Report on Prevention & Control of pollution in River Chambal

An Action Plan for Rejuvenation

Regional Office M.P. Pollution control Board,

Ujjain (M.P.)

Index

Report on Prevention & Control of pollution in River Chambal: An Action Plan for Rejuvenation

1. Introduction:-

The Chambal River is a tributary of the Yamuna River in central India, and thus forms part of the greater Gangetic drainage system. The river flows north-northeast through Madhya Pradesh, running for a time through Rajasthan, then forming the boundary between Rajasthan and Madhya Pradesh before turning southeast to join the Yamuna in Uttar Pradesh state.

It is a legendary river and finds mention in ancient scriptures. The perennial Chambal originates at janapav, south of Mhowtown, near manpur Indore, on the south slope of the Vindhya Range in Madhya Pradesh. The Chambal and its tributaries drain the Malwa region of northwestern Madhya Pradesh, while its tributary, the Banas, which rises in the Aravalli Range, drains southeastern Rajasthan. It ends a confluence of five rivers, including the Chambal, Kwari, Yamuna, Sind, Pahuj, at Pachnadanear Bhareh in Uttar Pradesh state, at the border of Bhind and Etawah districts.

The Chambal River is considered pollution free and hosts an amazing riverine faunal assemblage including 2 species of crocodilians – the mugger and gharial, 8 species of freshwater turtles, smooth-coated otters, gangetic river dolphins, skimmers, black-bellied terns, sarus cranes and black-necked storks, amongst others.

The 960 kilometres (600 mi) long Chambal River originates from the Singar Chouri peak on the northern slopes of the Vindhyan escarpment, 15 kilometres (9.3 mi) West-South-West of Mhow in Indore District, Madhya Pradesh state, at an elevation of about 843 metres (2,766 ft). The river flows first in a northerly direction through Madhya Pradesh (M.P.) for about 346 kilometres (215 mi) and then in a generally north-easterly direction for 225 kilometres (140 mi) through Rajasthan. The Chambal flows for another 217 kilometres (135 mi) between M.P. and Rajasthan and a further 145 kilometres (90 mi) between M.P. and Uttar Pradesh(U.P.). It enters U.P. and flows for about 32 kilometres (20 mi) before joining the Yamuna River in Jalaun District at an elevation of 122 metres (400 ft), to form a part of the greater Gangetic drainage system.

From its source down to its junction with the Yamuna, the Chambal has a fall of about 732 metres (2,402 ft). Of this, around 305 metres (1,001 ft) is within the first 16 kilometres (9.9 mi) reach from its source. It falls for another 195 metres (640 ft) in the next 338 kilometres (210 mi), where it enters the gorge past the Chaurasigarh Fort. During the next 97 kilometres (60 mi) of its run from the Chaurasigarh Fort to Kota city, the bed falls by another 91 metres (299 ft). For the rest of its 523 kilometres (325 mi) run, the river passes through the flat terrain of the Malwa Plateau and later the Gangetic Plain with an average gradient of 0.21 m/km.

The Chambal is a rainfed catchment with a total drained area up to its confluence with the Yamuna of 143,219 square kilometres (55,297 sq mi). The drainage area resembles a rectangle up to the junction of the Parvathi and Banas Rivers with the Chambal flowing along its major axis. The Chambal Basin lies between latitudes 22° 27' N and 27° 20' N and longitudes 73° 20' E and 79° 15' E. On its south, east and west, the basin is bounded by the Vindhyan mountain ranges and on the north-west by the Aravallis. Below the confluence of the Parvathi and Banas, the catchment becomes narrower and elongated. In this reach, it is bounded by the Aravalli mountain ranges on the North and the Vindhyan hill range on the south

