

**RIVER BASIN**

**BAITARNI**

**[ INDIA ]**

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

Sr. No.	Details	Response
<b>1</b>	<b>Physical Features - General Information</b>	
1.1	Name of River basin also indicate regional names	Baitarni, Baitarani ( Orissa)
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 (Country/District	It originates from Guptaganga hills in Gonasika of Keonjhar district in Orissa state of India at an elevation of 900m above MSL. ( Source:Baitarani Initiative. <a href="http://www.baitarani.irc">www.baitarani.irc</a> )
1.4	Area (in Sq. Kms.),	Catchment Area (Total):14,218Sqkm ( Source: Water Resources Department, Government of Orissa)The basin is surrounded by the Brahmani on the South and West, the Subernarekha on the north, the Burhabalanga and the Bay of Bengal on the East.
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 (b) More than 1 Million – 10 Million	Population (2001): 38,29,931 Density:269 / Sqkm. Note:The important towns in the basin are Joda, Champua, Karanjia, Keonjhar, Anandpur and Jaipur.( Source: Natioinal Water Development Agency)

	(c) More than 10 Million	
1.6	Approximate areas of upper regime, middle regime and lower regime;	Character of the river: The river is flashy in nature having a total length of 355m, with the upper reach up to Anandpur in the hilly region. There is a considerable fall in geographical gradient from RL. 367m. at Champua to RL 28m at Anandpur. ( Source: National Water Development Agency)
1.7	Country and States (Province) in which the basin lies (indicate % area covered);	Orissa:13482, Jharkhand:736. 44 kms in Orissa, 360 in Chattisgarh ( Source: State of Orissa's Environment, 2006 Report)
<b>2</b>	<b>Hydrological and Land use Features</b>	
2.1	Average annual rainfall (in mm);	Annual Rainfall: Max:3094 mm, Min:642 mm
2.2	Maximum-minimum temperatures in Degree Centigrade	
2.3	Average annual yield (discharge) of water in Cubic Meter and the average yield for last past five years	Water resources of baitarni estimated in Orissa: 5434 MCM ( 75% dependability) ( Source: Department of Water Resources, Orissa)
2.4	Major tributaries	Major Tributaries (Orissa):Deo, Kanjhari, Kusei, Salandi.( Source: Water Resources Department, Orissa)The river has in total 65 numbers of tributaries out of which 35 nos. join in left side and rest join in the right side. The river basin in Orissa is spread in 42 blocks of eight districts. ( Source: Baitarani Initiative. www.baitarani.org) Note: For more information on hydrology of Baitarani, please visit: <a href="http://www.baitarani.org/riversystem.htm">http://www.baitarani.org/riversystem.htm</a> )

2.5	Percentage shares of major water uses & Surface and groundwater abstraction in percentages-Convert intoTable (a.) Agriculture,	91% ( source: www.baitarini.org)
	(b.) Industries,	3%. ( Source: www.baitarini.org)Current Industrial Water Demand is 63.20 MCM ( 2001) Estimated Demand ( 2051) is: 139.90 MCM. Orissa Government will be making special reservations for industrial water use for Baitarani. ( <b>Source:</b> State of Orissa's Environment Report, 2006) <b>Note:</b> The basin is backward from the industrial point of view. There are three medium scale industries in the basin viz. (i) Ferro-Manganese Plant(ii) The sponge Iron Plant at Joda and (iii) The Orissa Sponge Iron Plant.There are few small scale industries also in the basin.( <b>Source:</b> NWDA).
	(c). Domestic,	6% ( Source: www.baitarini.org)
	e). environmental flows.	Data not found
2.6	Major cropping pattern	Kharif ( 2004-05):77% Paddy, 7% vegetables, 5% oilseeds, 5% pulses,1% Fibre, 1% spices. Rabi ( 2004-05):44% pulses, 19% oilseeds, 23% vegetables,5% spices, 1% sugarcane, 8% tobacco, 7% paddy ( <b>Source:Baitarani Initiative. Database- Cropping Pattern www.baitarani.org</b> )
2.7	Cultivable area under irrigation	Dams and barrages on the Baitarani and its major tributary, the Salandi irrigate 61,920 ha( Source: www.baitarani.org)
2.8	Cultivable area not under irrigation	One fourth of the cultivated area in the absin is irrigated ( Source: www.baitarani.org)

