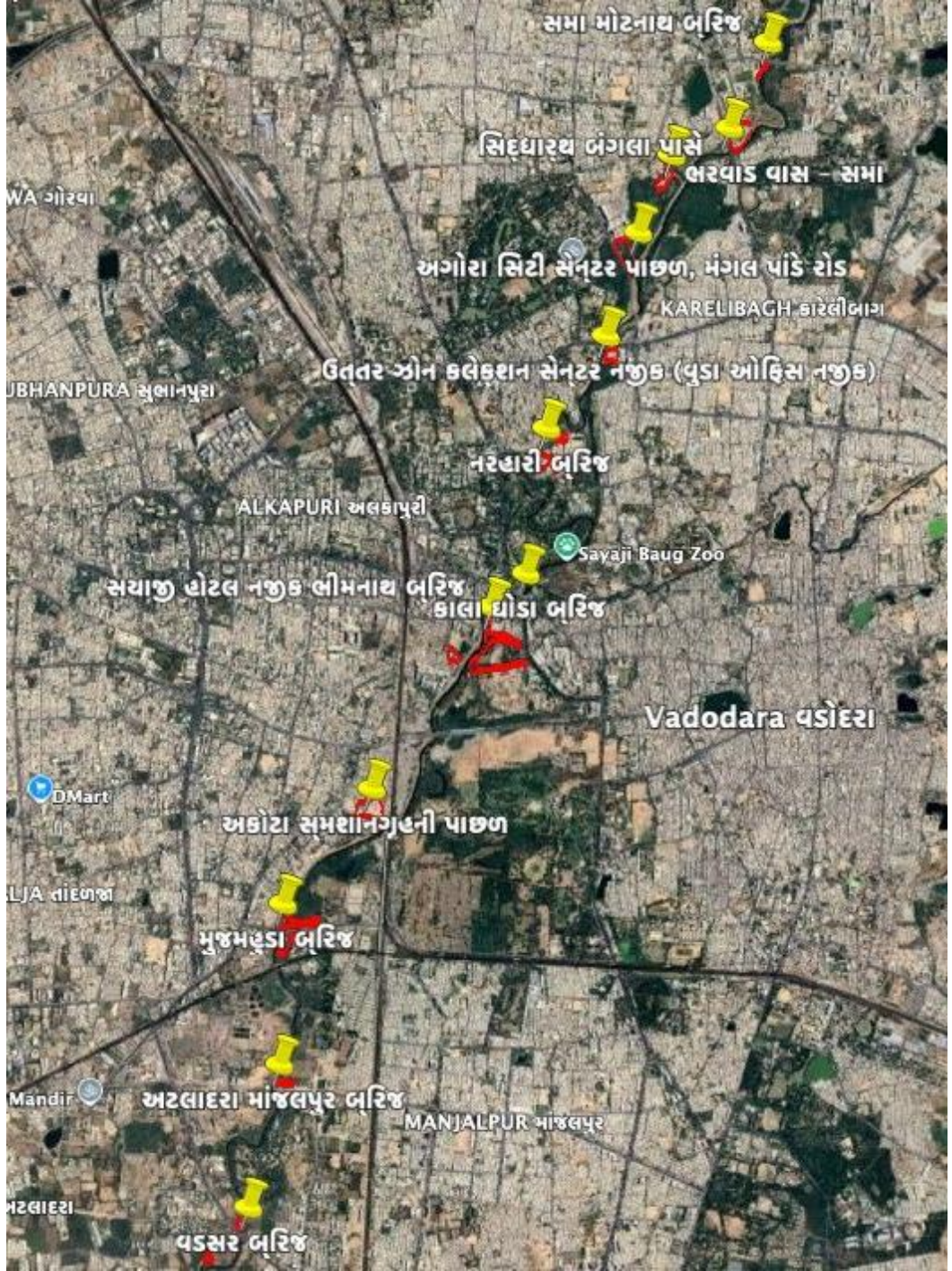
Jal-jambudi



5. Presently, the Vishwamitri River sustains a healthy breeding population of *Crocodylus palustris* within the Vadodara city limits and sets a rare example that is unmatched globally. Habitat fragmentation caused by infrastructure development, like the building of railway tracks, highways and electric lines, has adversely affected the movement of several crocodylian species (Vyas and Vasava, 2019), resulting in fatalities due to collision and electrocution. Research reports published till date suggest that, other than the mugger, other aquatic reptilian species such as South Indian flap-shell turtle (*Lissemys p. punctata*), the Indian soft-shell turtle (*Nilssonina gangetica*) and the checkered keelback water snake *Xenochrophis piscator*) are commonly found throughout the river. The Indian flapshell turtle, *Lissemys punctata*, is listed under Schedule I, Part II of the Indian Wildlife (Protection) Act, 1972.

6. The desilting and debris removal activity involves use of heavy machinery and is bound to cause major disturbance in the riverine habitat.
7. During our field visits we had observed crocodiles at all the locations performing partial basking / swimming. These observations were restricted during the morning hours (0930 to 1100 h) and a detailed scientific study should be conducted to establish stress levels (if any). Episodes of successful breeding of the key species shall be the bench mark of zero stress to the fauna.
8. After the eco-restoration work is completed, a round-the-year monitoring during all the seasons is warranted to draw meaningful scientific data on the health of the faunal diversity of Vishwamitri riverine ecosystem.
9. Some of the observed species of organisms were:
Indian flap-shell turtle (*Lissemys p. punctata*) and some species of unidentified fishes. The bird fauna included Little Egret (*Egretta garzetta*) and Cattle Egret (*Ardea ibis*), Black kite (*Milvus migrans*), Black winged stilt (*Himantopus himantopus*), Blue rock pigeon (*Columba livia*), Red wattled lapwing (*Vanellus indicus*), Red-naped ibis (*Pseudibis papillosa*), Asian Woolly necked stork (*Ciconia episcopus*), Jungle crow (*Corvus splendens*) etc. Some of the locations has a fair diversity of butterflies viz. Plain tiger butterfly (*Danaus chrysippus*), Small Grass yellow butterfly (*Eurema brigitta*), Spotted rustic butterfly (*Phalanta phalantha*), Common Crow butterfly (*Euploea core*).
10. Since the Vishwamitri River is a vital habitat to a robust biodiversity including the Scheduled species (mugger crocodiles, turtles, etc.) their health and mortality information should be evaluated to sustain the integrity of the river ecosystem.

11. A considerable number of pigs (*Sus cristatus*) were reported to be dead and disposed into the river on 09.07.2025. the cause of death should be investigated by VMC. The disposal should be done as per standard norms like deep burial or incineration.
12. Action should be taken against whosoever is dumping such carcasses in Vishwamitri River. It's an offence to pollute natural aquatic ecosystem. Also, crocodiles or any fauna may consume such carcasses, which can lead to subsequent deaths of crocodile or other fauna dies, the concerned authorities should be held accountable.
13. Debris at most locations are still persistent and have not been removed prior to bank stabilization works. This has altered the topography of the floodplains. In the absence of a joint field visit, a map showing locations and extents of C&D waste dumping was shared with the concerned VMC officials as shown below. Immediate actions of debris removal needs to be undertaken.

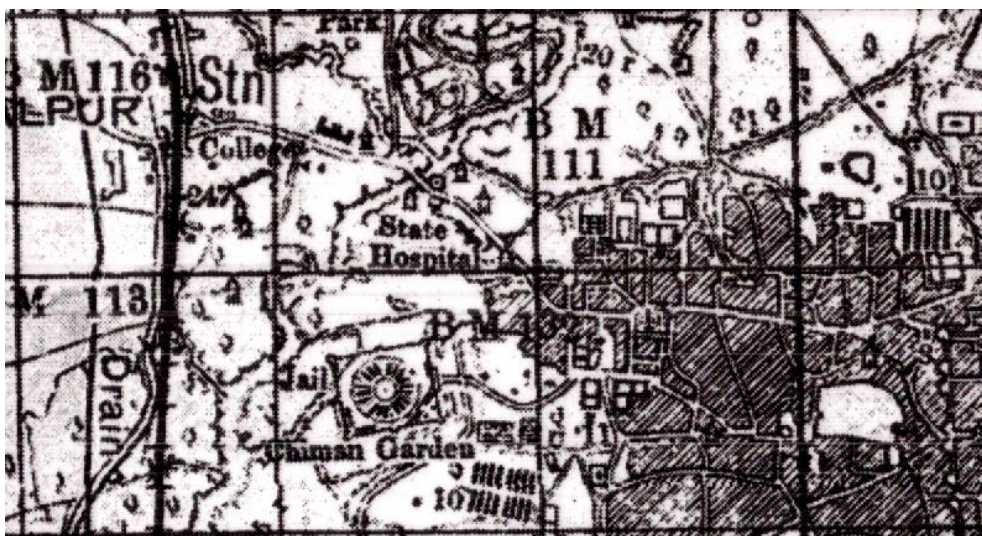


14. In response to the query raised by the committee regarding the obstruction of surface flow from East to West of the Delhi – Mumbai Expressway at Sadad village, the NHA officials reported that there

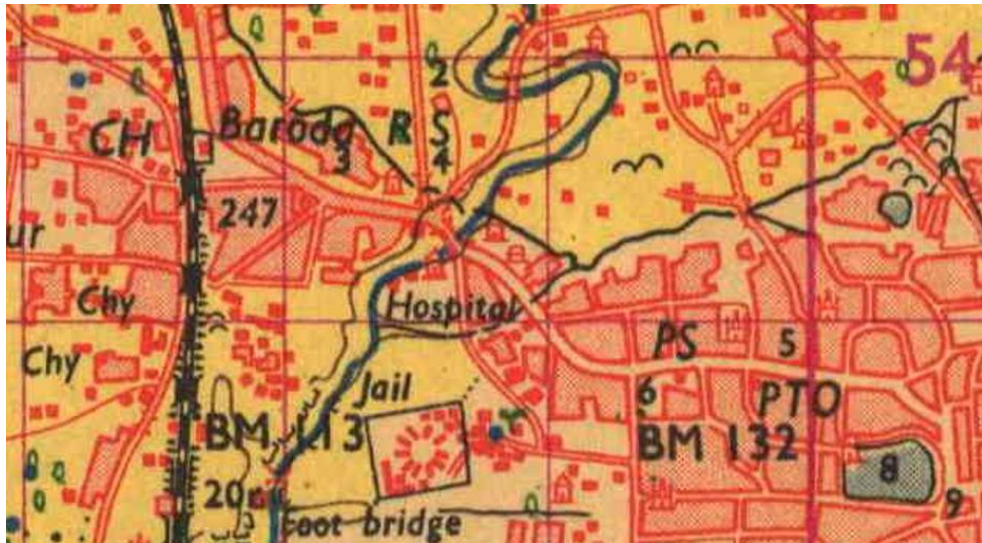
have been box culverts installed at intervals of 500 mt. However, photographs of waterlogging dated 29.08.2024 at the junction of the Delhi – Mumbai Expressway at Sadad village and the Vishwamitri River are discrepant to the discussion and therefore needs further clarification and action plan.

15. At various locations along the river banks, active ravines and flood plains, there is ongoing work of filling, levelling and construction of compound walls. For example, Jetalpur Road from Bhimnath Bridge, Jail Road till the Fast Track Court road, and Vishwamitri River (refer below images); such activities have disrupted the natural surface flow of water. Similar works have been carried out in the recent past that have contributed to the waterlogging and flood events of 2024.

The images shown herein depicts transformation of natural waterways (kaans) stretching between SSG Hospital and Kirti Mandir areas to the Vishwamitri River, which is prominent in the 1896, 1962, and 1972 Survey of India topo sheets. Systematic construction of roads, compound walls and buildings over time have obstructed the flow of storm waters resulting in increasing waterlogging on the Jail Road.



1896 Map

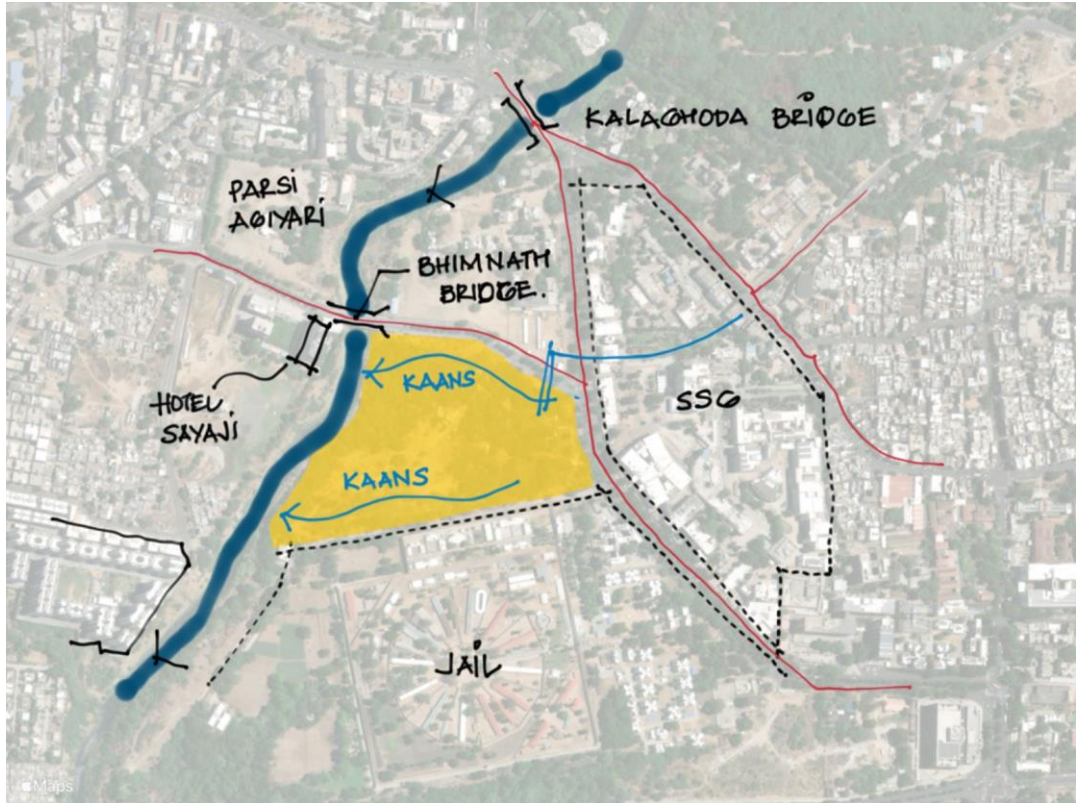


1960 Map



1969-70 Map Updated 1998-99

The referred land is an important ravine that has a natural storm water way passing through it. This waterway / 'kaans' drains waters from the SSG hospital area and Jail Road. Any form of blocking either through filling or physical barrier will lead to increased waterlogging in the above mentioned areas.