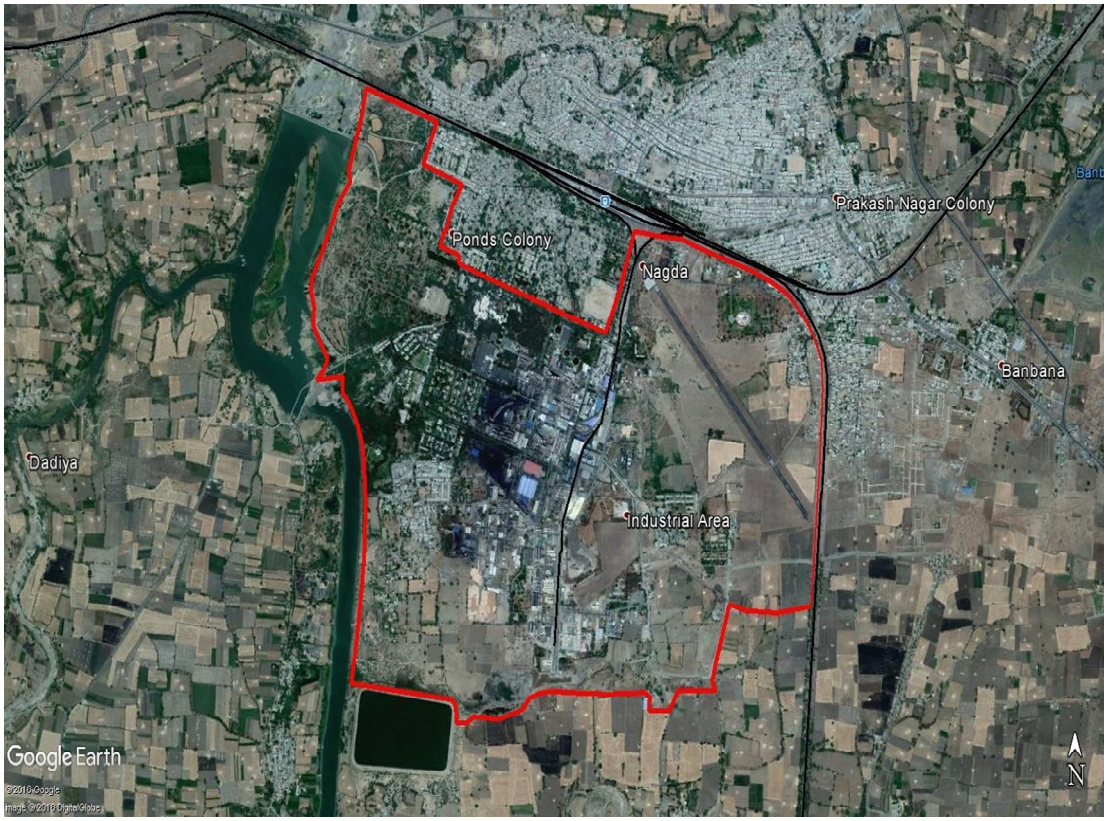
The Vindhyan scarps, in the northwest, flank the left bank of the Chambal, and subsequently, is mainly drained by it. The Chambal rising within about 6 km of the Narmada River appears as a consequent on the Mesozoic surface, superimposed on the scarps, and cuts straight through them, with subsequent tributaries on the softer shales. The River Chambal and its tributaries Kali Sindh and Parbati have formed a triangular alluvial basin, about 200–270 metres (660–890 ft) above the narrow trough of the lower Chambal in Kota. It is a typical anterior-drainage pattern river, being much older than the rivers Yamuna and Ganges, into which it eventually flows.

The tributaries of the Chambal include KShipra, Choti Kalisindh, Sivanna, Retam, Ansar, Kalisindh, Banas, Parbati, Seep, Kuwari, Kuno, Alnia, Mej, Chakan, Parwati, Chamla, Gambhir, Lakhunder, Khan, Bangeri, Kedel and Teelar.

