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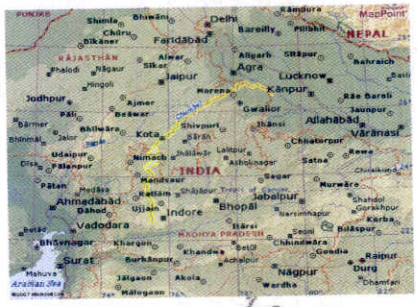
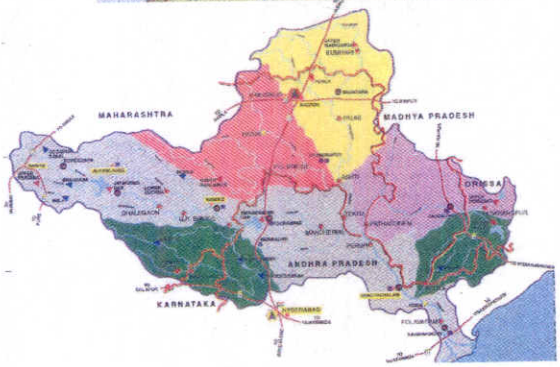
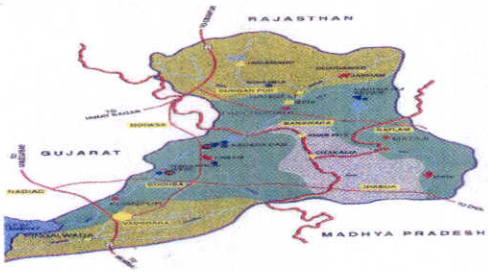
INTERSTATE RIVER MONITORING AT THE STATE BOUNDARIES
(2006-07 and 07-08)







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ZONAL OFFICE (CENTRAL),
CENTRAL POLLUTION CONTROL BOARD,
E-3/15, ARERA COLONY, BHOPAL (MP) INDIA

Most of the major rivers in India are inter-State in character; having catchments/ water sheds in two or more States. There are instances of disputes among the states on water quality issues. Therefore, CPCB conduct to monitoring of the Interstate Rivers at the border to assess the fitness of water quality with respect to its desired uses and to plan action to be taken to prevent and control of pollution within the state boundary.

Total four river water quality monitoring locations at interstate boundaries were monitored quarterly by Zonal Office (Central), Central Pollution Control Board, Bhopal (MP) during 2006-07. The first phase of monitoring of water quality along the interstate river boundaries was initiated during April 2006 at four selected stations in three rivers. The rivers are Wardha at Bangoan (near Pandhurna) tributary to Godavari (MP - Maharashtra), Mahi at Bajna (MP - Rajsthan), Mahi at Bajaj Mahi Sagar Dam (MP- Rajsthan) and Chambal at Fish farm, Rawatbhata (MP-Rajsthan).