Also, it is important to note that such obstructions to natural flows of surface and subsurface waters may lead to sinkhole formations similar to Akota area of the city as explained in Annexure XIII.

Therefore, it is pertinent that the properties in the floodplain areas, and those that harbour tributaries, kaans, and natural water ways, be mapped and subjected to special development regulations through effective planning tools to facilitate the natural flow of water. Hence, future flooding and waterlogging incidents can be prevented.

16. An urgent need for formulation and implementation of guidelines for the adhoc initiatives and projects within/adjacent to the flood plains is imperative for safeguarding the river ecosystem. Meanwhile, any form of development activities should NOT be permitted or undertaken by private owners as well as public authorities.
17. This also calls for an URGENT preparation of a superimposed map of floodplains and land parcels (private and public). The pending task has been reiterated in every meeting and needs immediate expedition.
18. Appropriate measures to prevent the erosion of steep banks including vertical cuts at various locations, as visible in the drone surveys, need to be undertaken on a priority basis. Likewise, banks prone to erosion, as discussed during meetings and site visits, also must be addressed on a priority basis.
19. Natural waterways reinstated naturally after initial rain events, should be recognized, notified, and protected. The coir work should be realigned accordingly.
20. At the bank adjoining the new Sayaji Hotel, removal of established vegetation was observed by the committee members on 07.07.2025, for the purpose of installing coir works. The committee suggested that this work be stopped for the following reasons: (a) this bank is not an erosion prone area, there is no plan to further

desilt the areas and the vegetation has already stabilised the bank, and (b) such work when undertaken in mid monsoon season will expose the soil and make it prone to erosion. Action to stop the said work was promptly taken by the VMC.



21. The bioengineering initiatives, like coir works and plantations should be monitored on a regular basis to rectify deficiencies and to assist the river in natural rejuvenation.
22. The drone survey conducted by the VMC has identified 38 sewage and storm water outfalls along the 24 kms stretch of the Vishwamitri river in the VMC boundaries. Outfalls opening in the tributaries have not been identified.
 - a. Most of the outfalls into the Vishwamitri River are not able to meet the prescribed norms. The VMC need a holistic comprehensive plan, with systemic solutions, restore and

rejuvenate the Vishwamitri River and not resort to ad-hoc solutions.

- b. VMC does not have an immediate interim action plan for addressing existing evasion of untreated and ill treated sewage.
 - c. The operations of STPs are not being carefully reviewed and evaluated. Such systemic problems need to be addressed through systemic solutions. The VMC should have comprehensive Maps depicting all connections from multiple sources discharging sewage and wastewater resulting from various types of land uses within their jurisdiction. The same is imperative to resolve the issues of unaccounted sewage.
 - d. Thus, it is important on the part of regulatory / investigating agencies as well as supervisory / operating agencies that their scope of inspection should not be limited to collecting inlet and outlet samples from STPs. Stage-wise sampling and comparison of analysis besides physical observations may help them to determine which treatment unit / stage is functioning / not functioning. Based on such observations, suggestions / instructions may be given to replace / repair / modify the non-functional STPs.
 - e. The design of the new STPs and expansion of existing STPs must consider the population projections for coming 30 to 50 years – for permanent and floating population induced by ongoing development initiatives.
23. Since the Vishwamitri River transcends multiple legislative and administrative boundaries, socio-cultural heterogeneities, and ecological diversities, encompassing multiple factors and actors, a systemic framework needs to be established. This committee has identified many interlinked, systemic barriers and drawbacks in the existing planning framework that ranges from values and outlook of stakeholders, to planning approaches, to the provisions of the

governance mechanisms. This committee strongly believes that effective bridges need to be built and strengthened among the various stakeholders and across the factors in order to rejuvenate the Vishwamitri River. To this end, the committee recommends:-

- a. Constitute a semi-statutory body at State level for the Vishwamitri – Dhadhar Watershed, with legal teeth, that would include subject experts - ecologists, geologists, hydrologists, soil scientists, plants and animal experts, environmental / ecological planners, wetland specialists, landscape architects, legal and legislative specialist, historians and heritage conservationists to built-environment professionals as well as knowledgeable and experienced members of the community at-large.
- b. Constitute fully functional, effective, and knowledgeable Urban and Environmental Planning Departments in various urban and rural areas in the Vishwamitri – Dhadhar Watershed comprising of experts from diverse fields.
- c. Formulate an overall regional plan and a comprehensive land use plan based on research and analysis for the entire watershed including tributaries, ravines, wetlands, ponds, natural waterways, kaans, etc. Since the subject of planning, including environmental and urban planning, is vast and complex, its applications vary across socio-ecological and political contexts. Therefore, appropriate planning approaches, processes, strategies, and tools should be exclusive for the Vishwamitri watershed. Following are examples of directives that can be undertaken:-
 - i. For the purpose of rejuvenation of the Vishwamitri River, restoration trajectories for ecological structure and

functions need to be established. For this purpose, historical maps and topo sheets from previous decades should be referred to identify lost connections and scope for revival. One such topo sheet from 1896 is annexed herewith as Annexure XVI.

- ii. For example, the areas following expansion of Pratapura and Ajwa Sarovar can be developed into Mini Forests / Biodiversity Parks with an aim to regulate intensity of water flow, to conserve biodiversity and to contribute towards carbon credits.
- iii. Scientific rainwater harvesting systems as per the macro and micro-level geo-hydrology to manage excessive water. Care should be taken to protect and restore the natural water entities and aquifers for maintaining the e-flow of the river

d. Constitute a monitoring and inspection cell within the planning departments to ensure effective implementation of the plans and projects.

24. During investigation the committee recognised one of the core systemic issue that the existing administrative structure lacks required number of personnel with relevant subject expertise to address complex and multilayered functions.

25. Also, due to the lack of personnel, many departments are outsourcing even basic, mandatory functions. Citizens are also experiencing longer waiting time for the basic services, and people's complain takes longer time to process, and important tasks may get delayed. The concerned authorities should evaluate the outsourcing of the mandatory tasks and duties.

26. The effective implementation of the ongoing and recommended works need a robust team of efficient and qualified professionals from diverse fields. Hence, to address the ongoing initiatives along with the recommended systemic modifications for the efficient and effective functioning, recruitment of appropriate staff and personnel should be the foremost priority. Without this, the vision of rejuvenating the Vishwamitri River to address flooding and waterlogging, in letter and spirit, will remain as wishful thinking.

This committee will submit subsequent reports with the progression of work.



Dr. Neha Sarwate,
Environmental and Urban Planner



Rohit Prajapati,
Environment Activist, Researcher,
and Writer



Dr. Ranjitsinh Devkar, PhD,
Zoologist



Dr. Jitendra Gavali, PhD,
Botanist



Mitesh Panchal,
Architect and Urban Planner

Annexure I: Cardiograph of Vishwamitri River



Annexure II: Visits, Meetings, and Discussions

14.06.2025: Site Visit with Irrigation Department

Location: Downstream of Maretha

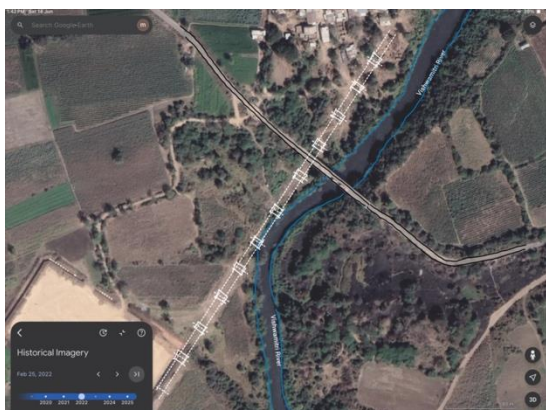
Time: 8:30 am

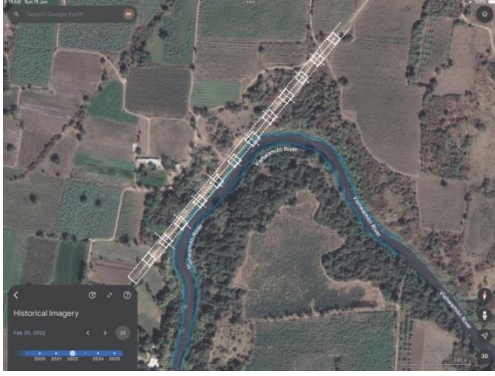
Attendee:

Rohit Prajapati
Neha Sarwate
Ranjitsinh Devkar
Jitendra Gavali
Mitesh Panchal

Discussions:

1. Natural vegetation has sprouted at many locations along the river.
2. It was observed that the NHSRCL has not yet completely removed the debris from their work locations as agreed upon in previous meetings.
3. At 2 locations, banks have been stabilised using debris by the NHSRCL.
4. NHSRCL has encroached in the riverbed that has constricted the river at two locations.











16.06.2025: Meeting with Bullet Train Officials and Irrigation Department Officials

Location: Collectorate

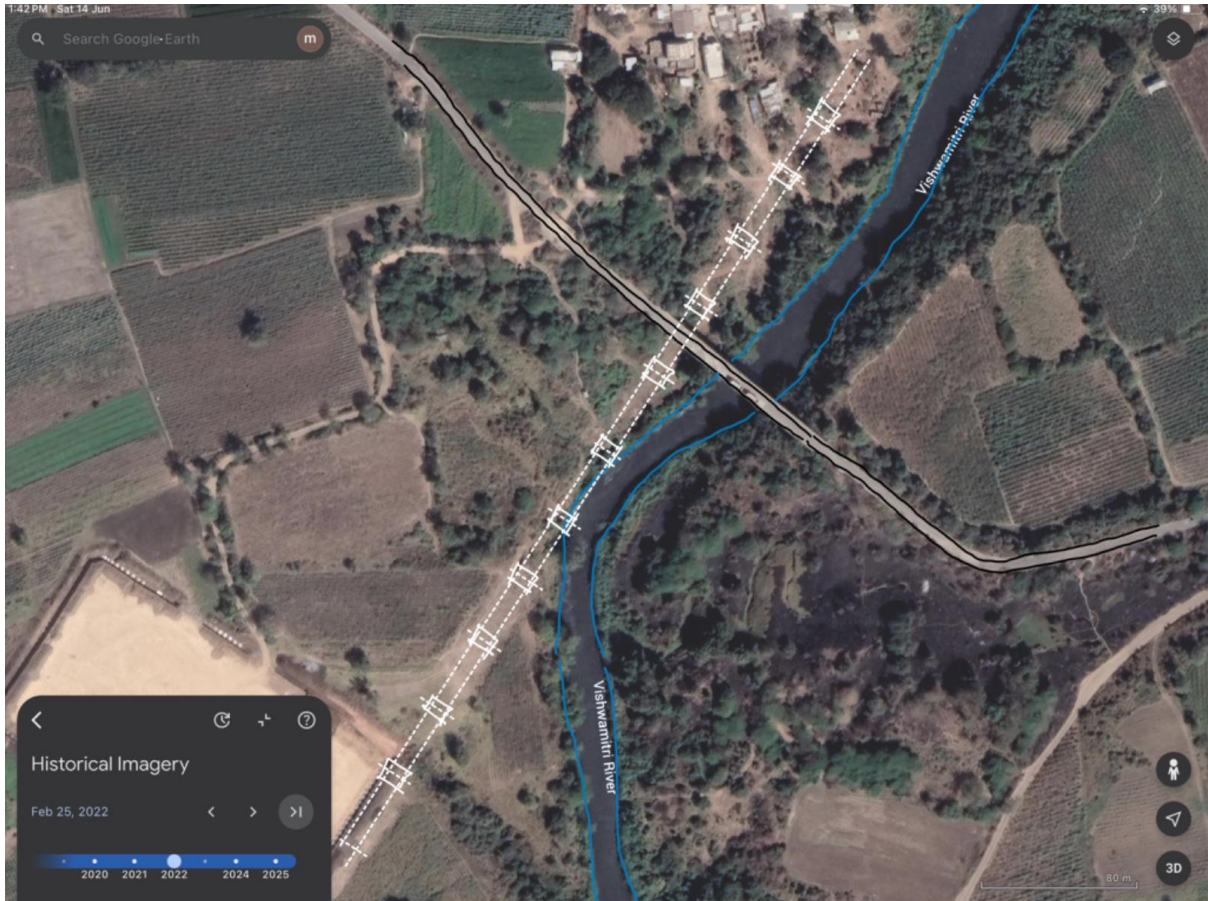
Time: 12:00 noon

Attendee:

Rohit Prajapati
Neha Sarwate
Jitendra Gavali
Mitesh Panchal

Discussions:

1. The images of the constricted river locations were shared with the NHSRCL officials. They assured appropriate actions before the onset of monsoon and would submit an action taken report.
2. They also agreed to remove debris from the banks and replace it with soil.







