

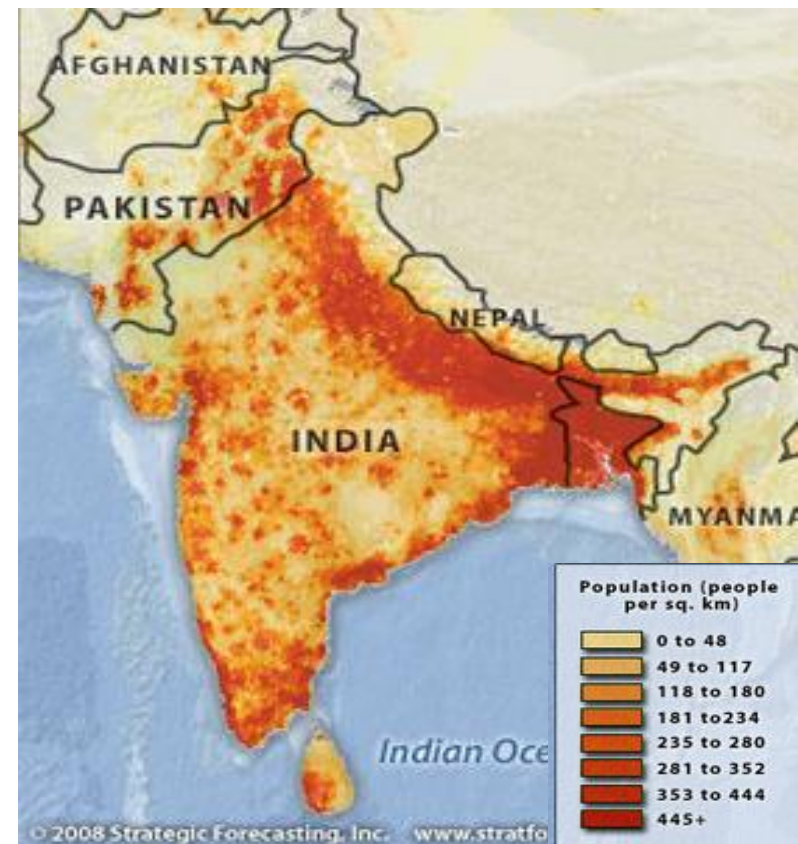
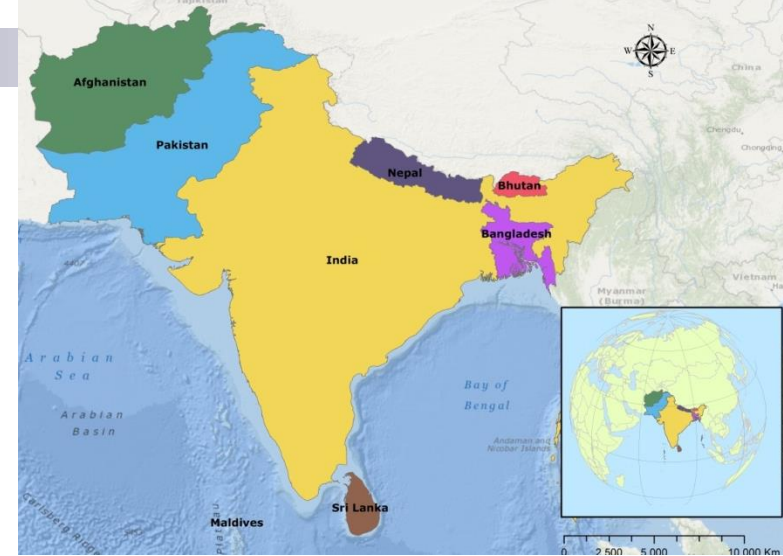