2.9	State other Water Uses- eg. Navigation, power, recreation etc.	Note:The basin is rich in mineral wealth. Iron ore, copper, chromite, asbestos, manganese, atomic minerals, china clay and soap stone are available in Cuttack, Keionjhar, Mayurbhanj districts of Orissa and in the Singhbhum district of Bihar.9 Source: National Water Development Agency)
<b>3</b>	<b>Ecosystem Features</b>	
3.1	Agro-climatic zones	The basin is divided into northern Plateau region ( 73.66%), Central Table land (0.23%) and the coastal plains region (26.11%) ( Source: Baitarani Initiative. www.baitarani.org)
3.2	Major sub ecosystems (zoogeographical zones)	Data not found
3.3	Major soil types	Data not found
3.4	National parks/sanctuaries, lakes, wetlands, etc.	Total Forest Area in the basin 4013 sq. kms ( 2003-04) Source: www.baitarani.org
3.5	Brief information about the delta region of the basin (area, location, major urban centers in the delta, etc.)	Baitarani, Brahmani and Mahanadi form a delta region.The river enters plain at Anandpur and creates a deltaic zone at Akhuapada. The river travels a distance of 360 km to drain to the Bay of Bengal after joining of the Brahmani at Dhamra mouth near Chandabali. ( Baitarani Initiative. www.baitarani.org)
<b>4</b>	<b>Water Quality</b>	
4.1	Prevailing water quality standards (e.g. Class I, II, III.etc, indicating permitted uses)	In terms of Biological Oxygen Demand, the river belongs to category C or D in 2001 ( BOD less than 2.2 mg/l) ( Source: www.baitarani.org). In terms of total coliform bacteria, all the testing stations in the basin belong to category C or lower (TC> 5000 MPN/ litre)

4.2	Stretches (along the River) in Kms. with water quality classes indicated (may be marked on the map)	For details, please refer to <a href="http://www.baitarani.org">www.baitarani.org</a> - database-water quality
4.3	Sources of Pollution, with data indicating quantum and/or severity.	Major sources of pollution: Industrial effluents, mining waste, domestic sewage, agricultural runoff
4.4	Prevailing abatement techniques e.g: ETP, STP, legislation,etc.	Data not found
<b>5</b>	<b>Current status of the resource development &amp; potential for development</b>	
5.1	Water availability: a. Per capita water availability (in lpcd )	Per capita water availability ( dependable) for Orissa:1418.82 cubic meters / year ( 2001) . It is estimated that by 2051, the availability will decrease to 967.8 cubic meters, making it a water scarce basin ( <b>Source:</b> State of Orissa's environment Report, 2006, Government of Orissa)
	b. Per hectare water availability (in Cubic meters for cultivable command area):	Data not found
	c. Availability of environmental flows (Current reserve, if any):	Data not found
	d. Availability of ground water/ Average annual ground water abstraction/recharge.	Nearly half of the irrigation in the Baitarini basin ( total of approx 61000 hectares) is through groundwater ( source: <a href="http://www.baitarani.org">www.baitarani.org</a> )
5.2	Structures: a. Major dams/barrages (with utilization categories):	<b>Note: For detailed information and district wise break up, please visit <a href="http://www.baitarani.org">www.baitarani.org</a>: Database: Hydrology</b>

	b. Proposed dams:	The proposed Bhimkund and upper Baitarani multi-purpose projects envisage many more dams across this river and its tributaries to provide irrigation to more than 100,000 ha.
	c. Live storage of major dams:	For details, please refer to <a href="http://www.baitarani.org-database-hydrology">www.baitarani.org-database-hydrology</a>
	d. Live storage through proposed dams:	
	e. Inter basin transfer systems:	
	f. Any Other:	Data not found
5.3	Command area of major dams	61,290 hectares of land are irrigated through major dams on Baitarani and its tributaries. ( Source: <a href="http://www.baitarani.org">www.baitarani.org</a> )
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	Water Resource Department, Government of Orissa
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	Data not found

7	Key Issues:	Flood Management in the Baitarani is a major issue. The river and the delta region floods each year causing enormous damage to life and property. Upper reaches are facing severe issues with land use. Industrial, mining and pollution through agricultural runoff is another key issue for the basin ( Source: <a href="http://www.baitarani.org">www.baitarani.org</a> )
8	Enabling instruments- Law/ Policy/ Economic & Financial Measures for introducing IWRM in the basin	Orissa State Water Policy ( 2006) calling for State Water Resource Plan as well as Multipurpose River basin management plans .



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

Sr. No.	Details	Response
<b>1</b>	<b>Legal / Political Mandate</b>	
1.1	Is there any RBO? If yes, Give Name.	Though there is no RBO formed as yet, it is envisaged by the State Water Policy to prepare State Water Plan, which, in turn will be based on Integrated River Basin Management Plans. We are assuming that the Orissa Water Resource Department will be making these Plans. ( Source: <a href="http://www.orissawater.com">www.orissawater.com</a> ). The government has updated the 2003 Draft Policy and has approved the 2006 Water Policy. ( Source: <a href="http://www.orissa.gov.in/pa/cabinet/2.3.07.pdf">www.orissa.gov.in/pa/cabinet/2.3.07.pdf</a> )
1.2	How has it been constituted? (Statutory/ Voluntary/ Any other form).	
1.3	State objectives and organizational structure of the RBO in outline & enclose brochures	
1.4	Functioning level of the RBO (watershed/micro basin/sub-	
1.5	What are the major activities carried out by the RBO since inception?	

