RIVER BASIN

TAPI

[INDIA]

SCHEDULE A
ASSESSMENT OF RIVER BASINS (RBs) IN SOUTH ASIA

Sr. No.	Details	Response
1	**Physical Features - General Information**	
1.1	Name of River basin (also indicate regional names);	Tapi, Tapti
1.2	Relief Map and Index Map of RB with Country/ State/ Province boundary marked to be attached.	Refer Annexure 1
1.3	Geographical location of the place of origin	Near Multai in Betul district at an elevation of 752 m above m.s.l. Latitude: 20.00 to 22.00 to longitude: 72.45 to 78.15
1.4	Area (in Sq. Kms.),	724 km (length), 65,145 sq.kms. (drainage area)
1.5	Population (in Millions); Name of population centers/ Cites (duely marked on the map: refer 1.2) having Population - (a) More than 0.5 Million - 1 Million	190.84 Lakh (as per 2001 census)
	(b) More than 1 Million – 10 Million	
	(c) More than 10 Million	

1.6	Approximate areas of upper regime, middle regime and lower regime;	State of Maharashtra besides areas in the states of Madhya Pradesh and Gujarat. The Tapi Basin is the northern-most basin of the Deccan plateau and is situated between latitudes 200 N to 220 N approximately. The Satpura range forms its northern boundary whereas the Ajanta and Satmala hills form its southern extremity. Mahadeo hills form its eastern boundary. The basin finds its outlet in the Arabian Sea in the west. Bounded on the three sides by the hill ranges, the river Tapi, along with its tributaries, more or less flows over the plains of Vidharbha, Khandesh and Gujarat. For the first 282 km the river flows in Madhya Pradesh, out of which 54 km forms the common boundary with Maharashtra State. It flows for 228 km in Maharashtra before entering Gujarat. Traversing a length of 214 km in Gujarat, the Tapi river joins Arabian sea in the Gulf of Cambay after flowing past the Surat city. The river receives tidal influence for a length of about 25 km upstream from the mouth.
1.7	Country and States (Province) in which the basin lies (indicate % area covered);	Madhya Pradesh (9804) , Maharashtra (51504) 2 % of the state area, Gujarat (3837)
2	**Hydrological and Land use Features:**	
2.1	Average annual rainfall (in mm);	830 mm
2.2	Maximum-minimum temperatures in Degree Centigrade	10 to 48

2.3	Average annual yield (discharge) of water in Cubic Meter and the average yield for last past five years	87.41 Cu. Km /14.88 (annual surface water potential of 18 km3 has been assessed in this basin. Out of this 14.5 km3 is utilisable water) (Ref: Water Year Book of Tapi Basin for year 1998-1999)
2.4	Major tributaries	14 major tributaries having a length more than 50 km. On the right bank, 4 tributaries namely the Vaki, Gomai (1148), Arunavati (935) and Aner (1702) join the Tapi river. On the left bank, 10 important tributaries namely the Nesu, Amaravati, Buray (1419), Panjhra (3257), Bori (2580), Girna (10061), Waghur (2592), Purna (18929), Mona and Sipna drain into the main channel. The drainage system on the left bank of the Tapi river is, therefore, more extensive as compared to the right Bank area. The Purna and the Girnma, the two important left bank tributaries together account for nearly 45 percent of the total catchment area of the Tapi river. The Purna is the principal tributary of the Tapi river originating in Betul district in Gawilgarh hills of the Satpura range, mostly drains the three districts of Vidharbha, namely Amravati, Akola and Buldhana. The Girna, another major tributary, rises in the western Ghats and drains Nasik and Jalgaon districts of Maharashtra.
2.5	Percentage shares of major water uses & Surface and groundwater abstraction in percentages-Convert intoTable (a.) Agriculture,	Avg annual surface water potential: 14.88 BCM/yr, Estimated Utilizable Surface Water: 14.50 BCM/yr, Total Utilizable Water: 22.77 BCM/yr (Ref: CWC Report of Standing SubCommittee for assessment of availability and requirement of water) 4.5 km3 (avg use of surface water)

		(Ref: http://wrmin.nic.in/riverbasin/tapi.htm)
	(b.) Industries,	
	(c). Domestic (and urban)	
	(d). environmental flows.	
2.6	Major cropping pattern	
2.7	Cultivable area under irrigation	The west flowing river basin from Kanyakumari to Tapi has the highest total cropped area of about 68 % of its basin area. west flowing river basin from Kanyakumari to Tapi has highest net sown area of 55%. Culturable area in the basin is about 4.3 Million ha, which is 2.2% of the total culturable area of the country
2.8	Cultivable area not under irrigation	
2.9	State other Water Uses- eg. Navigation, power, recreation etc.	Hydropower generation: 119.7 MW at 60% load factor., Irrigation, flood control
3	**Ecosystem Features**	
3.1	Agro-climatic zones	
3.2	Major sub ecosystems (zoogeographical zones)	
3.3	Major soil types	Plain areas which are broad and fertile, suitable for cultivation. The principal soils found in the basin are black soils, alluvial clays with a layer of black soil above. Shallow Black, Medium Black, Black Cotton, Light Brown to Redish Brown, Dark Yellow & Reddish (Ref: Water Year Book of Tapi Basin for year 1998-1999)
3.4	National parks/sanctuaries, lakes, wetlands, etc.	Indian `mugger' crocodiles (Crocodylus palustris)