Overview of Trans-boundary Cooperation in South Asia and the Role of GWP

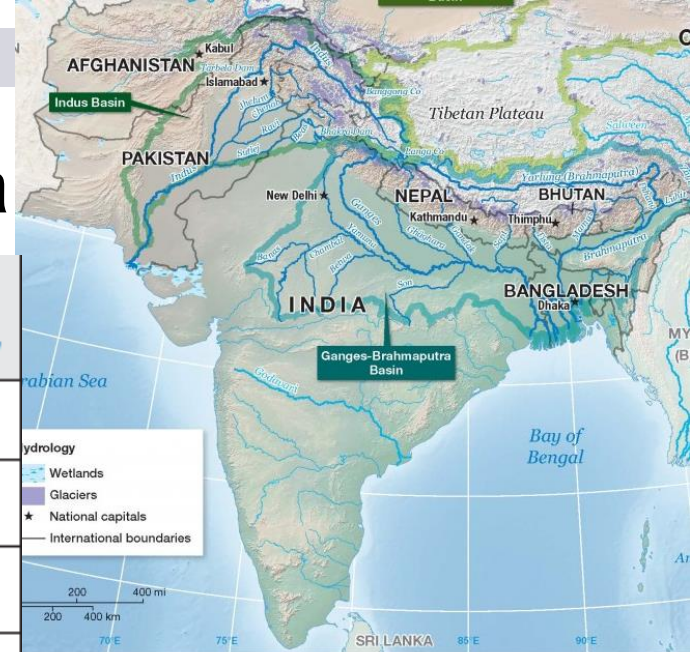
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GWP Nepal/JVS

South Asia

- Home to over one fourth of the world's population (>1.7 billion, WB, 2015).
- The region has 15.1 % of the poorest people in the world (WB, 2013).
- Has 4.5 % of **World's internal renewable water resources** (FAO, 2016).



Availability of Water in South Asia



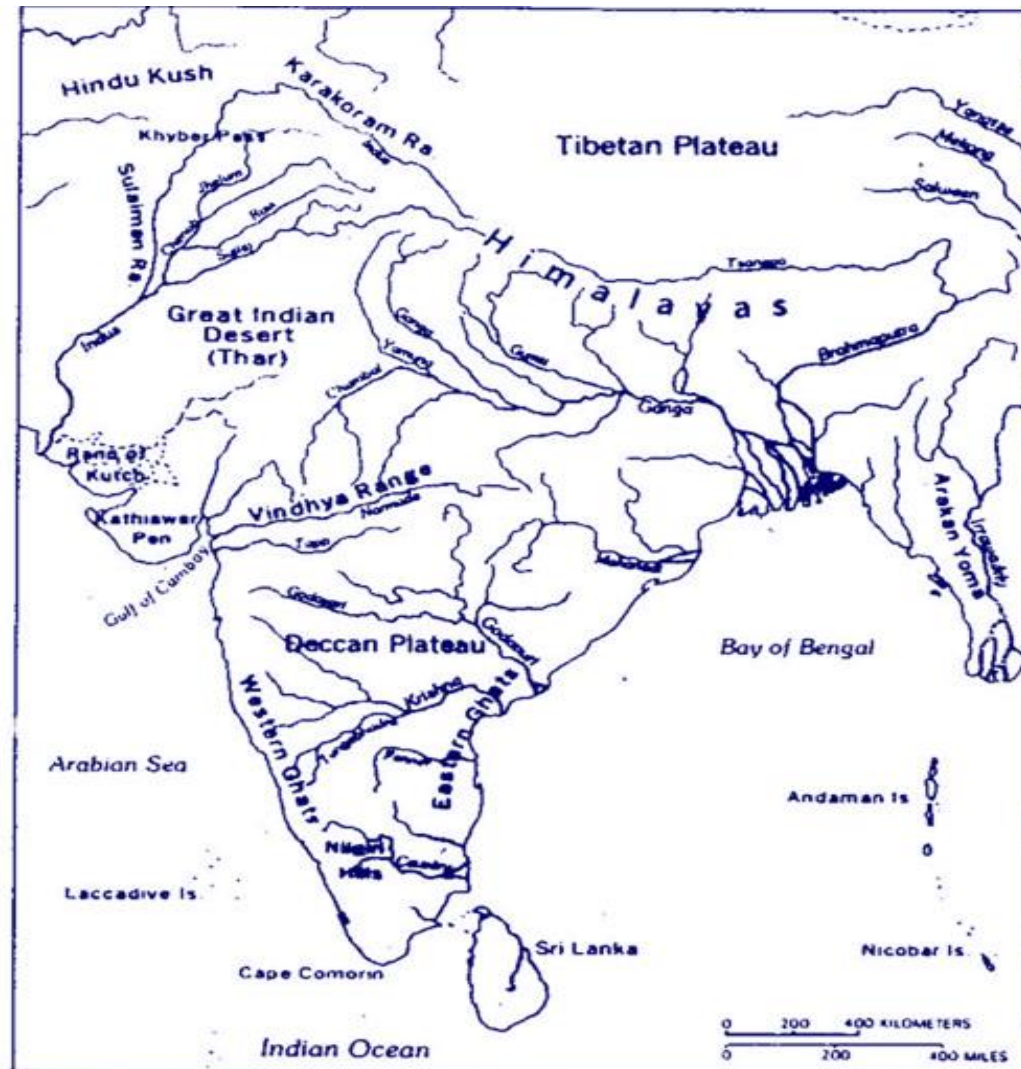
Country	Population (2010)	Water availability (Stream flows)	Per Capita Water Availability
	Million	Million m ³	m ³ /year
Afganistan	30.6	65,000	2,124
Pakistan	173.4	200,000	1,153
India	1170.9	2,015,000	1,721
Nepal	29.9	215,000	7,191
Bhutan	2.3	65,000	28,261
Bangladesh	164.4	1,314,000	7,993
Myanmar	55.4	476,000	8,592
Sri Lanka	20.5	51,300	2,502
South Asia	1,647.4	4,401,300	2,672