21.06.2025: Site Visit with Irrigation Department

Location: Pingalwada

Time: 3:00 PM

Attendee:

Rohit Prajapati
Jitendra Gavali
Mitesh Panchal
Ranjitsinh Devkar

Discussions:

1. At downstream of Delhi-Mumbai Expressway on Vishwamitri-Dhadhar River at Sadad Village, removal of debris is still pending.
2. The issue related to the obstruction of natural flow of water from east to west has still not been addressed by the NHAI. No written submission has been received from concerned authorities.
3. Few villages (Medhad, Husepura) were inaccessible due to rains and photographs of work done were to be shared by the Irrigation Department.









28.06.2025: Site Visit with VMC Officials

Location: Vadsar Tree Museum, Jambua Confluence, Jail road, Bhimanth Bridge

Time: 3:00 PM

Attendee:

Rohit Prajapati
Jitendra Gavali
Mitesh Panchal
Neha Sarwate

Observation:

1. MSW has been removed, but there is scope for further removal of waste.
2. Rain spells have led to the emergence of vegetation that would contribute to bank stabilisation.
3. Sewage still continues to flow through storm water drains at some locations.
4. Some ravines are undergoing levelling works that are blocking natural waterways.

















30.06.2025: Site Visit with VMC Officials

Location: Dena, Pratap Bridge, Narhari Bridge

Time: 8:00 AM

Attendee:

Rohit Prajapati
Jitendra Gavali
Mitesh Panchal
Neha Sarwate

Observation:

1. NHA I piers are within the riparian corridors and alter the river course.
2. Visible encroachment on the banks at south of Chetak Bridge.
3. C&D waste not removed from banks at many locations around Narhari Bridge.













01.07.2025: Meeting with VMC Municipal Commissioner VMC Officials, NHSRCL Officials, and NHAH Officials

Location: Conference Room, VMC Building

Time: 4:00 PM

Attendee:

Rohit Prajapati
Jitendra Gavali
Mitesh Panchal
Neha Sarwate

Discussions:

1. The latest drone video dated 29.06.2025 was collectively viewed and discussions related to encroachment by private owners at Chetak Bridge, obstructions to water flow due to existing bridges, filling of ravines at Bhimnath Bridge, plantation species patterns and maintenance plan, reconnecting the ravines behind tractor factory at Mujhmahuda bridge, removal of additional MSW behind Vadsar Tree Museum, etc.
2. In response to the query of the obstruction of surface flow from East to West of the Delhi – Mumbai Expressway at Sadad village, the NHAH officials reported that there have been box culverts installed at 500m intervals. A photograph indicating waterlogging on 29.08.2024 at the junction of the Mumbai Expressway at Sadad village and the Vishwamitri River was shown to the officials for further clarification and action plan.
3. A joint site visit to be conducted to identify locations and extents of C&D waste to be removed.
4. It was decided that letters / notices would be issued to those land owners, where natural waterways / kaans have been altered or blocked.

5. It was agreed upon that piecemeal projects should not be considered without a comprehensive plan proposal for the entire stretch of the river.
6. It was proposed by the committee that land use and design guidelines need to be devised for all properties in the floodplain areas, especially those that abut the banks of the river. Until then, no development activities should be permitted or undertaken by private owners as well as public authorities till the said guidelines are in place.
7. The superimposed map of floodplains and land parcels (private and public) needs to be expedited.
8. A drone survey of all tributaries and natural storm waterways to be carried out.
9. The committee has requested contour and aquifer data from the VMC that have been submitted by SECON Ltd. to VMC.
10. A joint meeting of the VMC officials, High Level Committee of 2024 and the Vishwamitri Committee of 2025 would be conducted to review the outcomes of the ongoing work through a simulation model.

Annexure III: GSHRC Notice

ગુજરાત રાજ્ય માનવ અધિકાર આયોગ

કર્મચોગી ભવન, બ્લોક નંબર-૧, પાંચમો માળ, સેક્ટર-૧૦ એ, ગાંધીનગર-૩૮૨ ૦૧૦.

ફોન/ફેક્સ નં. (૦૭૯) ૨૩૨ ૫૭૫૯૬, વેબ સાઇટ: www.gshrc.gujarat.gov.in, Email: ds-hurc@gujarat.gov.in
(માનવ અધિકાર સંરક્ષણ અધિનિયમ, ૧૯૮૩ની કલમ-૧૩(૪)થી રાજ્ય આયોગને 'દીવાની ન્યાયાલય' ગણવામાં આવેલ છે અને કલમ-૧૩(૫)થી આયોગ સમક્ષની દરેક કાર્યવાહીને 'ન્યાયિક કાર્યવાહી' ગણવામાં આવેલ છે.)

જવાબી પત્રમાં અત્રેના કેસ નંબર કેસ નં. એચઆરસી/૨૦૨૪/પ્રેસ/૨૦૫/વડોદરા શહેર/લી-૧
અને તારીખ બિનચૂક દર્શાવવા. તા. / / ૨૦૨૫ - ૬ JUL 2025

Bv: WHATSAPP/E-MAIL/Speed Post

NOTICE

પ્રતિ,

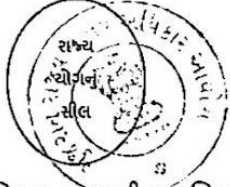
- (૧) ✓ અગ્ર સચિવશ્રી,
વન અને પર્યાવરણ વિભાગ, બ્લોક નં.૧૪/૮, સરદાર ભવન, સચિવાલય, ગાંધીનગર.
- (૨) ✓ સચિવશ્રી,
નર્મદા અને જળ સંપત્તિ, પાણી પુરવઠા અને કલ્પસર વિભાગ, નવા સચિવાલય, ગાંધીનગર.
EMAIL:- secwr@gujarat.gov.in
- (૩) ✓ જિલ્લા મેજિસ્ટ્રેટશ્રી,
વડોદરા જિલ્લો, વડોદરા.
- (૪) ✓ મ્યુનિસિપલ કમિશનરશ્રી,
વડોદરા મ્યુનિસિપલ કોર્પોરેશન, ખંડેરાવ માર્કેટ બિલ્ડીંગ, રાજમહેલ રોડ, વડોદરા-૩૬૦૦૦૧.
- (૫) ✓ સભ્ય સચિવશ્રી,
ગુજરાત પ્રદુષણ નિયંત્રણ બોર્ડ, પર્યાવરણ ભવન, સેક્ટર-૧૦/એ, ગાંધીનગર.
EMAIL:- ms-gpcb@gujarat.gov.in
- (૬) ✓ સભ્ય સચિવશ્રી,
સ્ટેટ એન્વાયરમેન્ટ ઇમ્પ્રુવમેન્ટ એસેસમેન્ટ ઓથોરીટી,
ગુજરાત પ્રદુષણ નિયંત્રણ બોર્ડ, પર્યાવરણ ભવન, સેક્ટર-૧૦/એ, ગાંધીનગર.
EMAIL:- msseiaagj2024@gmail.com
- (૭) ✓ ચેરમેનશ્રી,
વડોદરા અર્બન ડેવલપમેન્ટ ઓથોરીટી (વુડા ભવન),
એલ & ટી સર્કલ, વી.આઇ.પી.રોડ, કરેલીબાગ, વડોદરા-૩૬૦૦૧૮
- (૮) ✓ શ્રી રોહિત પ્રજાપતિ,
૩૭, પત્રકાર કોલોની, તાંદરજા રોડ, વડોદરા-૩૬૦૦૨૦
EMAIL:- rohit.prajapati@gmail.com

વિષય:- તા.૩૦/૦૮/૨૦૨૪ ના ધ ઇન્ડિયન એક્સપ્રેસ દૈનિક વર્તમાનપત્રમાં પ્રસિધ્ધ થયેલ સમાચાર "Name change, DPR & 14 Year later, Vishwamitri revamp still on paper" અંગે અહેવાલ પાઠવવા બાબત.

સંદર્ભ: રાજ્ય આયોગની સરખા ક્રમાંકની તા.૦૩/૦૬/૨૦૨૫ની નોટીસ.

ઉપરોક્ત વિષય અન્વયે રાજ્ય માનવ અધિકાર આયોગે તા.૦૯/૦૬/૨૦૨૫ ના રોજ એન.એસ/૫૧ થી પર સુધી કરેલ વચગાળાનો હુકમની પ્રમાણિત નકલ આ સાથે સામેલ રાખી આપને મોકલી આપીએ છીએ. જે નકલ આયોગના સેક્શન અધિકારીશ્રી દ્વારા પ્રમાણિત કરવામાં આવેલ છે.

સદર પ્રકરણમાં નામદાર આયોગે કરેલ વચગાળાના હુકમ અન્વયે મુદત તા.૦૧/૦૮/૨૦૨૫ના રોજ કલાક ૧૩:૦૦ વાગ્યે આયોગના કોર્ટ રૂમ નં.- ૧ માં સુનાવણી રાખેલ છે. જેમાં જરૂરી અહેવાલ/દસ્તાવેજ/રેકર્ડ વગેરે સાથે વિડિયો કોન્ફરન્સના માધ્યમથી અચૂક હાજર રહેવા / રાખવા આદેશ કરવામાં આવે છે. (લીંક મેળવવા માટે તા.૩૧/૦૭/૨૦૨૫ના રોજ કચેરી સમય દરમિયાન હુકમમાં જણાવેલ નંબર ઉપરથી લીંક મેળવી લેવા જણાવવામાં આવે છે).જેની નોંધ લેશો.



વિડાણ:- હુકમની પ્રમાણિત નકલ.

હુકમથી

રજીસ્ટ્રાર(લીગલ),

ગુજરાત રાજ્ય માનવ અધિકાર આયોગ,
ગાંધીનગર.

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ગુજરાત રાજ્ય માનવ અધિકાર આયોગ

"કર્મચોગી ભવન"

બ્લોક નં.૧, ૪થો અને ૫મો માળ
સેક્ટર ૧૦-એ ગાંધીનગર ૩૮૦૨૦૧૦

વડોદરા શહેર પ્રેસ ૨૦૫/૨૪

આયોગનો હુકમ

તા.૯/૬/૨૦૨૫


આ કામે આજરોજ સમન્સના અનુસંધાને શ્રી અનીલ ધામેલીયા, કલેક્ટર, શ્રી અરુણ મહેશબાબુ, કમિશનર, વડોદરા મ્યુનિસિપલ કોર્પોરેશન, અલ્પેશ મજમુદાર, સીટી એન્જીનીયર, શ્રી એમ.ડી. પટેલ ખાસ સચિવશ્રી, જળ સંપત્તી, શ્રી જે.કે. ત્રીવેદી, મુખ્ય ઇજનેર અને અધિક સચિવ, પંચાયત, શ્રી ધાર્મીક, એચ.ઓ.ડી. વોટર વર્કસ, પ્રત્યક્ષ પટનાકર, જયુ ક્યુરેટર, લક્ષાંક નેદરીયા, એકજીક્યુટીવ એન્જીનીયર, શ્રી પી. સી. વ્યાસ, સેક્રેટરી, વોટર રીસોર્સીંગ ડિપાર્ટમેન્ટ, એક્ષપર્ટ શ્રી રોહીત પ્રજાપતી તેમજ નેહા સરવતે હાજર છે. જેઓ તમામ વી.સી.થી જોડાયા છે.



સચિવ

કમિશનર

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Section Officer
GSHRC, Gandhinagar

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આજરોજ બે રિપોર્ટ રજૂ કરવામાં આવેલ છે એક તા.૨૪ મે ૨૦૨૫નો ફસ્ટ રિપોર્ટ વિશ્વામિત્રી કમિટીનો છે અને બીજો સપ્લીમેન્ટરી રિપોર્ટ છે તે રેકર્ડ ઉપર લેવામાં આવે છે. કલેક્ટરશ્રી અને મ્યુનિસિપલ કોર્પોરેશનને વિનંતી કરવાની કે જે અત્યારે કાર્ય થયું છે તે પબ્લીકને જાણ થાય તે માટે તેની બહોળી પ્રસિધ્ધી તેઓ લોકલ ન્યુઝ પેપર્સમાં કરાવશે. કમિટીના મેમ્બર પણ પ્રેસને આ હકીકત જણાવશે જે પબ્લીક માટે હશે.

આ કામની હવે પછીની વધુ સુનવણી તા.૧/૮/૨૦૨૫ના રોજ રાખવામાં આવે છે ત્યારે ઉપરોક્ત સૌએ વી.સી.થી હાજર રહેવું. હુકમની જાણ તેમને કરવી.

વી.સી.થી જોડાવા માટે સીસ્ટમ મેનેજરશ્રી જયસ્વાલ ના મોબાઇલ નં. ૯૫૮૬૧૦૫૨૭૭ પર સંપર્ક કરવો જે ફક્ત વી.સી. માટે જ છે.