3.5	Brief information about the delta region of the basin (area, location, major urban centers in the delta, etc.)	
4	**Water Quality**	
4.1	Prevailing water quality standards (e.g. Class I, II, III.etc, indicating permitted uses)	
4.2	Stretches (along the River) in Kms. with water quality classes indicated (may be marked on the map)	
4.3	Sources of Pollution, with data indicating quantum and/or severity.	High quantity of Sodium. Tapi from downstream of Ukai dam to Magdhala bridge, which is around 120 km. stretch. Surat city with population of around 20 lacs is located on both banks of the river. The river fulfils the water requirement of the Surat city. The city authorities extract about 320 MLD of water from Tapi river for various usage. The city generates around 290 MLD of waste water out of which 263 MLD waste water is being collected, treated and disposed off in Mindola river creek zone. The remaining part of untreated sewage is being discharged through storm water drains partly into saline zone and partly into sweet water zone of Tapi river. The analytical results show that all the outfalls discharged polluted effluent into river Tapi. The maximum COD value was found to be 630 mg/l, discharged by Surat Municipal Corporation (SMC) near Fulpada crematory. The water quality of river Tapi was found to be deteriorated at the downstream of Ukai Dam, which is mainly due to the discharge of polluted effluent by SMC. The total coliforms were found to be more than 1600 MPN/ 100 ml due to mixing

		of sewage water.
4.4	Prevailing abatement techniques e.g: ETP, STP, legislation,etc.	The River Boards Act, 1956 The Merchant Shipping (Amendment) Act, 1970 Environmental Pollution Management Legislations The Water (Prevention and Control of Pollution) Act, 1974 The Water (Prevention and Control of Pollution) Rules, 1975 The Water (Prevention and Control of Pollution) (Procedure for Transaction of Business) Rules, 1975 The Water (Prevention and Control of Pollution) Second Amendment Rules, 1976 The Water (Prevention and Control of Pollution) Cess Act, 1977 as amended by Amendment Act, 1991 The Water (Prevention and Control of Pollution) Cess Rules, 1978 The Water (Prevention and Control of Pollution) Amended Rules, 1989

5	**Current status of the resource development & potential for development**	
5.1	Water availability: a. Per capita water availability (in lpcd)	
	b. Per hectare water availability (in Cubic meters for cultivable command area):	
	c. Availability of environmental flows (Current reserve, if any):	
	d. Availability of ground water/ Average annual ground water abstraction/recharge.	Available Groundwater Resources for Irrigation: 5.93 BCM/yrEstimated Replenishable Groundwater Resources: 8.27 BCM/yr
5.2	Structures: a. Major dams/barrages (with utilization categories):	Ukai Dam (Gross Storage: 8510.00; Live Storage:7092.00) Kate Purna (Gross Storage: 97.67; Live Storage: 86.35) Nalganga (Gross Storage: 76.20; Live Storage: 69.32) Kakrapar weir (Gross Storage: 51.51; Live Storage: 36.57)
	b. Proposed dams:	
	c. Live storage of major dams:	9.41 MCM
	d. Live storage through proposed dams:	0.85 MCM
	e. Inter basin transfer systems:	Par–Tapi–Narmada, National Perspective Plan - Peninsular Rivers Development Component: Interlinking of west flowing rivers, North of Bombay and south of Tapi. (Refer to Annexure I)
	f. Any Other:	
5.3	Command area of major dams	
5.4	Agencies functioning in the basins: a. Public agencies/ CSOs which construct/ implement the infrastructures projects: b. Private agencies/ CSOs involved in infrastructure	

	development	
6	Existence of National/State/Provincial Laws or Notifications relating to water- Management / use/development/opportunity for private sector participation or for privatization of water resources	National Perspective Plan - Peninsular Rivers Development Component: Interlinking of west flowing rivers, North of Bombay and south of Tapi.
7	Key Issues:	D N A
8	Enabling instruments- Law/ Policy/ Economic & Financial Measures for introducing IWRM in the basin	National Perspective Plan - Peninsular Rivers Development Component: Interlinking of west flowing rivers, North of Bombay and south of Tapi.

SCHEDULE B
ASSESSMENT OF RIVER BASINS (RBs) IN SOUTH ASIA

nil

SCHEDULE C
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nil