Based on UNDP 2003, World Bank 2011
Source: Sharma, 2011

Major River Basins in South Asia

- Ganges
- Brahmaputra
- Indus

- Water shared among different nations



Climate Realities of South Asia



□ Rise in Temperature

- More significant rising trend in high elevations;
- Climate-related risks threaten lives, food security, health and wellbeing across many parts of South Asia (IPCC 2014).

□ Glacier melt

- > 15,000 glaciers and > 8,800 glacial lakes in the Hindu Kush Himalayan (HKH) region
- Higher rate of glacier retreat; 24 Glacial Lake Outburst Flood (GLOF) have been occurred in past, 14 in Nepal & 10 in China-Tibet Region ([ICIMOD, 2011](#)).
- 5 newly identified potentially dangerous glacial lakes ([ICIMOD, 2011](#)).

□ Extreme Events

- Increase in occurrence of extreme weather events is projected in South Asia (Lal 2003).
- Inter-annual variability of daily precipitation would increase in the

Food Security in South Asia

- Agriculture is the mainstay of several economies in South Asia.
- ***60% of the cropped area is rain-fed (IWMI,2010).***
- Different studies show decrease in agricultural production in near future in Asia
 - demand for agricultural irrigation in arid and semi-arid regions of Asia is estimated to increase by at least 10% for an increase in temperature of 1°C.
 - A study points out that in Bangladesh, production of rice and wheat might drop by 8% and 32%, respectively, by the year 2050 (Shivkumar and Stefanski, 2011- WMO).
 - A consistent yield loss of major crops (wheat, maize, sorghum and millet) by the 2050s (Knox et al, 2012).

The Case of the Ganges



Source: Mirza (2002).

- Three main riparian countries of South Asia: **Nepal, India and Bangladesh.**
- Significant variation in spatial and temporal distribution of precipitation.

Freshwater availability of Ganges basin Countries (Pun,

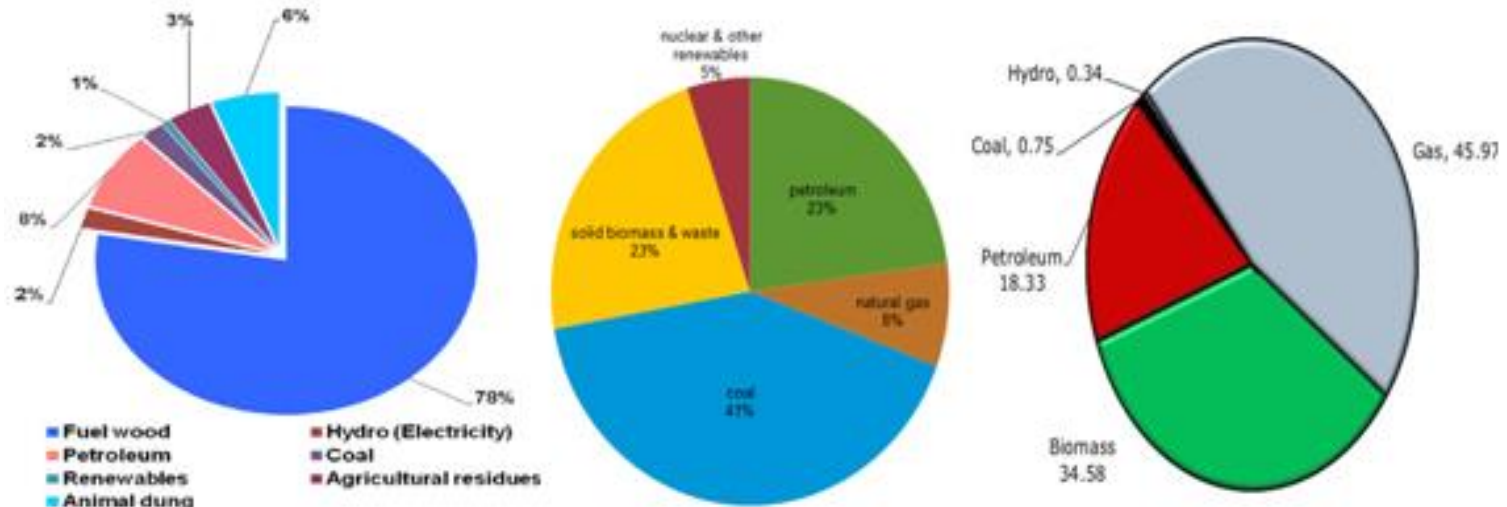
Country	Ganges basin freshwater availability (billion cubic meters or BCM)			2001 Ganges basin population	2001 Freshwater availability in cubic meters per capita per annum	2025 Ganges basin population	2025 Freshwater availability in cubic meters per capita per annum
	Total	Surface	Ground				
Nepal	230	217	13	23 million	10,000	37 million	8,649
India	671	500	171	440 million	1,525	634 million	1,060
Bangladesh	218	197	21	41 million	5,892	49 million	4,449

