

RIVER BASIN
CHENAB
[PAKISTAN]

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 used);	Chenab, In its upper reaches it is called Chandrabhaga. It flows through the Jammu region of Jammu and Kashmir into the plains of the Punjab, forming the boundary between the Rechna and Jech interfluves. It is joined by the Jhelum River at Trimmu.
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	It is formed by the confluence of the Chandra and Bhaga rivers at Tandi located in the upper Himalayas, in the Lahul and Spiti District of Himachal Pradesh, India.
1.4	Area (in Sq. Kms.),	
1.5	Population (in Millions); Name of population centers/ Cities (duly marked on the map: refer 1.2) having Population -	N.A
	(a) More than 0.5 Million - 1 Million	
	(b) More than 1 Million – 10 Million	2,048,008 Gujrat, 2,834,545 Jhang, 3,116,851 Multan (Source 1998 Census Report)
	(c) More than 10 Million	N.A
1.6	Approximate areas of upper regime, middle regime and lower regime;	
1.7	Country and States (Province) in which the	Total length 22% in India and Jammu and Kashmir, 78% in

	basin lies (indicate % area covered);	Pakistan
2	Hydrological and Land use Features:	
2.1	Average annual rainfall (in mm);	More than 600 mm
2.2	Maximum-minimum temperatures in Degree Centigrade	Freezing point at its origin and max. 30 C at Jhang
2.3	Average annual yield (discharge) of water in Cubic Meter and the average yield for last past five years	3207241304 cubic m
2.4	Major tributaries	Chanra, Bhaga
2.5	Percentage shares of major water uses & Surface and groundwater abstraction in percentages-Convert into Table (a.) Agriculture,	100%
	(b.) Industries,	N.A
	(c). Domestic,	N.A
	(d). urban,	N.A
	e). environmental flows.	N.A
2.6	Major cropping pattern	Rice 4%,fodder 3.5%,Sugarcane8%,oilseed &Vegetable 0.5%each, wheat 15%
2.7	Cultivable area under irrigation	1350243 hectares
2.8	Cultivable area not under irrigation	374471 hectares
2.9	State other Water Uses- eg. Navigation, power, recreation etc.	N.A
3	Ecosystem Features	
3.1	Agro-climatic zones	Punjab Sugarcane wheat(PSW), Punjab Mixed cropping(PMC)
3.2	Major sub ecosystems (zoogeographical zones)	Tropical thom forest
3.3	Major soil types	Sandy,Silty, Clay
3.4	National parks/sanctuaries, lakes, wetlands,	Narang wetland

	etc.	
3.5	Brief information about the delta region of the basin (area, location, major urban centers in the delta, etc.)	N.A
4	Water Quality	
4.1	Prevailing water quality standards (e.g. Class I, II, III.etc, indicating permitted uses)	Class I
4.2	Stretches (along the River) in Kms. with water quality classes indicated (may be marked on the map)	N.A
4.3	Sources of Pollution, with data indicating quantum and/or severity.	N.A
4.4	Prevailing abatement techniques e.g: ETP, STP, legislation,etc.	N.A
5	Current status of the resource development & potential for development	
5.1	Water availability:	1095 lpcd
	a. Per capita water availability (in lpcd)	
	b. Per hectare water availability (in Cubic meters for cultivable command area):	1859 cubic m/hectare
	c. Availability of environmental flows (Current reserve, if any):	N.A
	d. Availability of ground water/ Average annual ground water abstraction/recharge.	N.A
	Structures:	
5.2	a. Major dams/barrages (with utilization categories):	Marala Headworks, Khanki Headworks, Qadirabad Barrage, Trimmu Headworks
	b. Proposed dams:	N.A
	c. Live storage of major dams:	N.A

	d. Live storage through proposed dams:	N.A
	e. Inter basin transfer systems:	Qadirabad-baloki link, Marala Ravi link,u.chenab link,Trimmu-Sidhnai link,Haveli link
	f. Any Other:	N.A
5.3	Command area of major dams	N.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	a.Water &Power Develoment Authority b. N.A
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	N.A
7	Key Issues:	N.A
8	Enabling instruments- Law/ Policy/ Economic & Financial Measures for introducing IWRM in the basin	N.A