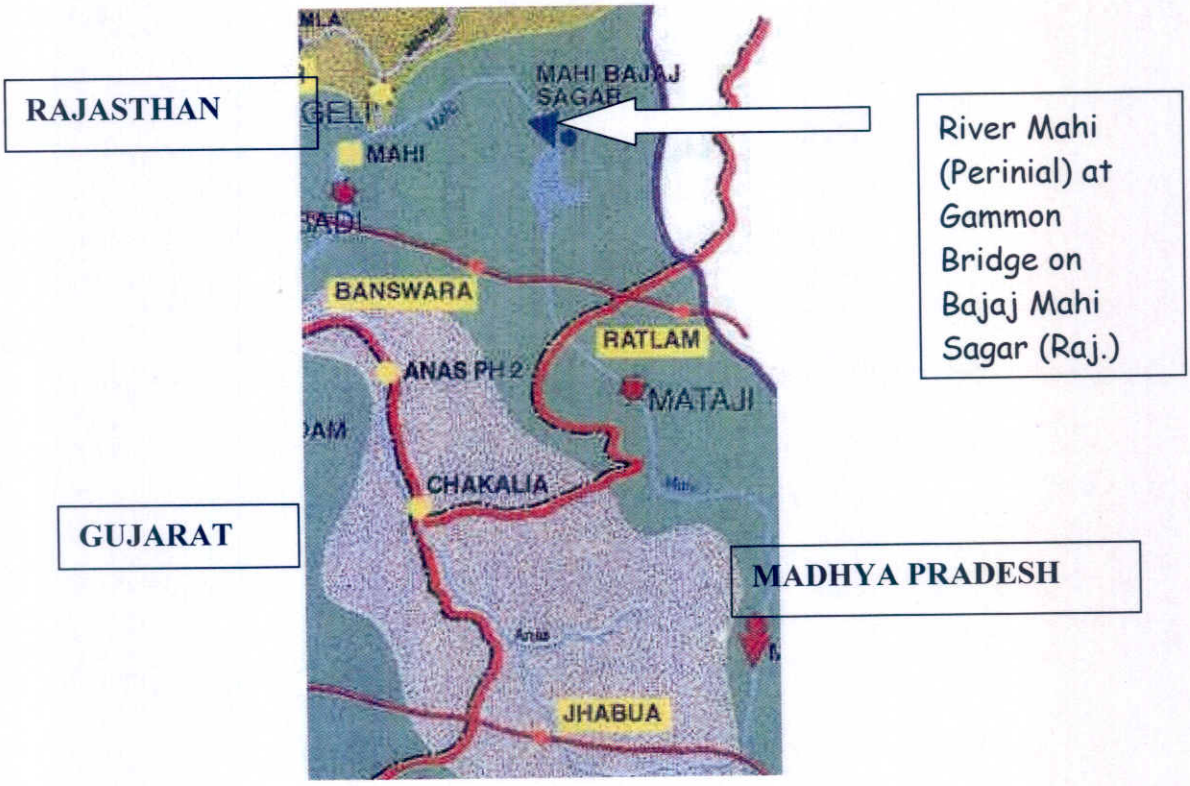
ABOUT INTERSTATE SAMPLING POINTS

1. River Mahi (Perinial) at near village Bajna in Ratlam district - last point of Madhya Pradesh and leaving to Rajsthan.

2. River Mahi (Perinial) at Gammon Bridge on Bajaj Mahi Sagar, 13 km from Banswada towards the Madhya Pradesh- Reservoir in Rajasthan and first point of River Mahi.

The Mahi basin extends over an area of 34,842 sq. km. The interstate river Mahi originates in the Mahi Kanta hills in the Vindhyachal range, in the western part of Madhya Pradesh, and enters Rajasthan in Banswada District, near Chandangarh. It leaves the State at Salakari village. On an average the river is about 100 - 130 m wide and it flows mostly through rocky terrain. Its banks may be steep, though not very high.

The main tributaries of the Mahi River are the Anas, Hiran, Eru and Chap Rivers, in Banswara District. Of these, only the Anas River is perennial.


RAJASTHAN
MAHI BAJAJ SAGAR
MAHI
BANSWARA
RATLAM
ANAS PH 2
MATAJI
CHAKALIA
GUJARAT
MADHYA PRADESH
JHABUA
River Mahi (Perinial) at Gammon Bridge on Bajaj Mahi Sagar (Raj.)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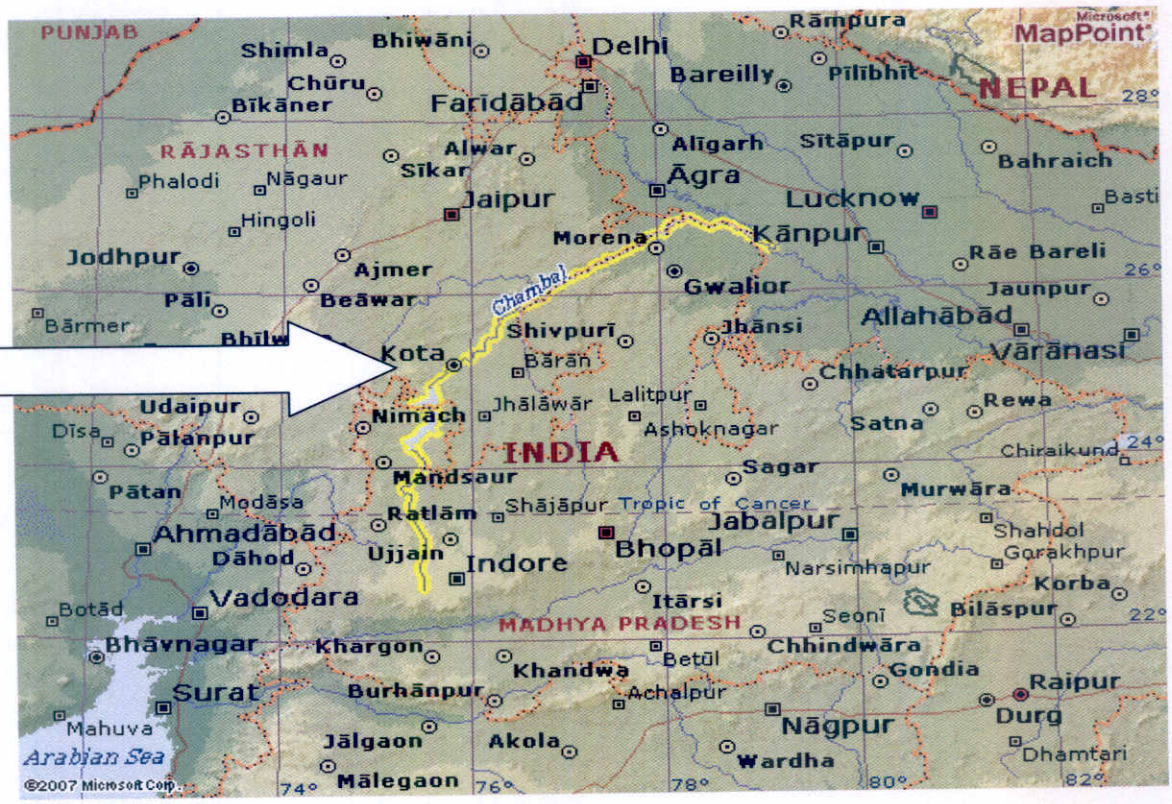
River Mahi (Perinial) at near village Bajna (MP)