(બી.એસ.ઉપાધ્યાય)
સદસ્ય

K. M. K.
(ડૉ. કે.જે.ઠાકર)
અધ્યક્ષ

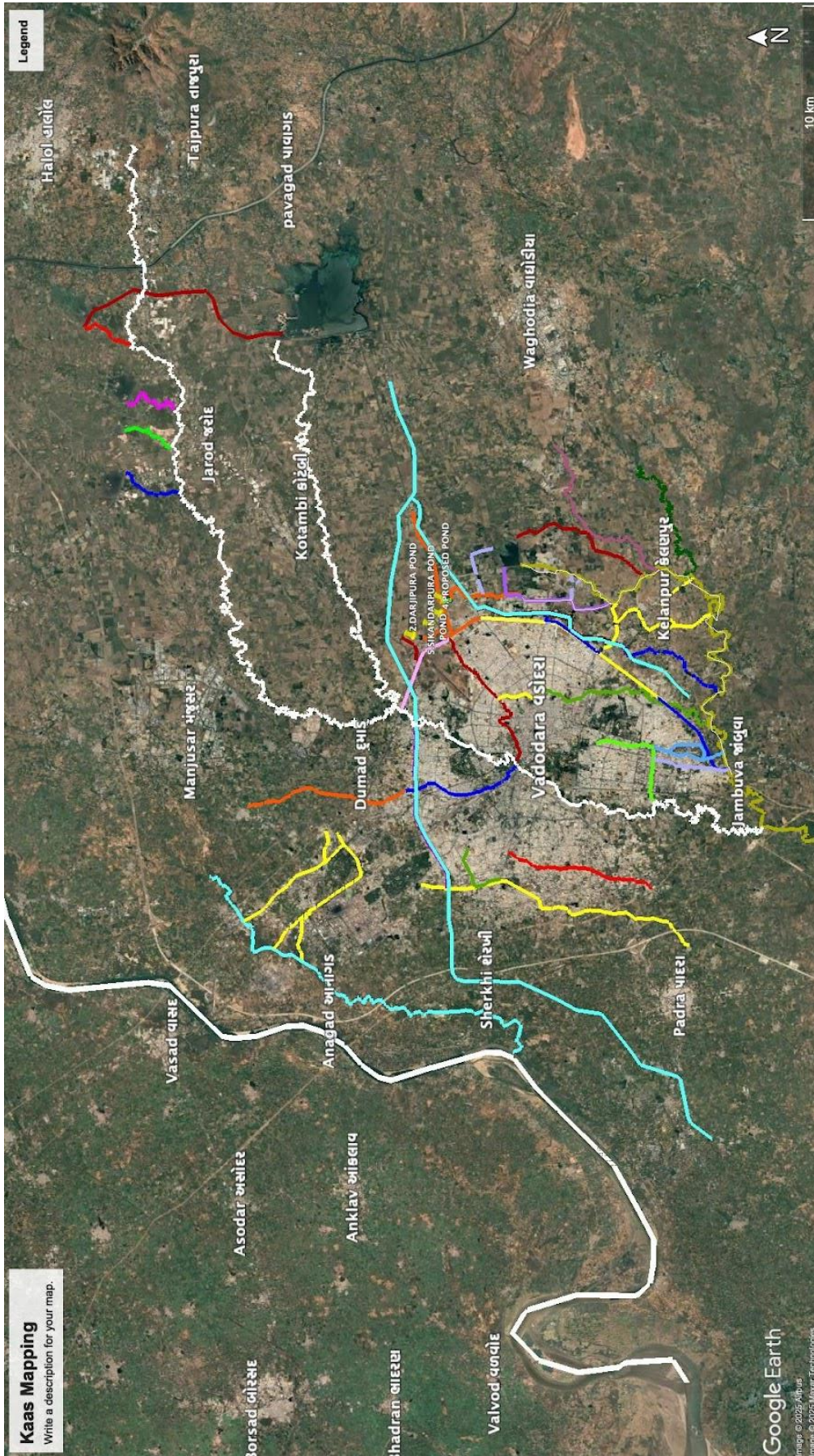
આદેશ મુજબ
દિવાલની કોપી
તારીખ : 18/06

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CU
Section Officer
GSHRC, Gandhinagar

Dy SO
Atul

Annexure IV: VMC Kaans Details

અ.નં	કાંસનું નામ	કાંસની કુલ લંબાઇ (મી.)	કરવાપાત્ર પાકા ક્વર્ડ કાંસની લંબાઇ (મી.)
1	ભૂખી કાંસ	6880.00	2060.00
2	મશીઆ કાંસ	6403.00	2965.00
3	ઉડેરા-ગોત્રી કાંસ	1850.00	1850.00
4	રૂપારેલ કાંસ	12989.00	505.00
5	ટી.બી. હોસ્પીટલ-વાસણા કાંસ	1583.00	250.00
6	કલાવી કાંસ	1040.00	0.00
7	ગોત્રી-ભાયલી કાંસ	3424.00	3424.00
8	માણેજા - (મકરપુરા -એ.પી.એસ. કાંસ) કાંસ	600.00	0.00
9	એરફોર્સ કાંસ	2085.00	2067.00
10	મશીઆ એ.પી.એસ. કાંસ	1076.00	930.00
11	વાસણા-બાંકો કાંસ	3520.00	2070.00
12	તરસાલી પોન્ડ - રૂપારેલ કાંસ	717.00	152.00
13	નોવિનો બેટરી-જાંબુવા રીવર કાંસ	4458.00	1551.00
14	મકરપુરા એ.પી.એસ.-જાંબુવા રીવર કાંસ	2866.00	0.00
15	ફૂતરાવાડી કાંસ	2220.00	1020.00
16	ડભોઇ રોડ, એમ.એમ. વ્હોરા શો રૂમ સામે પેટ્રોલ પંપ થી રેલ્વે ટ્રેક થઇ ઘાઘરેટીયા ક્લર્ટ સુધી.	1996.00	402.00
17	ઓડનગર-નાગરવાડા કાંસ	5375.00	0.00
18	અકોટા ગામ -વિશ્વામિત્રી નદી કાંસ	735.00	0.00
19	કારેલીબાગ બહુચરાજી કાંસ	790.00	0.00
20	શ્રીનગર - પરશુરામનગર - વિશ્વમિત્રી નદી કાંસ	680.00	380.00
21	હાઇ-વે - રાજીવનગર - ઓડનગર કાંસ	3750.00	850.00
22	દાંડીયા બજાર વિશ્વામિત્રી નદી કાંસ	1520.00	425.00
	કુલ...	66557.00	20901.00



Annexure V: Animal Rescue Details

Sr. No.	Date	Details of Rescued Animals	Status	Details of Rescued Eggs	Status
Zone 1					
1	26/03/2025	Monitor Lizard	Accidental Death	-	-
2	4/4/2025	Russel's Viper	Rescued & released in wild	-	-
3	9/4/2025	-	-	31 eggs of Red Wattled Lapwing	Rescued & incubated at Zoo
4	18/04/2025	Indian Rock Python	Rescued & released in wild	-	-
5	28/04/2025	-	-	14 Eggs of Marsh Crocodile	Rescued & incubated at Zoo
6	12/5/2025	-	-	4 Crocodile eggs	Rescued & incubated at Zoo
7	13/5/2025	-	-	21 Crocodile eggs	Rescued & incubated at Zoo
8	14/5/2025	-	-	25 crocodile eggs	Rescued & incubated at Zoo
9	23/5/2025	-	-	15 turtle eggs	Rescued & incubated at Zoo
10	28/5/2025	Indian Rock Python	Rescued & released in wild	-	-
11	6/6/2025	Crocodile Hatchlings	Total 9 rescued: wherein 4 were still born & 5 released in wild	5 Crocodile eggs	Hatched at Zoo & released in wild
12	7/6/2025	1 Crocodile Hatchlings	Still born	-	-
Zone 2					
13	9/3/2025	Indian Rat Snake	Rescued & released in wild	-	-
14	10/3/2025	Russel's Viper	Rescued & released in wild	-	-
15	10/3/2025	Cobra	Rescued & released in wild	-	-
16	11/3/2025	Bronzeback	Rescued & released in wild	-	-
17	11/3/2025	Indian Rat Snake	Rescued & released in wild	-	-
18	12/3/2025	Indian Rat Snake	Rescued & released in wild	-	-
19	12/3/2025	Cobra	Rescued & released in wild	-	-
20	14/03/2025	Cobra	Rescued & released in wild	-	-
21	15/03/2025	Bronzeback	Rescued & released in wild	-	-
22	17/03/2025	Trinket	Rescued & released in wild	-	-
23	17/03/2025	Bronzeback	Rescued & released in wild	-	-
24	18/03/2025	Indian Rat Snake	Rescued & released in wild	-	-
25	20/03/2025	Russel's Viper	Rescued & released in wild	-	-

26	22/03/2025	Indian Rat Snake	Rescued & released in wild	-	-
27	28/03/2025	Indian Rat Snake	Rescued & released in wild	-	-
28	28/03/2025	Rose Ringed Parakeet	Rescued & released in wild	-	-
29	30/03/2025	Trinket Snake	Rescued & released in wild	-	-
30	31/03/2025	Indian Rat Snake	Rescued & released in wild	-	-
31	31/03/2025	Indian Rat Snake	Rescued & released in wild	-	-
32	1/4/2025	Indian Rat Snake	Rescued & released in wild	-	-
33	1/4/2025	Cobra	Rescued & released in wild	-	-
34	3/4/2025	Indian Rat Snake	Rescued & released in wild	-	-
35	4/4/2025	Indian Rat Snake	Rescued & released in wild	-	-
36	4/4/2025	Indian Rat Snake	Rescued & released in wild	-	-
37	5/4/2025	Indian Rat Snake	Rescued & released in wild	-	-
38	7/4/2025	Monitor Lizard	Rescued & released in wild	-	-
39	7/4/2025	Trinket Snake	Rescued & released in wild	-	-
40	8/4/2025	Indian Rat Snake	Rescued & released in wild	-	-
41	8/4/2025	Indian Rat Snake	Rescued & released in wild	-	-
42	10/4/2025	Indian Rat Snake	Rescued & released in wild	-	-
43	16/04/2025	Russel's Viper	Rescued & released in wild	-	-
44	16/04/2025	Indian Rat Snake	Rescued & released in wild	-	-
45	16/04/2025	Indian Rat Snake	Rescued & released in wild	-	-
46	18/04/2025	Cobra	Rescued & released in wild	-	-
47	19/04/2025	Indian Rat Snake	Rescued & released in wild	-	-
48	21/04/2025	Sand Boa	Rescued & released in wild	-	-
49	21/04/2025	Cobra	Rescued & released in wild	-	-
50	24/04/2025	Indian Rat Snake	Rescued & released in wild	-	-
51	25/04/2025	Indian Rat Snake	Rescued & released in wild	-	-
52	26/04/2025	Cobra	Rescued & released in wild	-	-
53	27/04/2025	Cobra	Rescued & released in wild	-	-
54	28/04/2025	Russel's Viper	Accidental Death	-	-
55	5/5/2025	Russel's Viper	Rescued & released in wild	-	-
56	10/5/2025	Cobra & Indian Rat Snake	Rescued & released in wild	-	-
57	15/5/2025	Cobra & checkered keelback	Rescued & released in wild	-	-

58	28/5/2025	Indian Indian Rat Snake	Rescued & released in wild	-	-
59	30/5/2025	Indian Indian Rat Snake	Rescued & released in wild	-	-
60	5/6/2025	Checkered keelback	Rescued & released in wild	-	-
61	11/6/2025	Cobra	Rescued & released in wild	-	-
Zone 3					
62	21/03/2025	Softshell Turtle	Rescued & released in wild	-	-
63	21/03/2025	-	-	17 Softshell Turtle Egg	Rescued & incubated at Zoo
64	27/03/2025	Indian Rat Snake	Rescued & released in wild	-	-
65	28/03/2025	Indian Rat Snake	Rescued & released in wild	-	-
66	30/03/2025	Cobra	Rescued & released in wild	-	-
67	30/03/2025	Russel's Viper	Rescued & released in wild	-	-
68	3/4/2025	-	-	4 Eggs of Red Wattled Lapwing	Rescued & incubated at Zoo
69	8/4/2025	Monitor Lizard	Rescued & released in wild	-	-
70	12/4/2025	-	-	1 Eggs of Red Wattled Lapwing	Rescued & incubated at Zoo
71	14/04/2025	Indian Rat Snake	Rescued & released in wild	-	-
72	16/04/2025	Indian Rat Snake	Rescued & released in wild	-	-
73	17/04/2025	-	-	2 Eggs of Red Wattled Lapwing	Rescued & incubated at Zoo
74	17/04/2025	-	-	25 Eggs of Marsh Crocodile	Rescued & incubated at Zoo
75	18/04/2025	Indian Rat Snake	Rescued & released in wild	-	-
76	19/04/2025	-	-	14 Eggs of Turtle	Rescued & incubated at Zoo
77	21/04/2025	Indian Rat Snake	Rescued & released in wild	-	-
78	22/04/2025	-	-	2 Eggs of Red Wattled Lapwing	Rescued & incubated at Zoo
79	23/04/2025	-	-	22 Softshell Turtle Eggs	Rescued & incubated at Zoo
80	24/04/2025	-	-	13 Softshell Turtle Eggs	Rescued & incubated at Zoo
81	29/04/2025	2 Softshell Turtle	Rescued & released in wild	-	-
82	4/5/2025	Indian Rat Snake	Rescued & released in wild	-	-
83	4/5/2025	Cattle Egret	Rescued & released in wild	-	-
84	5/5/2025	Indian Rat Snake	Rescued & released in wild	-	-
85	9/5/2025	Indian Rat Snake	Rescued & released in wild	-	-
86	10/5/2025	Indian Rat Snake	Rescued & released in wild	-	-
87	11/5/2025	Indian Rat Snake	Rescued & released in wild	-	-
88	17/5/2025	Checkered keelback	Rescued & released in wild	-	-