According to Crawford (1969), the Chambal river valley is part of the Vindhyan system which consists of massive sandstone, slate and limestone, of perhaps pre-Cambrian age, resting on the surface of older rocks. Hillocks and plateaus represent the major landforms of the Chambal valley. The Chambal basin is characterised by an undulating floodplain, gullies and

ravines. The Hadauti plateau in Rajasthan occurs in the upper catchment of the Chambal River to the southeast of the Mewar Plains. It occurs with the Malwa plateau in the east. Physiographically, it can be divided into Vindhyan scarp land and Deccan Lava (Malwa) plateau. According to Heron (1953), the eastern pediplain, occurring between the Vindhyan plateau and the Aravalli hill range, contains a thin veneer of Quaternary sediments, reworked soil and river channel fills. At least two erosional surfaces can be recognised within the pediplain are the Tertiary age. The Vindhyan upland, the adjoining Chambal valley and the Indo-Gangetic alluvial tract (older alluvium) are of Pleistocene to Sub-recent age. Badland topography is a characteristic feature of the Chambal valley, whereas kankar has extensively developed in the older alluvium.

NAGDA (M.P.)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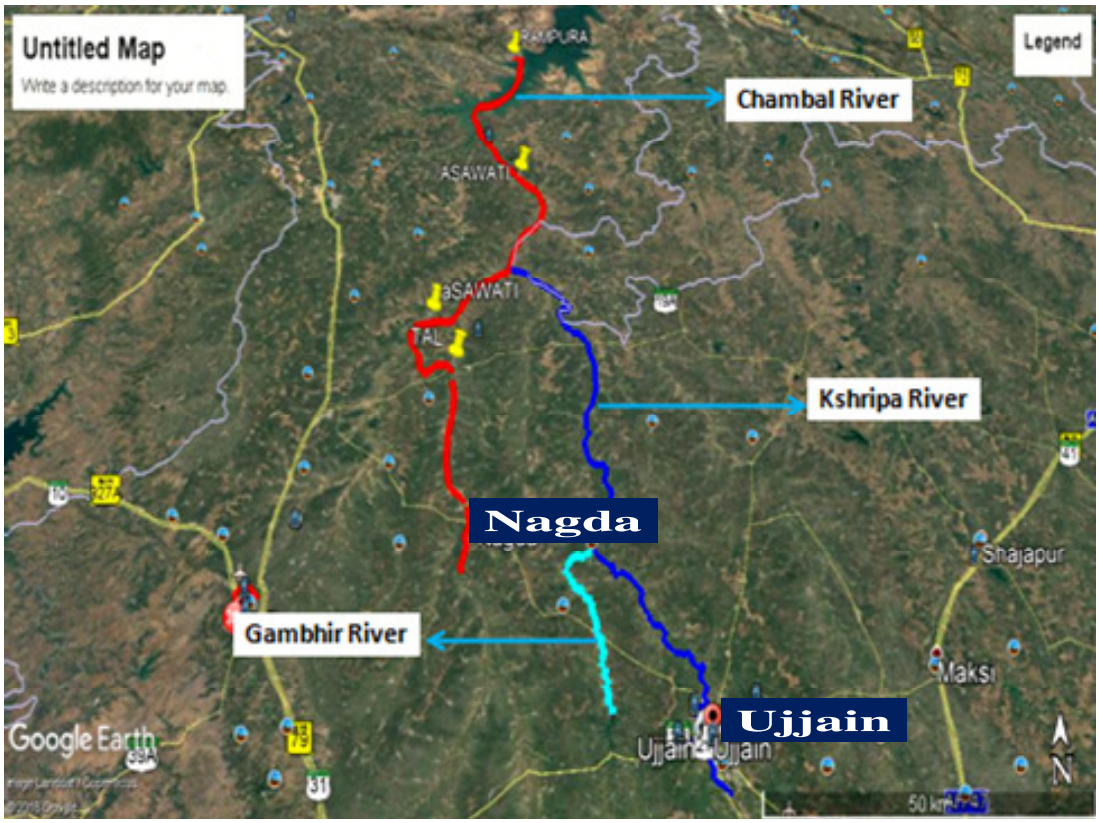
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Measure taken by different government agency to minimize pollution in Chambal River:-

1- The Municipal council of Nagda has prepared DPR of Rs. 61.40 Crore for the sewerage line & treatment of domestic waste water generated from Nagda Town. The Municipal council Nagda vide their letter no. 7778 dated 26-10-2018 informed that the project has been pending for sanction &further tendering in M.P. Urban Development Company Bhopal (MPUDC) after sanction the project will be execute in three year time. **Annexure – 1.**