1.6	What are the proposed activities of the RBO?	
1.7	Details of Contact person/s (Name, designation, tele Nos. address, & emails).	
1.8	Presence of a regulatory framework wherein national or regional supra basin authority regulates the functioning of the RBO	
1.9	Legal/political mandate wherein stakeholders can appeal for redress/decision and conflict resolution	
1.10	Does the RBO have an appellate authority?	
1.11	Is the RBO an autonomous body?	
1.12	Is it regulated by a supra basin authority, if so, how?	
1.13	Is the RBO authorized to raise capital for management and/or implementation in open market?	
1.14	Does the RBO receive direct budgetary grants? (From Govt./ Statutory Bodies/ Public donations/ Any Other Agencies.)	
1.15	Nature of mandate for delegation of powers and/or functions (within RBO's	

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	constitution) to the lowest possible scales so as to encourage stakeholder participation. (Kindly elaborate the mode of delegation).	
1.16	Policy of the RBO on – (i) Water allocation between users/sectors/sub-basins; and	
	(ii) Procedures and processes for determining the above. (Kindly elaborate upon the above).	
1.17	Presence of Trans-boundary Water Agreement or Treaty in case of a trans-boundary basin	
1.18	Presence of a ‘Tribunal’ appointed in case of intra basin or inter basin disputes	
1.19	Is the RBO responsible for preparing Basin Management Plan. If yes, please enclose a copy	
<b>2</b>	<b>Processes of community/stakeholder participation in the functioning of the RBO</b>	
<b>2.1</b>	Are the stakeholders from the basin included in the governing body of the RBO?	
<b>2.2</b>	Elaborate the nature and frequency of public consultation initiated by the	

2.3	Elaborate efforts at outreach/communication by the RBO.	
2.4	Elaborate efforts made for creation of participatory platforms at minor/major tributary or watershed levels for encouraging participation .	
2.5	Interaction of the RBO with organizations working in water management at different watershed/ micro basin, sub-basin or basin	
2.6	Stakeholder participation sought by the RBO for preparing Basin Management Plan	
<b>3</b>	<b>Conflict Resolution and Negotiations</b>	
3.1	Involvement of the RBO in negotiations between stakeholders at various levels through an appellate authority mentioned above;	
3.2	Negotiation and participation encouraged at mini/micro basins for consensus building and/or conflict management.	

**SCHEDULE C**  
**ASSESSMENT OF RIVER BASINS (RBs) IN SOUTH ASIA**

**[ Civil Society RBOs - Baitarni Initiative]**

( CSOs working in River Basin issues or those physically involved in infrastructure development and articulating / advocating a River Basin perspective maybe be considered as Civil Society RBO. Please note that some of these organisation may not be calling themselves as RBOs. This is despite the fact that they function in most, if not all areas in which a statutorily constituted RBO operates)

Sr. No.	Details	Response
	<b>Name</b>	<b>Baitarini Initiative by an NGO ' Shrishti' ( www.baitarini.org)</b>
1.1	Constitution of the organization in terms of involvement of local action group / initiatives, stakeholders, water users groups, and irrigation groups/ committees, traditional water groups urban and industrial users etc. are a part of the organization);	Baitarni River Basin Initiative is fomred by water management and agricultural experts in Orissa. <b>Vision:</b> Enhanced stakeholders' access to options and tradeoffs in basin resources management within 2 years of project launch Operationalization of socially and environmentally responsible basin resource development within 5 years of project initiation Sustainable Basin development as reflected through enhanced livelihood and resilient ecosystem health by 10 years of project launch( www.baitarini.org)
1.2	Reflection of basin perspective in the organization's constitution/past/planned work and activities?	The initiative is working at the river basin scale
1.3	Scale of work: Sub-basin/basin scale?	Basin scale

1.4	Consideration of upstream and downstream impacts of water management activities in the RB and issues like inequitable distribution of water between intra and inter sectors;	Yes
1.5	Has the organization prepared a Basin Master( Management) Plan? Does it contain elements different from or alternative to that of the government organizations?	The organisation has planned to prepare a basin management plan through stakeholder consultation
1.6	Efforts taken by the Civil Society RBO to upscale the vision/activities at basin level	Please refer to <a href="http://www.baitarini.org">www.baitarini.org</a> for details
1.7	Participation in lobbying and advocacy at appropriate levels (provincial, national, international)	