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

Sr. No.	Details	Response
1	Legal / Political Mandate	
1.1	Is there any RBO? If yes, Give Name.	Indus River System Authority
1.2	How has it been constituted? (Statutory/ Voluntary/ Any other form).	Statutory
1.3	State objectives and organizational structure of the RBO in outline & enclose brochures	Organizational Structure: Comprises of five Members nominated by each Province and the Federal Govt. Chairman of the Authority by rotation for one year in the order Balochistan, NWFP, Punjab, Sindh & Federal Chairman WAPDA and Chief Engineer Adviser shall be ex-officio Members
1.4	Functioning level of the RBO (watershed/micro basin/sub-basin/basin, etc.) (eg. Upper Bhima Water Partnership, restricted to Bhima river flowing through the State of Maharashtra – A reference literature can be provided by Gomukh for comparison. 1. Does the RBO have the responsibility and technical capacity to coordinate integrated water resources planning in the basin? 2. Does the RBO have a proactive and efficient data management and information dissemination process to inform all stakeholders of basin conditions, water resource availability, and major issues?	Basin level. 1. Yes a) The Advisory Committee will be consisting of IRSA, CEA, Members WAPDA, Secretaries Agriculture & Irrigation Departments of the Provinces b) The Advisory Committee is being assisted by a Technical Committee comprises Directors Regulation Punjab & Sindh, S. E Pat feeder Balochistan & S. E HQs NWFP 2. Yes

1.5	What are the major activities carried out by the RBO since inception?	
1.6	What are the proposed activities of the RBO?	<ol style="list-style-type: none"> 1. Regulation & distribution of surface waters amongst the provinces. 2. Review & specify river and reservoir operation patterns 3. Compilation of canal withdrawal indents and issue of operational directives 4. To settle any question that may arise between two or more provinces in respect of distribution of water
1.7	Details of Contact person/s (Name, designation and contact numbers, 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	Indus River System Authority
1.10	Does the RBO have an appellate authority?	Yes
1.11	Is the RBO an autonomous body?	Yes
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? (Please elaborate the authorization).	
1.14	Does the RBO receive direct budgetary grants? (From Govt./ Statutory Bodies/ Public donations/ Any Other Agencies.)	From Govt.
1.15	Nature of mandate for delegation of powers and/or functions (within RBO's constitution) to the lowest possible scales so as to encourage stakeholder participation.	It protects the existing uses of all the Provinces. It recognizes the need for constructing new storages on the Indus and other rivers wherever feasible for planned further Agriculture development.

		It recognizes the need to escape some water below Kotri to check sea intrusion. It lays down the mechanism of sharing shortages and surpluses in the water availability
1.16	Policy of the RBO on – (i) Water allocation between users/sectors/sub-basins; and	•Crop season – forecast of Water Availability in the system Provincial shares as per Accord. Criteria for Reservoir operation and preparation of Rule Curve
	(ii) Procedures and processes for determining the above. (Kindly elaborate upon the above).	•Vetting by the Technical Committee and approval by the Advisory Committee. Provinces prepare their canal withdrawal plans as per their shares (Similar to a deposit in a Bank Account). Provinces supply their Water Account on 10-daily basis. The statements are reviewed & circulated to all the Provinces by IRSA for transparency
1.17	Presence of Trans-boundary Water Agreement or Treaty in case of a trans-boundary basin, (and a common RBO representing the countries/provinces) (eg. Indus Treaty in case of River Indus flowing through India and Pakistan	
1.18	Presence of a 'Tribunal' appointed in case of intra basin or inter basin disputes (eg. Krishna Water Disputes Award Tribunal established between states of Maharashtra, Karnataka, and Andhra Pradesh);	
1.19	Is the RBO responsible for preparing Basin Management Plan. If yes, please enclose a copy	
2	Processes of community/stakeholder participation in the functioning of the RBO	

2.1	Are the stakeholders from the basin included in the governing body of the RBO? (e.g.: farmers, academics, CSO representatives, etc.)	Yes
2.2	Elaborate the nature and frequency of public consultation initiated by the RBO (for example: Annual Public hearings, representations from individuals/ public, etc.)	N.A
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 level (eg. Interaction of RBO with Water User Groups).	
2.6	Stakeholder participation sought by the RBO for preparing Basin Management Plan	
3	Conflict resolution and negotiations	
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 (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
1.1	Constitution of the organization in terms of involvement of local action groups/initiatives, stakeholders, water users groups, and irrigation groups/ committees, traditional water groups urban and industrial users etc.	Envisaged as per WAA 1991 Para 13 Created in 1992 through an Act of Parliament (Act No. XXII of 1992)
1.2	Reflection of basin perspective in the organization's constitution/past/planned work and activities?	
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;	
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?	
1.6	Efforts taken by the Civil Society RBO to upscale the vision/activities at basin level	
1.7	Participation in lobbying and advocacy at appropriate levels (provincial, national, international)	