2-Water resources department Ujjain informed that Bairrage cum diversion scheme of Rs.64.14 Cr. is proposed at Ninawada kheda (about 7 km downstream of Nagda town). Water after collection may be used for dilution purpose of polluted water coming from Nagda town. **Annexure – 2.**

3- M/s Grasim Industry Ltd. (SFD) Nagda has submitted action plan to fulfill zero discharge condition till January 2021 enclosed as per **Annexure – 3.**

4- Project has been prepared & submitted for sanction by Regional Office M.P. Pollution Control Board, Ujjain of Rs 1.14 Crore of title "Study of Underground water quality in adjacent villages of River Chambal from village Piploda (Distt- Ujjain) to village – Tal (Distt- Ratlam) "for Comprehensive study of quality & assessment of underground water. The copy of letter written to Board office are enclosed as per enclosed **Annexure – 4.**

5- PHED & the M.P. Jal Nigam Maryadith Periyogna has prepared scheme of Rs 29.29 Crore to supply potable water in affected village along the bank of Chambal River. PHED sent detailed of contaminated hand pump vide their letter no. 621 dated 27-10-2018.The detailed are as per **Annexure – 5.**

Regional Office, Ujjain has also issued letter in reference to concerned department in reference to NGT Case No. OA 673/2018 is enclosed as per **Annexure -6.**

2. Water Quality:-

Industries located in the Birlagram Nagda area are discharging their treated effluent in to Chambal River since 1954. At present only 18,500 to 19000 kl./day treated effluent generated mainly from M/S Grasim Industries Ltd. (SFD) Nagda is discharging to Chambal River near Juna Nagda Similarly the untreated domestic waste water of Nagda town about 8000 Kl/day is also mixing to Chambal River with the same nalla. This industrial effluent & Domestic Waste water discharging in to Chambal river is main source of Pollution which contaminate river The River Chambal quality in upstream of Nagda water supply storage barrage is of IS 2296- 1982 Class - 'A' Category while, just after mixing of treated Industrial waste & Domestic waste at Nagda city it becomes normally Class 'E' after that it travels to village Rajgarh about 16 km from Nagda where water quality is found of normally class 'C'. Comparative Chart of result of Chambal River at different location is enclosed as per **Annexure -7**. Similarly ground water samples were also collected in the Nagda area. The results of latest ground water samples at different location are enclosed as per **Annexure – 8.**

3. Details of Industries:-

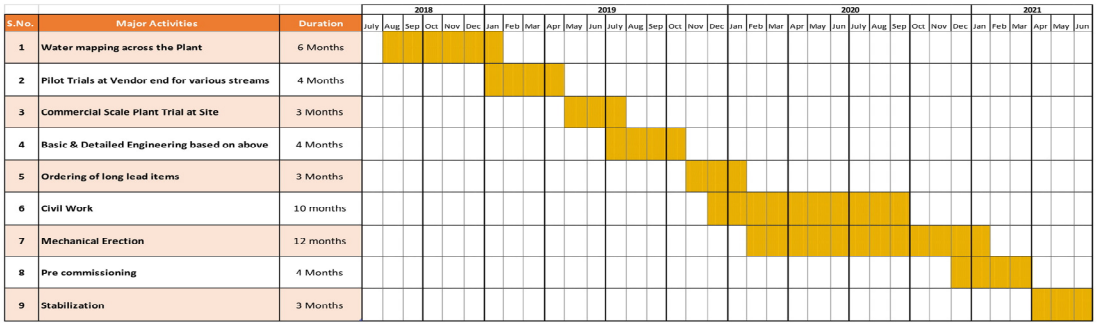
S. No.	Name of Industry	ETP installed if Yes, its various components	Capacity of ETP/STP (Adequacy Yes or No)	Mode of final disposal of treated effluent	Action taken by Board.
1	**2**	**3**	**4**	**5**	**6**
1	Ms. Lanxess India Pvt. Ltd. Birla gram Nagda	Yes, Oil & Grease Trap, Neutralization tank, equalization tank, Primary Clarifier, Aeration tank, secondary Clarifier, Filter press RO & MVR	Yes,	Zero discharge condition complied.	Court case filed in CJM Court Ujjain
2	Ms. GRASIM Industries Ltd. (Chemical Division) Birla gram Nagda	Yes chemical dozing tank, Clarifier, equalization tank, Sludge drying beds, Carbon filter, send filter RO&MEE	Yes,	Zero discharge condition complied	Court case filed in CJM Court Ujjain
3	Grasim Industries Limited, {Staple Fiber Division}, Birla gram, Nagda M.P.	Yes, ETP Installed /components i.e. Grit Chamber , Equalization cum Neutralization tank, Primary Clarifier , Equalization	Yes, and up-gradation under progress	Treated Effluent about 18,500 to 19000 KL/D discharged in Nalla leading to downstream	Court case filed in CJM Court Ujjain