3. River Chambal (Perinial) near fish farm, upstream of Rawatbhata-Entry point of river Chambal in Rajasthan state. Location comes under the reservoir catchments area and 15 kms from the village Rampura, Gandhisagar dam in Madhya Pradesh.

River Chambal is most important occupying nearly half of the basin area of Yamuna. The Chambal contributes 5 to 10 times more water to the Yamuna than its own flow in dry weather. River Chambal originates from Bar Nagar (M.P.) and joins River Yamuna after Urai (U.P.) at Juhikha (U.P.). From its origin onwards tributaries, Khan and Kshipra join river Chambal before Nagada (M.P.).

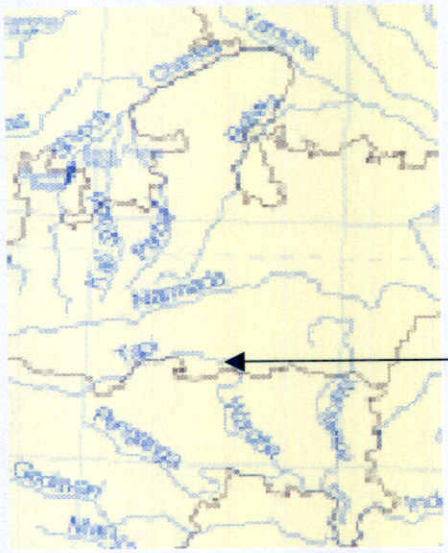
Another main tributary of River Chambal is Kalisindh, which gets additional water from tributary Parwan at Kota (Rajasthan). Subsequently, tributary Kalisindh joins river Chambal at down stream of Sawai Madhopur in Rajasthan. Parbati is yet another important tributary of river Chambal which is fed by tributary Seven before joining of river Chambal at Datra (Palighat). Ultimately, tributary Banas joins River Chambal at Rameshwarghat (Rajasthan). Banas collects water from the sub-tributaries Bearch and Gambhiri before Chittaurgarh in Rajasthan. River Sindh is major tributary of river Chambal which originates from Vidisha (M.P.) and joins River Chambal at downstream of Datia in U.P. very close to the confluence of Chambal river and river Yamuna.

River Chambal (Perinial) near fish farm, U/S of Rawatbhata (Rajsthan)



4. River Wardha (lean flow during summer)- at Bangoan near Pandhurna, which is the last point of Madhya Pradesh.

The Wardha river is one of the biggest rivers in Vidarbha region in India. It originates in Satpura Range near Multai in Madhya Pradesh. It is a tributary of the Pranhita River, which ultimately flows into the Godavari River. Vena River and Penganga River are the main tributary of Wardha River. A huge dam (Upper Wardha Dam) is built on Wardha river near Morshi and considered as lifeline for Amravati city and Morshi and Warud Talukas considered as California of India for its orange plantations.



River Wardha (lean flow during summer)- at Bangoan near Pandhurna, (MP)

The ranges of water quality observed in rivers Wardha, Mahi at Bajna, Mahi at Bajaj Mahi Sagar Dam and Chambal U/S of Rawatbhata with respect to Temperature, pH, Conductivity, DO, BOD, COD, Nitrite, Nitrate, Total Coliform (TC) and Faecal Coliform (FC) are presented as minimum and maximum value to assess the extent of water quality variation throughout the year is given in Table I.