89	22/5/2025	-	-	27 crocodile eggs	Rescued & incubated at Zoo
90	27/5/2025	-	-	4 Indian Golden oriole eggs	Rescued & incubated at Zoo
91	2/6/2025	1 Indian cobra snake	Rescued & released in wild	-	-
92	18/6/2025	2 Softshell Turtle Hatchlings & 1 Crocodile Hatchling	Released in wild	-	-
Zone 4					
92	23/03/2025	Monitor Lizard	Rescued & released in wild	-	-
93	23/03/2025	Cattle Egret	Rescued & released in wild	-	-
94	25/03/2025	-	-	4 Eggs of Red Wattled Lapwing	Rescued & incubated at Zoo
95	26/03/2025	Monitor Lizard	Rescued & released in wild	-	-
96	26/03/2025	Indian Rat Snake	Rescued & released in wild	-	-
97	27/03/2025	Indian Rat Snake	Rescued & released in wild	-	-
98	28/03/2025	-	-	4 Eggs of Red Wattled Lapwing	Rescued & incubated at Zoo
99	1/4/2025	-	-	2 Eggs of Red Wattled Lapwing	Rescued & incubated at Zoo
100	2/4/2025	Checkered Keelback	Rescued & released in wild	-	-
101	2/4/2025	Checkered Keelback	Rescued & released in wild	-	-
102	4/4/2025	Softshelled Turtle	Rescued & released in wild	-	-
103	5/4/2025	-	-	2 Eggs of Red Wattled Lapwing	Rescued & incubated at Zoo
104	18/04/2025	Red Sand Boa	Rescued & released in wild	-	-
105	18/04/2025	Russel's Viper	Rescued & released in wild	-	-
106	28/04/2025	5 Checkered Keelback	4 Rescued & released in wild: 1 Accidental Death	-	-
107	28/04/2025	Indian Rat Snake	Rescued & released in wild	-	-
108	28/04/2025	4 Softshelled Turtle	3 Rescued & released in wild: 1 Accidental Death	-	-
109	29/04/2025	Russel's Viper	Rescued & released in wild	-	-
110	9/5/2025	Turtle	Rescued & released in wild	-	-
111	9/5/2025	Indian Rat Snake	Rescued & released in wild	-	-
112	15/5/2025	Checkered Keelback	Rescued & released in wild	2 Eggs of Red Wattled Lapwing	Rescued & incubated at Zoo
113	26/5/2025	-	-	8 crocodile eggs	Rescued & incubated at Zoo
114	31/5/2025	1 monitor lizard	Rescued & released in wild	81 eggs of Red Wattled Lapwing	Rescued & incubated at Zoo
115	31/5/2025	1 soft shelled turtle	Rescued & released in wild	-	-
116	1/6/2025	1 Indian Rat Snake	Rescued & released in wild	4 Eggs of Red Wattled Lapwing	Rescued & incubated at Zoo

117	2/6/2025	-	-	16 Soft Shelled Turtle Eggs	Rescued & incubated at Zoo
118	4/6/2025	-	-	47 Eggs of Turtle	Rescued & incubated at Zoo
119	6/6/2025	26 Hatchlings of Turtle	Rescued & released in wild	23 Eggs of Turtle	Rescued & incubated at Zoo
120	7/6/2025	-	-	116 Turtle Egg & 5 Crocodile Egg	Rescued & incubated at Zoo


Marsh Crocodile - Egg Rescue Details				
Sr. No.	Details			Total
	Received in damaged condition/ Infertile	Hatched & released in wild	Under Incubation	
1	34	16	38	88

Soft Shell Turtle - Egg Rescue Details				
Sr. No.	Details			Total
	Received in damaged condition/ Infertile	Hatched & released in wild	Under Incubation	
1	126	2	156	284

Red Wattled Lapwing - Egg Rescue Details				
Sr. No.	Details			Total
	Received in damaged condition/ Infertile	Hatched & released in wild	Under Incubation	
1	0	20	18	38


 CURATOR
 SRI SAYAJIBAUG ZOO
 VADODARA MUNICIPAL CORPORATION
 VADODARA

Annexure VI: Post Mortem Reports from VMC



D:\Backupdata11\PM7\Zoo\Zoo-2-AHK-6
VADODARA MUNICIPAL CORPORATION
SRI SAYAJIBAUG ZOO
POSTMORTEM REPORT

No. : _____ Date: 30/04/25

Name of the Species : Softshell turtle

Sex : Female Age: Adult

- Time & Date of Death : 7:45 PM on date of 30/04/25
- Time & Date of Postmortem Examination : 4:30 PM onward on date of 30/04/25
- Place of Postmortem Examination : Sri Sayajibaug Zoo, Vadodara
- Short History if Illness (if any) : Animal was accidentally injured and under stress
- General Description of Carcass : 2 Big punctured wounds on shell
- Organ wise Description of Sections : -

(A) Head & Neck

- Skull & Brain : No abnormalities detected.

(B) Thorax

- Lungs : both lungs were severely hemorrhagic
- Heart : All chambers of heart filled with clotted blood
- Ribs : No abnormalities detected.

(C) Abdomen :- Cavity is partially filled with clotted blood.

- Liver : Severely Congested.
- Stomach : Partially filled with Ingesta.
- Intestine / Kidney : Intestines were partially filled with ingesta.
- Spleen : NAD

(D) Pelvic Girdle

- Uterus & Ovaries : No abnormalities detected
- Bladder : -
- Genital Organs : No abnormalities detected

(E) Limbs

- Fore limbs : No abnormalities detected
- Hind limbs : No abnormalities detected.

(F) Bacteriological Tests : -

(G) Opinion : on basis of history External examination of skin, coat, of PM lesion and best of our knowledge, above mentioned female softshell turtle may died due to hemorrhagic shock resulting from accidental injury

Name of the Veterinary Officer : Dr. Snehil Pandya Signature : [Signature]
Dr. Kashraj Panchal Dr. Brajesh Lurugaliya



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VADODRA MUNICIPAL CORPORATION
SRI SAYAJIBAUG ZOO
POSTMORTEM REPORT

No. : _____

Date: 28/04/2025

Name of the Species : checkered keelback

Sex : Male

Age : Adult

1. Time & Date of Death : 2-3 hrs before postmortem / 28.04.25
2. Time & Date of Postmortem Examination : 10:00 A.M. / 28/04/2025
3. Place of Postmortem Examination : Sri Sayajibaug Zoo, Vadodra
4. Short History if Illness (if any) : Snake was having multiple injuries on
5. General Description of Carcass : Cercus was emaciated / back & front part
6. Organ wise Description of Sections : _____

(A) Head & Neck

1. Skull & Brain : — NAD —

(B) Thorax

1. Lungs : Lungs are haemorrhagic in appearance.
2. Heart : Myocardial rupture, & blood in pericardial sac observed
3. Ribs : — NAD —

(C) Abdomen

1. Liver : Enlargement & swelling of liver observed.
2. Stomach : Decomposed & regurgitated stomach content
3. Intestine / Kidney : Kidneys are haemorrhagic / found during P.M. in appearance.
4. Spleen : —

(D) Pelvic Girdle

1. Uterus & Ovaries : —
2. Bladder / cloaca : cloaca part filled with bloody discharge.
3. Genital Organs : —

(E) Limbs

1. Fore limbs : multiple injuries over the skeleton
2. Hind limbs : observed which can cause pain condition to snake

(F) Bacteriological Tests : _____

(G) Opinion : Based on external examination, Internal P.M. changes & based on my knowledge snake might be due to extreme pain & septicemic condition.

Name of the Veterinary Officer: Dr. Yash Parmar Signature: [Signature]



D:\Backup\data1\PM7\Zoo\Zoo-2-AHK-6

VADODRA MUNICIPAL CORPORATION
SRI SAYAJIBAUG ZOO
POSTMORTEM REPORT

No. : _____

Date: 26/03/2025

Name of the Species : Monita lizard

Sex: male

Age: Adult

1. Time & Date of Death : 3:30 P.M. | 26-03-2025
2. Time & Date of Postmortem Examination : 4:00 P.M. | 26-03-2025
3. Place of Postmortem Examination : Sri Sayajibaug Zoo, Vadodra
4. Short History if Illness (if any) : Lizard was ^{injury} on right fore limb
5. General Description of Carcass : Carcass was emaciated & having
6. Organ wise Description of Sections : injury at limbs.

(A) Head & Neck

1. Skull & Brain : — NAD —

(B) Thorax

1. Lungs : Both the lungs are pale in appearance.
2. Heart : Heart chambers are filled with clots & pale ^{sustained}
3. Ribs : — NAD —

(C) Abdomen

1. Liver : Liver is pale & emaciated with friable contents.
2. Stomach : Filled with gas bubbles & empty, bile formation ^{at time}
3. Intestine / Kidney : Kidney are haemorrhagic in appearance.
4. Spleen : — NAD —

(D) Pelvic Girdle

1. Uterus & Ovaries : —
2. Bladder : Bladder filled with urinal contents
3. Genital Organs : — NAD —

(E) Limbs

1. Fore limbs : Right side, fore limb injury, humerus bone is ^{fractured}
2. Hind limbs : — NAD —

(F) Bacteriological Tests : —

(G) Opinion : Based on external observation, internal post mortem changes & lack of any knowledge animal might died due to extreme pain & starvation.

Name of the Veterinary Officer: Dr. Yash Parmar Signature: [Signature]

Annexure VII: Documentation by Wildlife Volunteers Engaged by the VMC and Irrigation Department

Name of Wildlife Volunteers:

VMC Jurisdiction:

Zone A:

1. Sandeep Singh (Team Leader)
2. Saurav vora
3. Harvinder singh
4. Pravin parmar
5. Purvish solanki
6. Brijesh gorkha
7. Lucky patil

Zone B:

1. Jayesh Patel (Team Leader)
2. Pravin Arya
3. Aboli Kulkarni
4. Jitesh Tadvi
5. Ramkrushna Solanki
6. Nitin Solanki
7. Jigar Solanki
8. Arun Suryavanshi
9. Hardik Umratkar

Zone C:

1. Amitbhai Dineshbhai Patel
2. Bhumika S. Paul
3. Suresh Arjunbhai Tulshankar
4. Toshib Shaikh
5. Rohit Natubahi Vaghela
6. Rupeshkumar Pravinbhai Arya
7. Milankumar Narendrabhai Parmar

Zone D:

1. Nilesh Kumar N. Shah (Team Leader)
2. Ramesh G. Yais
3. Chandresh K. Solanki
4. Vaibhav V. Patel
5. Hasmukh M. Gohil

6. Rohan L. Vasava

Irrigation Department Jurisdiction:

Shihor to Pingalwada section

1. Malek Soyeb I.
2. Malek Samir A.
3. Chauhan Krishana P.

Maretha to Karali section

1. Padhiyar Kirankumar J.
2. Bariya Kishan S.
3. Malek Mahebbubhai J.

Dhyey shah-VMC Zone 3





Vaibhav V Patel



Vaibhav V. Patel
Zone 4









Dt.24-03-2025

Darshanam

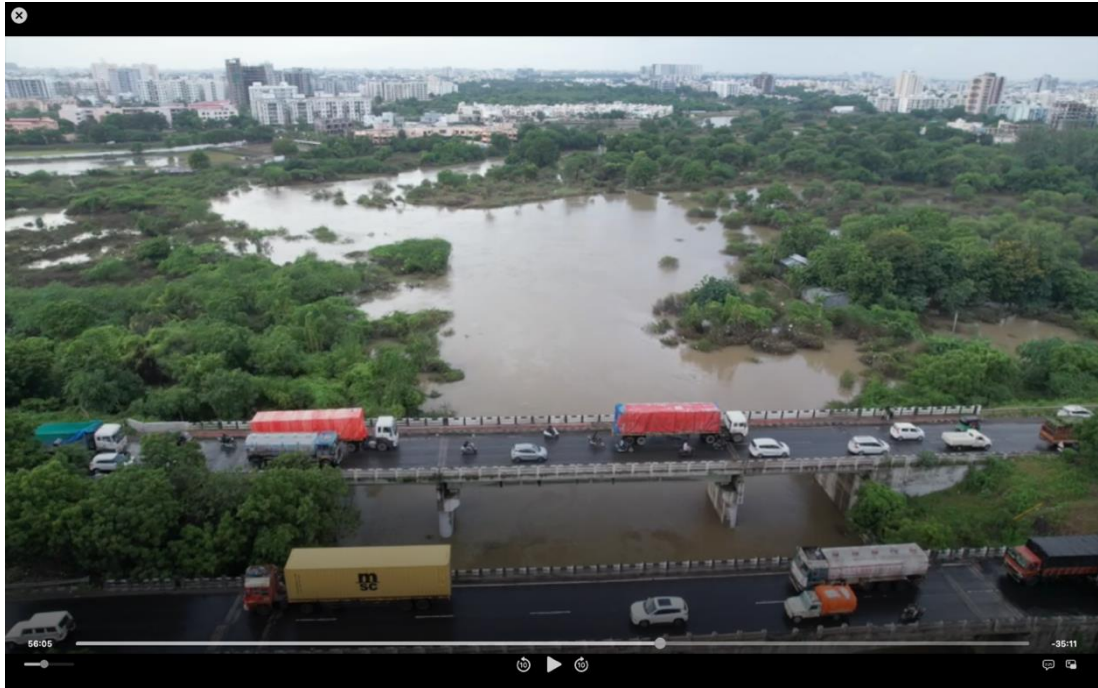
Crocodile Warning Board



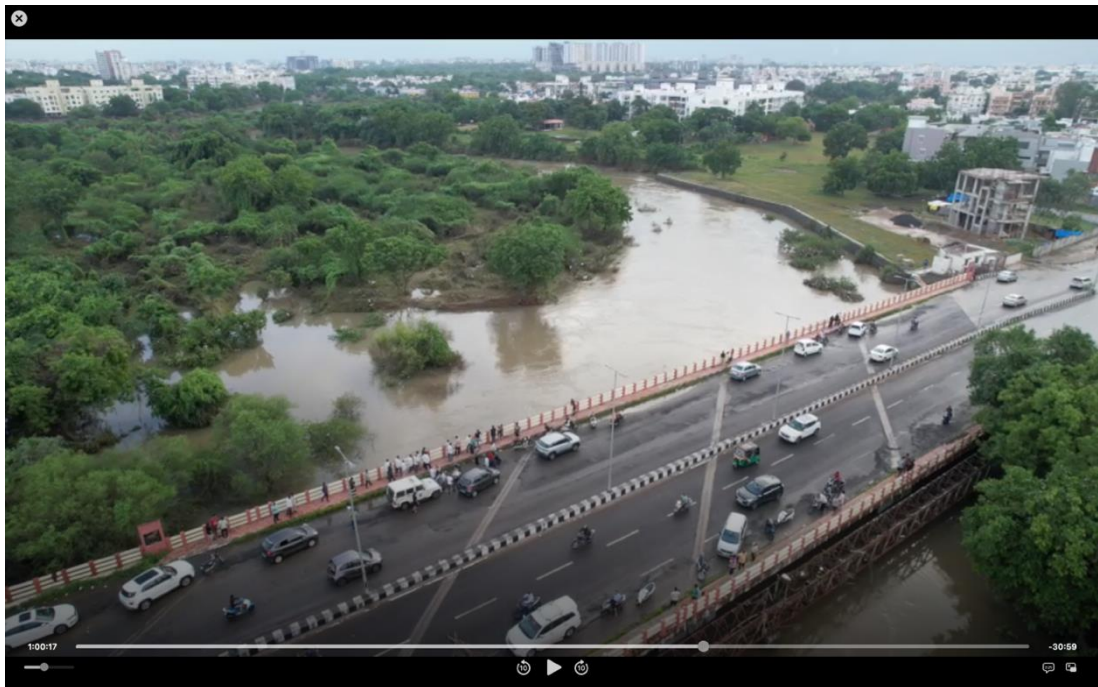


Annexure VIII: Drone of 2024 Flood

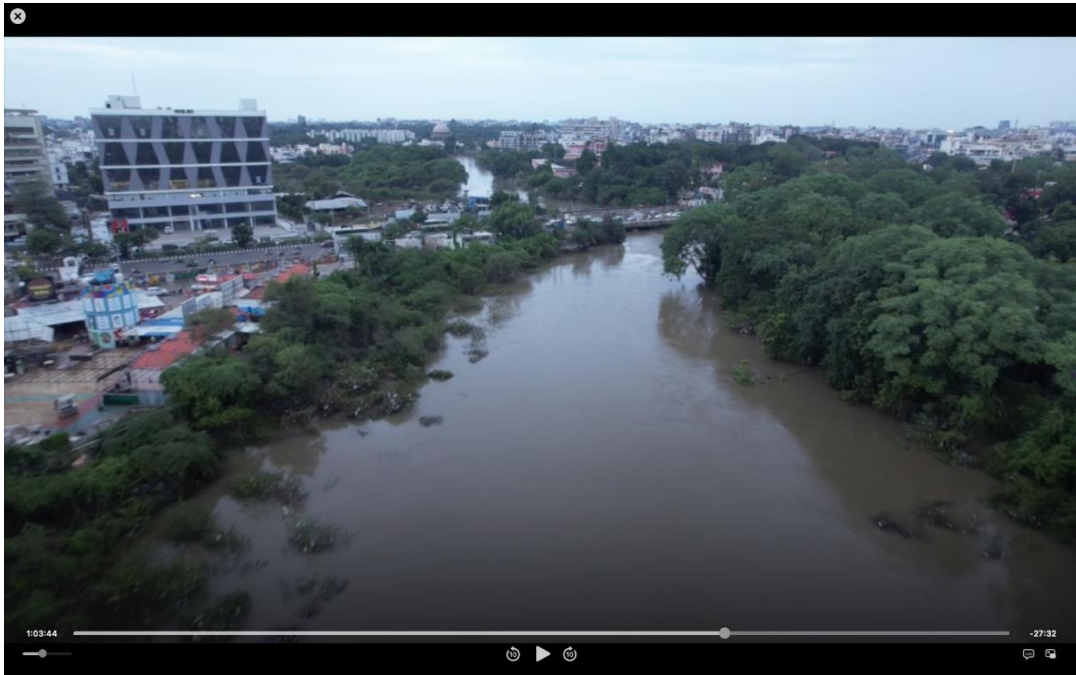
Dena Bridge



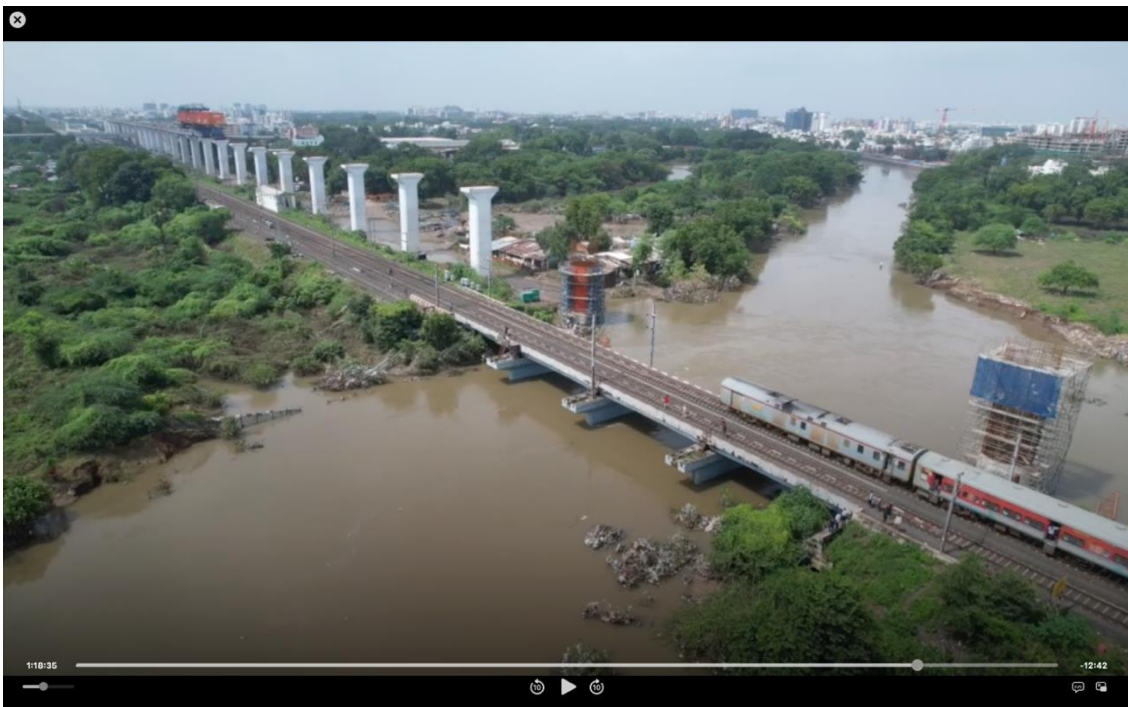
Chetak Bridge



Behind Ratri Bazar



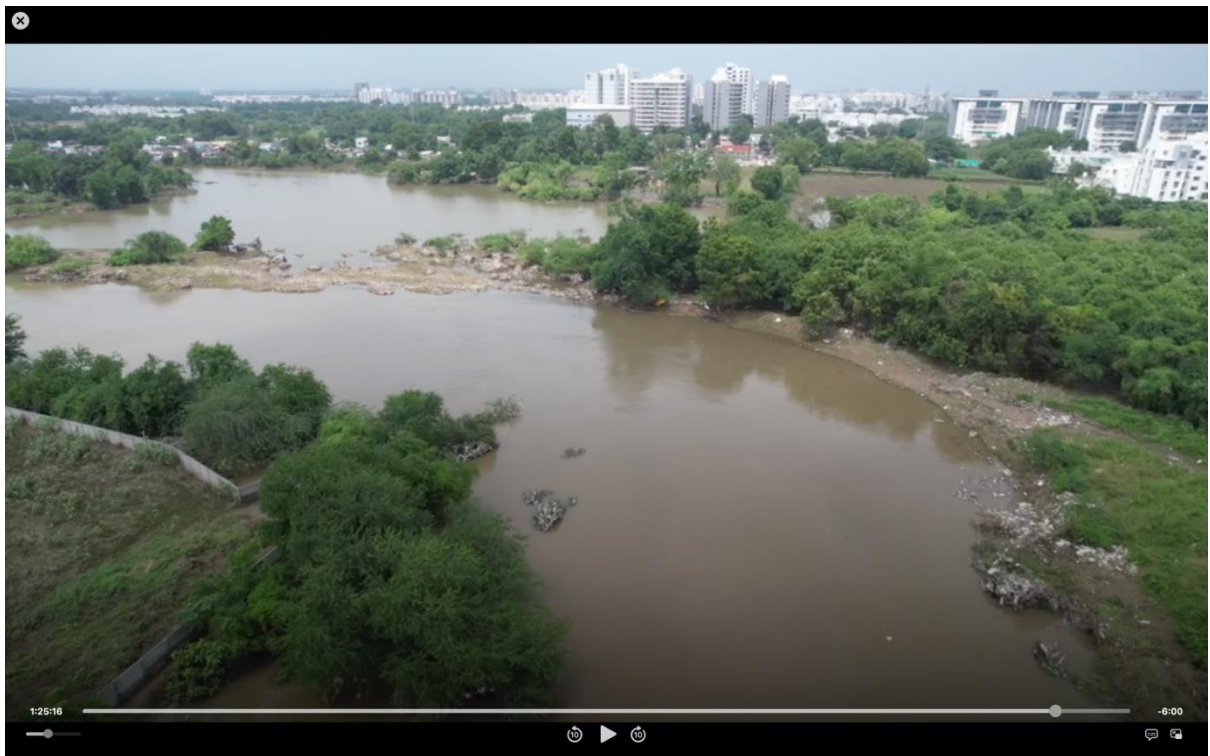
Akota Bullet Train Junction



Backside Vadsar tree Museum



Backside Vadsar tree Museum





Annexure IX: Drone Survey of Ajwa Reservoir to Dena Detention Pond





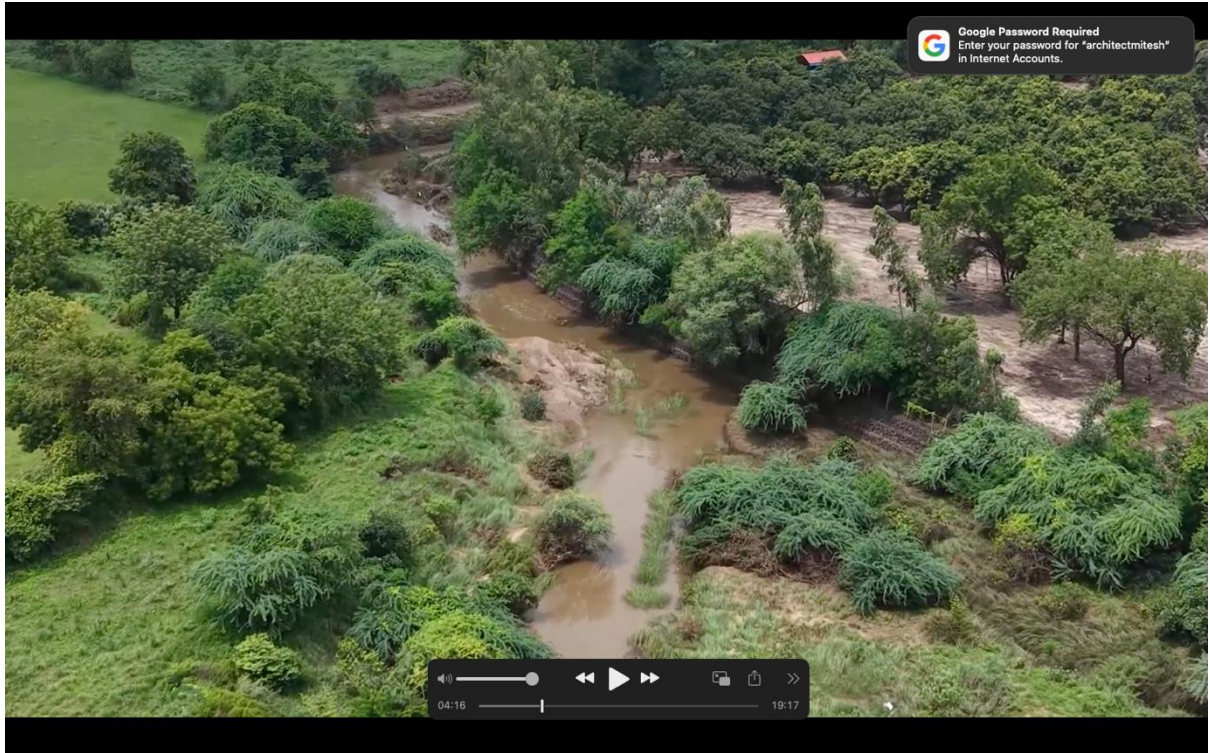




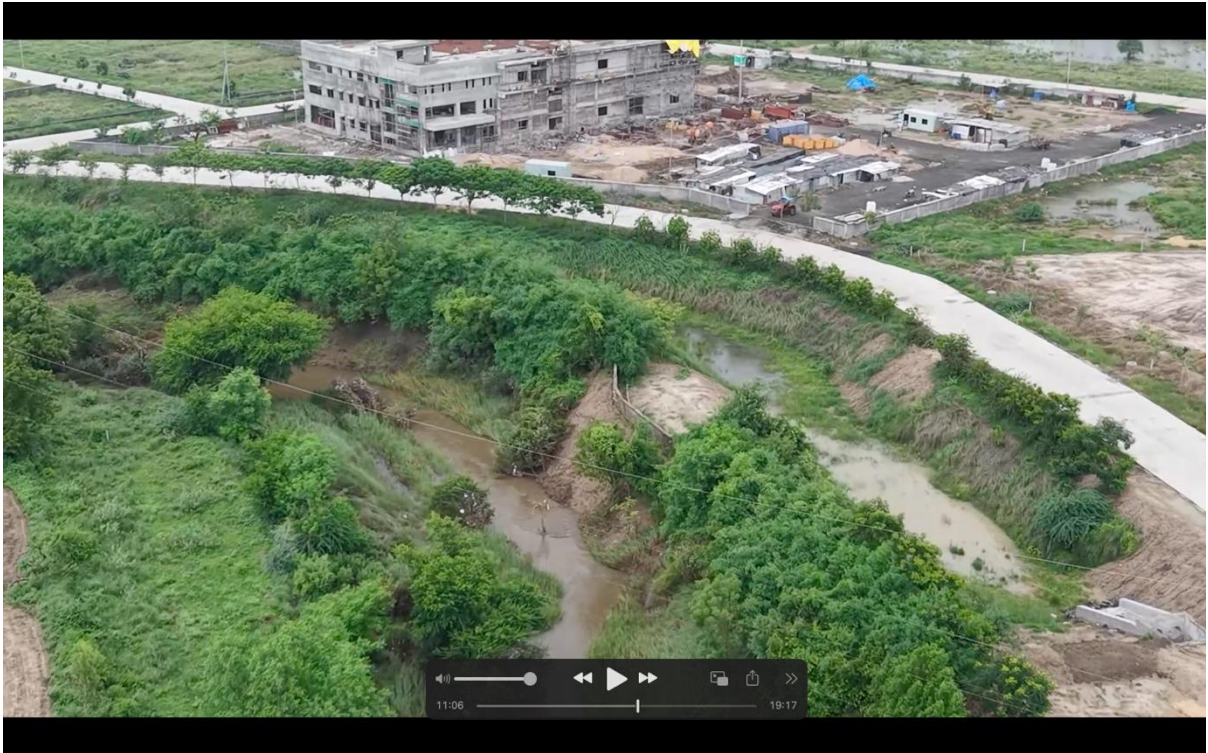


Annexure X: Drone Survey from Pratapura Reservoir to Dena Detention Pond







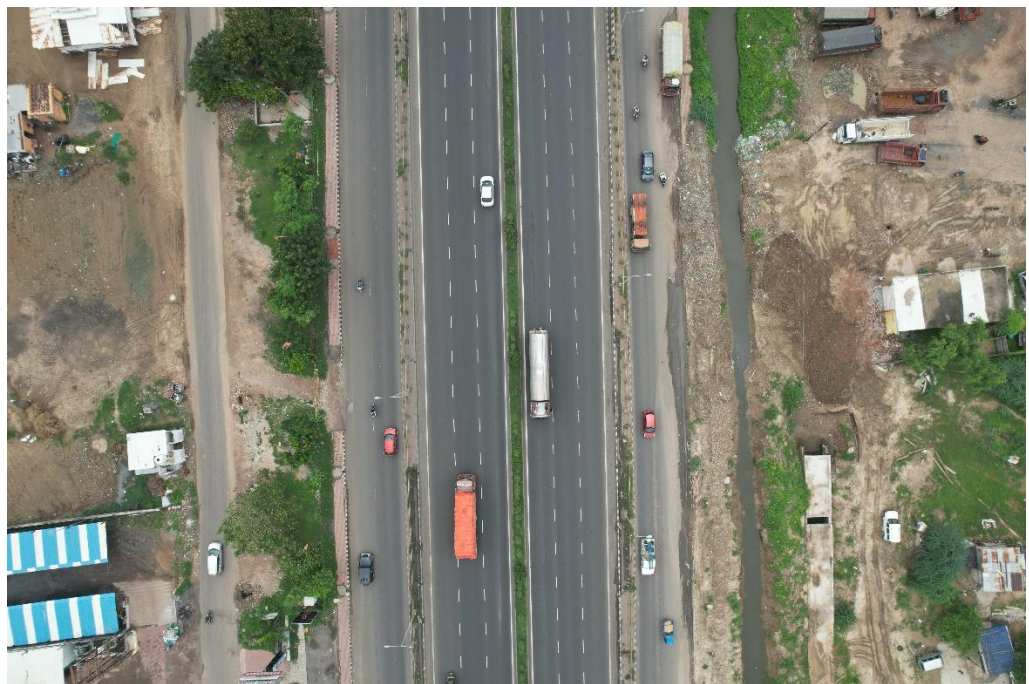




Annexure XI: Drone Survey from Khalipur Village to Thikariya Bridge



Annexure XII: Images Submitted the NHAI











Drain Excavation Work At Ch 108+700 to 130+000 (BHS)

Pearl Residency

Before



After
(Drain cleared)



Drain Excavation Work At Ch 108+700 to 130+000 (BHS)

Kanaiya Kathiawadi Hotel

Before

કનેયા કાઠીયાવાડી, જામ્બુવા થી તરસાલી નેશનલ હાઇવે



After
(Drain Cleared)



Drain Excavation Work At Ch 108+700 to 130+000 (BHS)

Bahurani Hotel



Drain Excavation Work At Ch 108+700 to 130+000 (BHS)