		Tank , Biological Reactor(Aeration tank.) , Secondary Clarifier , Sludge Thickener , Belt Press, Dryers ,RO		of river Chambal & Industry has submitted proposal for Zero discharge upto 2021	
4	M/S Gulbrandsen Catalysts Pvt. Ltd. Nagda	Yes, STP of 1 KLD / Day	Yes,	Re use & ZLD	--
5	M/s Nagda Chemical, Nagda	Yes, ETP of 2.0 KLD	yes	Re use & ZLD	--

Grasim industries Ltd. (SFD) Nagda Zero Discharge ZLD

PERT CHART

S.No.	Major Activities	Duration
1	Water mapping across the Plant	6 Months
2	Pilot Trials at Vendor end for various streams	4 Months
3	Commercial Scale Plant Trial at Site	3 Months
4	Basic & Detailed Engineering based on above	4 Months
5	Ordering of long lead items	3 Months
6	Civil Work	10 months
7	Mechanical Erection	12 months
8	Pre commissioning	4 Months
9	Stabilization	3 Months



4. Proposed Short Term and Long Term Action plan for Rejuvenation of River Chambal :-

Sl.	Action plan for rejuvenation of river Chambal	Organisation/ Agency Responsible for Execution of the Action plan	Time Target	Present Status
I	**Industrial Pollution Control**			
	(a)Inventorisation of the industries in the catchment area of River Chambal covering assessment on aspects relating to status of consents under water & Air Acts and Authorization, Effluent Generation, ETP capacities and final mode of effluent discharges	MPPCB	Within three months	All the water polluting industry are already covered under different Environmental Acts
	(b) Action against the identified industries in operation without consents under water & Air Acts/Authorization under the H & OW (M& TM) Rules, 2016 as amended.	MPPCB	Within three months	All water polluting industries are already covered under different Environmental Acts
	(c)Action against the industries not install ETP or ETPs exist but not operating or ETP outlet or	MPPCB	Within three month	Court Case been filed against defaulter Industries

	treated effluent is not complying to the effluent discharge standards or norms			situated in BirlaGram Industrial Area Nagda
	(d) Action against the red cat. Industry for installation of OCEMS and not transferring data to CPCB and MPPCB	MPPCB	Within three month	17 Types of Industries have already installed OCEMS.
	(e) Small scale/tiny and service providing unit located in urban or semi urban limits like Auto service stations to have a minimum provision of O & G traps	MPPCB	Within three month	Notice served to different auto service station & most of them have installed minimum provision of O & G traps
	(f) Prohibition of Burning of any kind of waste including agro residues	State Govt. / District/ local Authorities	Within three month	Action already taken by local Administration for burning of waste.
	(g) Direction to all the industries which are observed to be not in	MPPCB	Within three month	

	operation or closed or temporarily closed to remain close till further order from MPPCB.			
	(h) Estimation of Industrial effluent generation	MPPCB	Within three month	Treated Industrial effluent generated from Grasim Industries Limited, {Staple Fiber Division} Birla gram, Nagda M.P. Is about 18500 to 19000 kl/d
	(i) Channelization of industrial effluent to CETPs for ensuring treatment to comply with the discharge standard	MPPCB /District Collector /DIC	Within six month	No existing CETP & all the units are having ETP/STP
	(j) Identification of suitable site within Industrial estates, Execution and Commissioning of Adequate Capacity CETPs	State Government/ MPPCB /DIC	Within six month	All the units are having ETP/STP