The Case of the Ganges...

- Basin countries (Nepal, India & Bangladesh) have very low per capita commercial energy consumption as compared to global average.

Per Capita Energy Consumption in Kilograms of Oil equivalent (kgoe)	Ganges Basin Countries			Global
	Nepal	India	Bangladesh	
1990	304	377	123	1,668
2000	334	452	145	1,657
2005	338	491	171	1,778
2013	369	606	215	1,929 (2014)

Source: WB 2013 & 2014



Towards Cooperation...1

- Ganges Treaty between India and Bangladesh, 1996
- Project Agreements on the tributaries of Ganges between Nepal and India:
 - Koshi Agreement, 1954
 - Gandak Agreement, 1959
 - Mahakali Treaty, 1996

Towards Cooperation...2

- The window for comprehensive approach
 - Bangladesh – India
- The Ganges Treaty, 1996: cooperate in finding long term solution for augmenting the flow (Article 8)
- Framework Agreement ,2011: sub-regional cooperation in the power and water, management(Art. 7)
- Joint Statement,2011 Undertake regional projects(Para 58)

Towards Cooperation...3

■ Nepal – India

- Power Trade Agreement, 2014:
- Recognition to common electricity market that could extend to sub-regional and regional levels.

■ China – India

- Sharing of Flood data on Brahmaputra, 20th June 2014



Challenges to Cooperation...1

- Captive of the Past legacy: Nepal-India
- Hindrances on the way: Bangladesh – India
- Way apart on the main issue: China-India



Challenge to Cooperation...2

- No country is prepared to accept any common principle or rule of the game
- No one has ratified the UN Convention
- Abstentions and against in the voting at UN
- Perhaps setting the evidence and gradual move seems to be the only way at present. But may be too late.

Experiences of Transboundary Water Cooperation

- Nile River Basin
- Mekong River Basin
- WHY not in South Asia (Ganges Basin)






GWP-SAS and Regional Cooperation

- IWRM is the main flagship of GWP.
- In South Asia; very few cases of joint studies.
- Only country-specific studies and there is no cross-fertilization of the research outcomes.
- Such cooperation not seen among countries neither in conservation nor in utilization.
- No holistic/basin wide agreement in the region.

GWP SAS and Opportunities for Regional Cooperation

■ GWP SAS

- is a repository of experts and Government/NGO personnel from the region.
 - Has the network and capability for taking lead for regional cooperation.
-
- Exchange of data and information among the basin countries help enhance optimal utilization of water resources and mitigate the impacts of water induced hazards.



GWP SAS and Opportunities for Regional Cooperation

- CWPs must choose common program on issues which are common to at least to two or more countries.
- Tailor the activities under the program to complement each other.
- Exchange of information and experience session to bring the conclusion.



GWP SAS and Opportunities for Regional Cooperation..

- Wide dissemination of information
- Identify the intervening points in the policy of the govt.
- Work with the Govt. with a view to complement the goal of the govt.
- Start from bottom to the top.

THANK YOU!

