

**RIVER BASIN**  
**GANDAKI -NARAYANI**  
**[ NEPAL ]**

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

**Physical features - General information**

<b>S.No.</b>			<b>Details</b>	<b>Remarks</b>
1	Total area (km <sup>2</sup> )		29626	Taken from various sources and water resource strategy
2	Geographical location of place of origin		Nepal and Tibet (higher Himalayas)	Taken from various sources and water resource strategy. Also see attached basin map.
3	Population (million)		4.6	Taken from the district profile published by . The figures have been adapted from the district information. In some cases the basin boundary fall in two districts and therefore the figures could vary to some extent.
4	Area covered (%)	Nepal	85	Taken from water resource strategy
		India	15	
		China	-	
<b>Hydrological and land-use feature</b>				
5	Average rainfall (mm)		2000	Due to topographical variation within the basins precipitation varies substantially from one location to another. The figures have been taken as average of high and low rainfall records of two stations representing the basin.

6	Temperature (°C)	Min.	4.9 (average)	Temperature also varies within the basin due to topographical variation. The climate within the basin changes from tropical in the plains to alpine in the high Himalayas. We have taken average lowest and average highest temperature within the basin.
		Max.	30.9 (average)	
7	Average annual yield in (m3)		50.45 billion	Average annual water yield has been calculated based on the information given in various sources including feasibility reports and others.
8	Major tributaries		Trishuli, Marsyangdi, Seti khola, Budi Gandaki, Kali Gandaki, East Rapti	
9	Cropping pattern		Paddy, wheat, maize, sugarcane	due to topographical variation cropping pattern varies considerably from lower areas to the upper areas of the basin. We have taken major crops as reported in the district profile and feasibility reports of hydropower and irrigation projects.
10	Cultivated area (ha)		540116	Taken from the district profile.
11	Non-cultivated area (ha)		265517	
<b>Ecosystem features</b>				
12	Agro climatic zones		Alpine, tropical, sub-tropical, temperate, cool temperate and mild temperate	Taken from district profile.

13	Major sub ecosystem (zoogeographical zones)		There are multiple ecological regions supporting rich biodiversity of flora and fauna.	
14	Major soil type		Coarse textured soil	Soil types vary from
15	National parks, sanctuaries, lakes, wet lands		Annapurna area conservation project (ACAP), Royal Chitwan national park, Royal Dhorpatan hunting reserve	ACAP, Langtang National Park, Makalu Barun, National Park, Sagarmatha National Park, Kanchanjanga Conservation Area are in the high Himalayas. Sukla Phant Wildlife Reserve, Bardia Wildlife Reserve, Chitawan National Park and Kosi Tappu Wild life Reserve are in the lower part of the basins.
16	Stretches in km		≤400	
<b>Current status of the resource development and potential for Water availability</b>				
17	Per hectare			10943 m3
	Environmental flows			17029 m3
18	Structures	Major dams / barrages	NA	Calculated on the basis of population and the total flow
		Proposed dams	Kali Gandaki 'A' hydropower dam, Gandak Barrage	Calculated on the basis of basin area within Nepal and the total flow
		Inter basin transfer system	Budi Gandaki project	
		Major dam	None	Taken from Involuntary Displacement and Livelihood: An analysis of Nepal's proposed five high dam projects and various other reports.
19	Live storage	Proposed dam	6900*106 cu m	

20	Command area of major dam		2.75*109 cu m	
			9150 sq kms	
<b>Physical features - General information</b>				
21	Agencies functioning in the basin	Forest department, watershed management department, wildlife, irrigation, drinking water		All governmental departments and organisation related to water and environment are present in the basins. In addition, there are several NGOs and INGOs working in the area. There is no River Basin Organization (RBO) in Nepal to take up basin management activities. However, the basin and its resources are managed by agencies as mentioned.
<b>Key issues and supporting features</b>				
22	Key issues	Mass movement, soil erosion, sedimentation, bishyari, floods, bank cutting, inundation, water scarcity during winter		Major environmental issues are seen in all basins. Similarly, disputes about sources, water sharing, urban river pollution, water allocation, depleting groundwater resources in the valleys have become the key water issues in various places within the basins.
23	Enabling instruments	Nil		
24	<b>River basin organisations</b>			None
25	Current use of water			Water is used for power generation, navigation and fisheries.

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

**Nil**

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

**Nil**