II	**Sewage Treatment And Disposal Plant**			
	(a)District wise estimation of total sewage generation existing treatment capacities, quantum of disposal of sewage presently through drains and the gaps in sewage treatment capacity	Municipal Council Nagda	within 3 years	Presently Approx 8000 cum/d sewage is generated from Nagda Town. DPR of Rs. 61.40 Crore has been prepared for estimated sewage generation of 15000 cum/d for installation of STP
	(b) To undertake measurement of flow of all the drains presently contributing pollution load in river Chambal and to formulate detailed project report (DPR) for each drain and corresponding town	Municipal Council Nagda	within 3 years	DPR of Rs. 61.40 Crore has been prepared for installation of STP
	(c)Proper design, execution of STPs	Municipal Council Nagda	within 3 years	DPR of Rs. 61.40

	with full utilisation capacity			Crore has been prepared for installation of STP & sewer line
	(d) Channelization including diversion of sewage generated from household/town ship/villages to sewer lines/ interception of all the drains presently carrying sewage and for ensuring proper treatment through the upcoming STPs	Municipal Council Nagda	within 3 years	All the points are already covered in the DPR.
	(e)Ensuring automobiles service station and Hotels/Restaurants particularly located on road side should have a treatment system and levy of fine case found violations.	MPPCB/ Municipal Council Nagda and Local Authorities	Within three month	Notice issued for installation of control measures.

III	**Ground Water Quality**			
	(a)Sealing of contaminated hand pumps and found to be unfit for drinking purpose by the public	State Government/PHED/ Municipal Council Nagda	Within three months	PHED sent detailed of hand pump vide their letter no. 621 dated 27-10-2018 Ann-5
	(b) Supply of potable water to the affected Villages.	State Government/PHED/M.P. Jal Nigam Maryadith	Within three years	
	(c)Carrying assessment of ground water survey for quality and to identify over exploited	MPPCB, PHED	Within six months	Project prepared by Regional Office M.P. Pollution Control Board, Ujjain for Quality and assessment of ground water submitted by for sanction. The letter enclosed

				as per Annexure- 5
	(d) To conduct periodic surprise inspection of the industry to rule out any forceful injection of industrial effluents into groundwater resources	MPPCB	Within three months	
	(e) All the industry should be directed to obtain NOC from the CGWB and action against the unit in operation without obtaining of NOC from CGWA	MPPCB/ CGWA/ CGWB/PHED	Within three months	
	(f) To ensure rain water harvesting by the industrial, commercial and other institutions and groundwater recharging with only clean water to be encouraged	Municipal Council Nagda	Within three months	Condition of Rain water Harvesting is being incorporated in building permission give by Municipal Council

IV	**Flood Plan Zone (FPZ)**			
	(a)Plantation in Flood Plain Zone (FPZ)	State Forest Department	Within three years	
	(b) Checking encroachments in the FPZ of river Chambal	District/Local administration / Municipal Council Nagda	Within two years	
	(c)Prohibition of disposal of municipal plastic and biomedical waste particularly in drains	MPPCB	Within three months	1. Polythene carry bags has been Prohibited by the MP Government 2. Biomedical waste generated by Hospital were collected by M/s Hoswin Incinerator Ltd. Indore & Dispose as per rule

	(d) Notification of Flood Plain Zone FPZ	State Government / District administration	Within three months	Detailed of Notification of Flood plain zone FPZ are desired from concerning agency
V	**Environmental Flow (E-Flow) and Irrigation Practices**			
	(a)Measurement of flow of river Chambal and records maintained	Water resource Department	Within three months	
	(b) To conserve water and good irrigation practices to be adopted by the farmers by organizing mass awareness programmes and through media in vernacular language	M.P. Water resource Department and Agriculture Departments.	Regularly	

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