Shiddheshwar Business Harbour



Annexure XIII: Notice to Private Landowner



વડોદરા મહાનગરપાલિકા

☎ : 0265-2433118

વિશ્વામિત્રી પ્રોજેક્ટ શાખા

ખંડેરાવ માર્કેટ બિલ્ડીંગ,

રાજમહેલ રોડ,

વડોદરા-૩૯૦ ૦૦૧.

વરસાદી ગટર.પ્રો.શાખા જા.નં. 1265/2024-2025

તા. 14.09.2024.

પ્રતિ

ટાઉન ડેવલપમેન્ટ ઓફિસર શ્રી,

TP / TD શાખા

મહાનગરપાલિકા વડોદરા

વિષય:- સયાજી હોટેલ સામેના ભાગમાં ભીમનાથ બ્રીજ પાસેના વરસાદી કાંસ બાબત

સવિનય સહ જણાવવાનું કે માનવ અધિકાર આયોગ દ્વારા વિશ્વામિત્રી નદી Resectioning તથા Desilting કામગીરી માટે પર્યાવરણવિદ તેમજ વિવિધ એક્સપર્ટની સમિતિની રચના કરવામાં આવેલ ઉક્ત સમિતિ દ્વારા સયાજી હોટેલ સામેના ભાગમાં SSG હોસ્પિટલ તરફથી આવતા અને ભીમનાથ બ્રીજ તરફ નિકાલ થતા વરસાદી કાંસ ઉપર ડેવલપમેન્ટ થઈ રહ્યા બાબતની જાણ અત્રે કરેલ છે. જેથી સદર જગ્યા ના ડેવલોપર ને વરસાદી કાંસ ખુલ્લો રાખવા અથવા ઉક્ત વરસાદી પાણીના નિકાલ માટે યોગ્ય વ્યવસ્થા કરવા સૂચના આપવા આથી જણાવવામાં આવે છે તેમજ સદર કામગીરી કરાવરવી ઉક્ત બાબત ની માહિતી તેમજ અહેવાલ પણ સદર સમિતિને મોકલવા માટે અત્રે સાદર કરવા વિનંતી છે.

આમ ઉક્ત વિગતો ધ્યાને લઈને યોગ્ય કામગીરી કરાવવા વિનંતી છે.

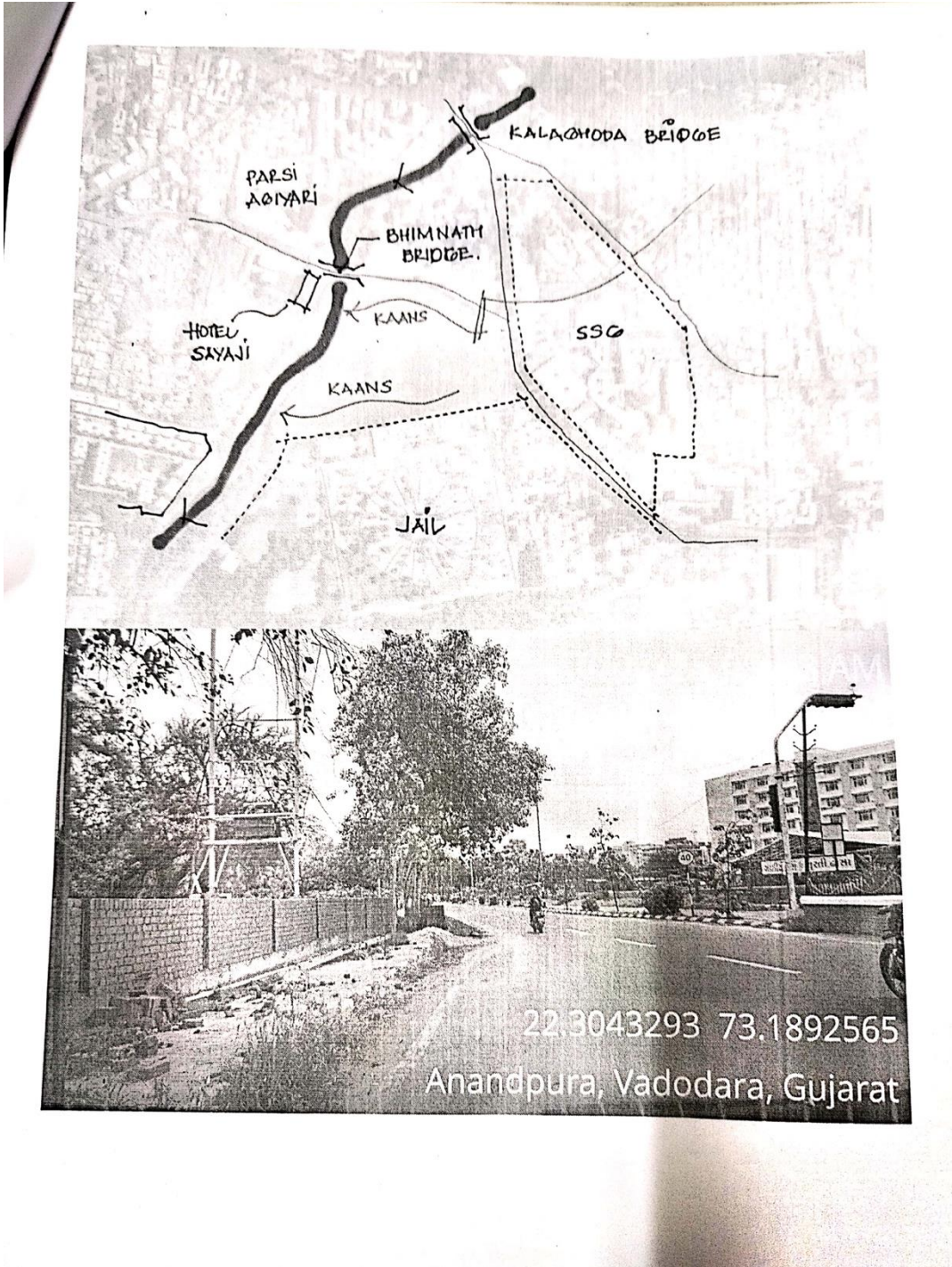
કાર્યપાલક ઇજનેર

વિશ્વામિત્રી પ્રોજેક્ટ

વડોદરા મહાનગરપાલિકા

નકલ રવાના :-

૧) સીટી એન્જિનિયર સાહેબશ્રી, તરફ જાણ સારું





વડોદરા મહાનગરપાલિકા
ખંડેરાવ માર્કેટ બિલ્ડીંગ, રાજમહેલ રોડ, વડોદરા-૩૯૦૦૦૧
ફોન નં).૦૨૬૫ (૨૪૩૩૧૧૬, ૨૪૩૩૩૮૮

બાં.પ.જા.નં. 1286/૨૫-૨૬
બાંધકામ પરવાનગી શાખા,
વડોદરા મહાનગર પાલિકા.
તા. 18/7/25

પ્રતિશ્રી,
માલિક/કબજેદાર/વ.કર્તા / ડેવલપર્સ
એસ.એસ.જી. હોસ્પિટલની સામે,
જેલ રોડ, વડોદરા.