Table I: Water Quality of Rivers at Interstate Boundaries (2006-07)

S.No	River	Location	pH		DO (mg/l)		BOD (mg/l)		Total Coliform (Per100ml)		Faecal Coliform (Per100ml)		Nitrate-Nitrogen (mg/l)	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
01	Wardha	Bangoan Village near Pandhurna (MP)	7.1	7.6	5.5	6.2	2.0	6.0	180	320	12	70	0.29	0.09
02	Mahi	Bajna Village, Ratlam (MP)	7.7	8.3	4.3	6.9	2.8	20.0	280	460	20	110	0.01	0.03
03	Mahi	Bajaj Mahi Sagar Dam, Rajsthan	8.01	8.55	4.7	7.2	1.0	9.4	168	224	08	80	0.01	0.04
04	Chambal	Fish Farm, U/S, Rawatbhata Rajasthan	7.69	7.99	5.9	6.7	2.3	26	360	480	19	90	0.02	0.05

Water Quality of river Wardha

The Water quality of river Wardha indicates that pH and DO are meeting the water quality criteria. The BOD value ranges from 2.0-6 mg/l and does not meet the primary water quality criteria Class 'A'. The count of Faecal Coliforms ranges from 12 to 70 per 100ml whereas Total Coliforms ranges from 180-320 per 100ml. The TC and FC are not meeting the water quality criteria (Class 'A') at this location.

Water Quality of river Mahi at Bajna

The water quality of river Mahi at Bajna is conforming to water quality criteria with respect to pH and Dissolved Oxygen (DO). The DO varies from 4.3 to 6.9 mg/l. The BOD ranges from 2.8-20 mg/l and does not meet the primary water quality criteria even Class 'C' The maximum value of BOD i.e.20 mg/l was observed in January '2007. The Faecal Coliforms value ranges from

20 to 110 per 100ml whereas the Total Coliform value ranges from 280 to 460 per 100ml.The Total and Faecal Coliforms count are considerably high and does not meet the Class 'A' criteria.

Water Quality of river Mahi at Bajaj Sagar Dam

The water quality of river Mahi at Bajaj Sagar Dam are meeting the water quality criteria for pH and DO at all the season in the year during the period of monitoring. The BOD value ranges from 1-9.4 mg/l and does not meet the primary water quality criteria Class 'C'. The count of Faecal Coliforms ranges from 8 to 80 per 100ml whereas Total Coliforms ranges from 168-224 per 100ml, which is not meet the Class 'A' criteria of CPCB norms.

Water Quality of river Chambal at Rawatbhata

The water quality of river Chambal at Rawatbhata is conforming to water quality criteria with respect to pH and Dissolved Oxygen (DO). The DO varies from 5.9 to 6.7 mg/l. The BOD ranges from 2.-26 mg/l and does not meet the primary water quality criteria even Class 'C' The maximum value of BOD i.e.26 mg/l was observed in January '2006. The Faecal Coliforms value ranges from 19 to 90 per 100ml whereas the Total Coliform value ranges from 360 to 480 per 100ml.The Total and Faecal Coliforms count are considerably high and does not meet the Class 'A' criteria.

Water Quality of river Chambal at Rawatbhata, Mahi at Bajaj Sagar Dam, Mahi at Bajna and river Wardha, Pandhurna (2007-08)

The water qualities of these rivers are conforming to water quality criteria with respect to pH and Dissolved Oxygen (DO). The DO varies from 6.7 to 9.2 mg/l. Total and Faecal Coliforms count are considerably high and does not meet the Class 'A' criteria.

Table II: Water Quality of Rivers at Interstate Boundaries (2007-08)

S.No.	R. Mahi, Bajna		R. Mahi, Bajaj Sagar Dam		R. Chambal, Rawatbhata		R.Wardha, Pandhurna	
	I Qtr	II Qtr	I Qtr	II Qtr	I Qtr	II Qtr	I Qtr	II Qtr
pH	DRY	7.71	7.98	7.52	7.69	7.62	DRY	7.4
Cond.		422	283	356	178	310		330
Temp.		21	29	20	28	20		20
DO		8.5	6.8	8	6.7	9.2		7.7
BOD		1	1.5	1	**3.1**	1.2		**2.2**
NO3-N		0.02	0.12	0.02	0.03	0.02		0.01
NO2-N		BDL	BDL	BDL	BDL	BDL	BDL	BDL
TC		**140**	**310**	**180**	**368**	**228**		**110**
FC		**22**	**59**	**75**	**24**	**18**		**14**