વિષય :- સયાજી હોટેલ સામેના ભાગમાં ભીમનાથ બ્રિજ પાસેના વરસાદી કાંસ બાબત.
સંદર્ભ :- કાર્યપાલક ઇજનેરશ્રી, વિશ્વામિત્રી પ્રોજેક્ટ શાખાના તા.૧૪.૦૭.૨૦૨૫ નો પત્ર

ઉપરોક્ત વિષય સંદર્ભ અન્વયે જણાવવાનું કે, માનવ અધિકાર આયોગ દ્વારા વિશ્વામિત્રી નદી Resectioning તથા Desilting કામગીરી માટે પર્યાવરણવિદ્ તેમજ વિવિધ એક્સપર્ટની સમિતીની રચના કરવામાં આવેલ ઉક્ત સમિતિ દ્વારા સયાજી હોટેલ સામેના ભાગમાં SSG હોસ્પિટલ તરફથી આવતા અને ભીમનાથ બ્રિજ તરફ નિકાલ થતા વરસાદી કાંસ ઉપર ડેવલપમેન્ટ થઇ રહ્યા બાબતે કાર્યપાલક ઇજનેરશ્રી, વિશ્વામિત્રી પ્રોજેક્ટ શાખાનો ઉક્ત સંદર્ભ થી પત્ર અત્રે મળેલ છે. જેની નકલ આ સાથે સામેલ છે. આથી, આપના દ્વારા હાલમાં સ્થળે કમ્પાઉન્ડ વોલનું બાંધકામ કરવામાં આવી રહેલ હોઇ, જેથી સ્થળે વરસાદી કાંસ ખુલ્લો રાખવા અથવા ઉક્ત વરસાદી પાણીના નિકાલ માટે તાત્કાલિક યોગ્ય વ્યવસ્થા કરી અત્રે તુર્ત જાણ કરવી.

Devjoshi
તા. 18/7/25

જે

plb

ડે. ટાઉન ડેવલોપમેન્ટ ઓફિસર
વડોદરા મહાનગરપાલિકા

નકલ રવાના :

કાર્યપાલક ઇજનેરશ્રી, વિશ્વામિત્રી પ્રોજેક્ટ શાખા, વડોદરા મહાનગરપાલિકા

Annexure XIV: List of Plant Species Shared with the Authorities

Suggested Plantation and Plant Diversity along the Riparian Corridor

Zone II: Middle Watershed of the Vishwamitri Watershed – VUDA boundaries

Zone II (A) : Along river stretch close water body near habitation & agri. fields		
Micro habitat	Gujarati Name	Botanical name
Trees close to river water (A)	Pilu	<i>Salvadora persica</i>
	Arjun	<i>Terminalia arjuna</i>
	Jambu	<i>Syzygium cumini</i>
	Jal Jambu	<i>Syzygium heyneanum</i>
	Karanj	<i>Pongamia pinnata</i>
	Baval	<i>Acacia arabica indica</i>
	Prass	<i>Tamarix aphyla</i>
	Sadad	<i>Terminalia crenulata</i>
	True kadamb	<i>Mitragyna parvifolia</i>
	Amlı	<i>Tamarindus indica</i>
	Paras pipal	<i>Thespesia populnea</i>
	Samudrafal	<i>Barringtonia asiatica / B. acutangula</i>
	Umbar	<i>Ficus racemosa</i>
	Baheda	<i>Terminalia belerica</i>
Trees on bank slopes (B)	Amlı	<i>Tamarindus indica</i>
	Bor	<i>Zizyphus jujube</i>
	Gunda	<i>Cordia dichotoma</i>
	Kantas Vaans	<i>Dendrocalamus strictus</i>
	Ambo	<i>Mangifera indica</i>
	Khajuri	<i>Phoenix sylvestris</i>
	Ravan Taad	<i>Hyphaene dichotoma</i>
	Tad falı	<i>Borassus flabeliffer</i>
	Rayan	<i>Manilkara hexandra</i>
	Baval	<i>Acacia indica</i>
	Karanj	<i>Pongamia pinnata</i>
	<i>Dillenia indica</i>	<i>Elephant apple</i>
		<i>Trema orientale</i>
	Viklo	<i>Gymnosporia montana</i>
	Markhor/ Dheki	<i>Diospyros cordifolia</i>
Away from banks © houses, farm	Kothu	<i>Feronia elephantum</i>
	Khakharo	<i>Butea monosperma</i>
	Runchalo indrajav	<i>Wrightia arborea</i>

	Gulabi kanchnar	<i>Bauhinia purpurea</i>
	Pilo Kanchnar	<i>Bauhinia tomentosa</i>
	Ragat rohido	<i>Tecomella undulata</i>
	Timru	<i>Diospyros melanoxylon</i>
	Kanajo	<i>Holoptelea integrifolia</i>
	Andrakh	<i>Anogeissus sericea</i>
	Ankol	<i>Alangium salvifolium</i>
	Mahudo	<i>Madhuca latifolia</i>
	Lal shimlo	<i>Bombax ceiba</i>
	Dhaman	<i>Grewia tiliefolia</i>
	Mindhhol	<i>Catunaregam spinosa</i>
	Gadhamani	<i>Grewia flevescens</i>
	Kumkum	<i>Mallotus phillipensis</i>
	Rohini	<i>Soymida febrifuga</i>
	Krishna shirish	<i>Albizia amara</i>
	Varang	<i>Kydia calycina</i>
	Asopalav	<i>Polyalthia longifolia (wild)</i>
	Piplo	<i>Ficus religiosa</i>
	Vaas (Kantivas)	<i>Dendrocalamus strictus</i>
	Vad	<i>Ficus benghalensis</i>
	Manvel vaas	<i>Bambusa arundinacea</i>
Among trees (shrubs on slopes)	Bordi	<i>Zizyphus mauritiana</i>
	Gundi	<i>Cordia gharaf</i>
	Karamda	<i>Carisa congesta/ Carisa spinosa</i>
	Guava	<i>Psidium guajava</i>
	Dodi	<i>Leptadenia reticulata</i>
Liana/ Climber in-between shrubs and trees	Keda kamboii	<i>Phyllanthus reticulatus</i>
		<i>Tamarix ericoides</i>
	Madhu nashini	<i>Gymnema sylvestre</i>
	Dhamas	<i>Combratum ovalifolium</i>
	Madhumalti	<i>Quisqualis indica</i>
	Shankhpushpi	<i>Clitoria ternata</i>
	Jal Dodi	<i>Oxystelma esculentum</i>
	Madhvilata	<i>Hyptage benghalensis</i>
	Bridal Bouquet	<i>Poranopsis paniculata</i>
	Malvelo	<i>Combretum coccinium</i>
	Keep natural grasses and herbs, Grow Agave on eroded soils	
Herbs, Grasses		

Credit: Dr. Jitendra Gavali with inputs from Dr. P.S. Nagar

Annexure XV: Explanation for Sinkholes



વડોદરા 29-06-2025

સન્ઢે બિગસ્ટોરી પાવાગઢથી વિશ્વામિત્રીના પ્રવાહ સાથે વિવિધ ધાતુ ઢસડાઈ આવે છે ભૂવા પડવાનું આ પણ એક કારણ, જમીનમાં ધરબાયેલું કેલ્શિયમ ઓગળતાં ભૂવા પડે છે

શહેરના જે વિસ્તારો નદીથી ઊંચા છે ત્યાં ભૂવા પડવાનું પ્રમાણ વધુ કુશલપેઢે વડોદરા

ગત વર્ષે વિશ્વામિત્રી નદીના પૂરે મહાવિનાશ વેર્યો હતો. જોકે આ પૂર આવ્યા બાદ એક વર્ષમાં વડોદરાના વિવિધ વિસ્તારોમાં 120 જેટલા ભૂવા પાલિકાના સત્તાવાર ચોપડે નોંધાયા છે. શહેરમાં એટલા બધા ભૂવા પડે છે કે કેટલીકવાર વડોદરાવાસીઓ શહેરને ભૂવાનગરી તરીકે ઓળખે છે. આ વિશે તજજ્ઞોને પૂછતાં રસપ્રદ હકીકત સામે આવી છે. જેમાં વડોદરામાં પડતા ભૂવાનું ભૂત જમીનમાં લાખો ટન જમા કેલ્શિયમમાં ધૂણે છે. આ કેલ્શિયમ પાવાગઢના પથ્થરોમાં તણાઈને વડોદરામાં વિશ્વામિત્રી નદી અને કાંઠાના બંને વિસ્તારોમાં ફેલાયેલું છે.

વિશ્વામિત્રીનાં વહેણ હજારો વર્ષોમાં સંખ્યાબંધ વખત બદલાયાં હોવાથી વિવિધ વિસ્તારોમાં કેલ્શિયમ છે, જે જમીનની નીચે ઓગળતાં ભૂવા સર્જાય છે. ઉપરાંત જે વિસ્તારો નદીથી ઊંચા આવ્યા છે ત્યાં પણ ભૂવા વધુ પડે છે, કારણ, કેલ્શિયમવાળું પાણી ઓગળી નદી તરફ ધકેલાય છે. આ જ કારણસર અગાઉના કિનારાના અલકાપુરી, ગેંડા સર્કલ, ફતેગંજ, સમા જેવા વિસ્તાર અને ઊંચા ઢાળવાળા અકોટા, મુજમહુડા જેવા વિસ્તારોમાં ભૂવા વધુ પડે છે. તજજ્ઞોના જણાવ્યા મુજબ જમીનની અંદરના ભાગે અગાઉ જે કુદરતી વહેણ હતાં તેને રોકી વિસ્તારોમાં ઇમારતો બંધાઈ, પણ કેલ્શિયમ ઓગળવાની અને પાણી વહેવાની પ્રક્રિયા અવિરત હોવાથી ભૂવા પડતા જ રહેશે.

ભાસ્કર એક્સપર્ટ

ડો. જયેન્દ્ર લખમાપુરકર હાઈડ્રો-જિઓલોજિસ્ટ



6.50 કરોડ વર્ષ જૂના પાવાગઢનો વડોદરાના ભૂવા સાથે આ રીતે સંબંધ



6.50 કરોડ વર્ષ જૂના પાવાગઢના પથ્થરોમાં કેલ્શિયમ, આયર્ન (લોખંડ) અને મેગ્નેશિયમ જેવી ધાતુઓ છે. વિશ્વામિત્રી નદી ઢજાએ વર્ષથી આ ધાતુઓ તેના પાણીમાં વડોદરા સુધી ઢસડી લાવે છે અને વડોદરાના કાંઠે પણ આ ધાતુઓનો મોટો જથ્થો ભેગો થયો છે, જેમાં કેલ્શિયમ સૌથી વધારે છે.



જમીનમાં સંખ્યાબંધ જગ્યાએ કેલ્શિયમ પાણીના સંપર્કમાં આવતાં ઓગળે છે ત્યારે પાણીનાં અનેક નાનાં-નાનાં વહેણ જમીનની નીચે બને છે. જ્યારે એક મોટું વહેણ બને ત્યારે જમીનનો મોટો ભાગ નબળો પડે છે અને આ નબળા પડેલા ભાગની જમીન નીચે બેસે છે અને ભૂવા પડે છે.

વડોદરાના કાંઠાઓની બંને તરફના વિસ્તારોની માટીમાં-જમીનમાં મોટા જથ્થામાં કેલ્શિયમ છે. આ કેલ્શિયમ ચોમાસામાં પાણીના સંપર્કમાં આવે છે ત્યારે તે ઓગળે છે. કેલ્શિયમ ઓગળતાં જમીનનું બંધારણ ઢીલું પડે છે અને તેની સાથે જ પાણીનો જથ્થો પણ જમીનમાં ઊંડે આગળ વધે છે.

ચોમાસામાં શરૂઆતમાં જે પાણી વરસે છે તેની પીએચ ઓછી હોય છે, એટલે એ પાણી વધારે એસિડિક હોય છે. તેમાં કેલ્શિયમ ઓગળવાની ઝડપ વધુ હોય છે. આ કારણે ચોમાસાના પ્રારંભે વધુ ભૂવા પડતા હોય છે.



ભૂવાની સંખ્યા ઊંડાં, નદીથી અંતર, કેલ્શિયમનું પ્રમાણ અને નદી તરફના ઢાળ કેટલો છે તેના પર આધાર રાખે છે. ઊનાળામાં જમીન ગરમ થતાં અંદરનું પાણી ગરમ થતાં કેલ્શિયમ ઓગળતાં પણ ભૂવા પડી શકે.

ઉકેલ શું? જમીનમાં પાણી ક્યાં છે તે જાણી વહેણ આપો
જિઓ ફિઝિકલ એક્સપ્લોરેશન ટેકનિકથી વિશિષ્ટ સાધન ઉતારી ઇલેક્ટ્રિક કંડક્ટિવિટી મપાય તો જમીનમાં ક્યાં પાણી (પ્રવાહો) છે તે જાણી શકાય. તેનાથી પાણીને વહેણ અપાય તો પ્રશ્ન હળવો થઈ શકે. હાલ પથ્થર-ડામર ભૂવામાં નખાય છે, તેનાથી લાંબા ગાળે ફેર નહીં પડે તેવું તજજ્ઞોનું કહેવું છે.

Annexure XVI: Topo Sheet of Erstwhile Vadodara Region dated 1896

