

International Workshop on
"Tackling Water and Food Crisis in South Asia:
Insights from the Indus-Gangetic Basin"

CPWF Basin Focal Project for the IG Basin

2-3 December 2009, The Silver Oak Room, India Habitat Center,
New Delhi, India

Project Background

Indus-Gangetic Basin (IGB) Focal Project is an initiative by the CGIAR Challenge Program on Water and Food (CPWF), lead by International Water Management Institute and with a host of global and national partners from the four basin countries. Indus-Gangetic basin is one of the most populous in the world and given the diversity of agro-climatic, social and economic conditions in the four riparian countries—Pakistan, India, Nepal and Bangladesh, it is clearly one of the most complex river basin systems in the world. . Management of IGB water resources presents some formidable challenges and, therefore, the project was initiated to identify steps to be taken towards integrated management of the IGB's water and land resources in order to ensure the future sustainability of all production and ecosystems in the basin. The project was launched in April 2008 with the objective of conducting basin-wide analysis of the conditions, constraints and opportunities for improving agricultural water productivity and alleviating poverty through high potential interventions.

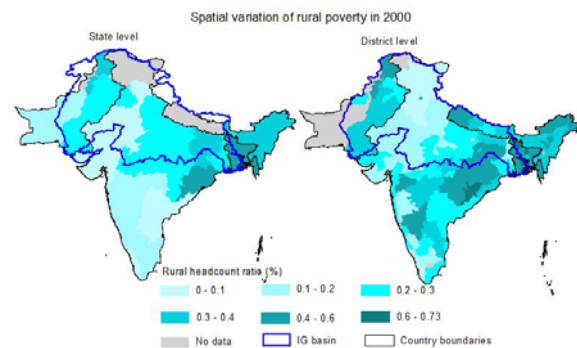
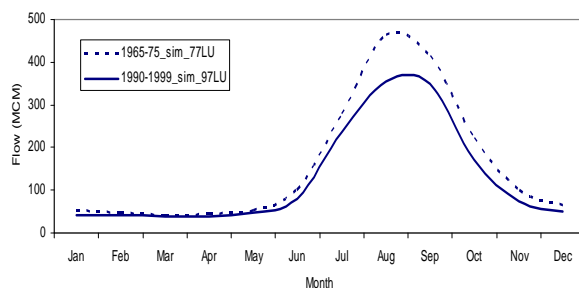
About the project

The project is organized around six work-packages: water poverty analysis, water availability analysis, water productivity analysis, institutional and policy analysis, intervention analysis and knowledge management.

WP1: Water Poverty Analysis

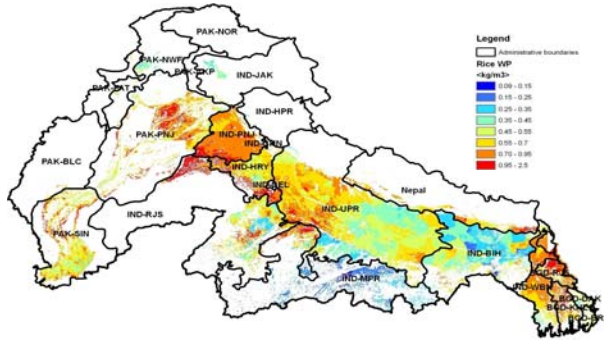
This component exhibits the dynamics of water, land and poverty nexus in IG basin and how they are likely to evolve in future.

- Intensive irrigation could contribute to land degradation and threaten the very benefits that irrigation has delivered to the rural people.



WP 2. Water Availability

This work-package aims at assessing the total resource and water balance components in the basin, impact of climate change and upstream land use changes on water availability and also tries to answer the question of how people access this water.



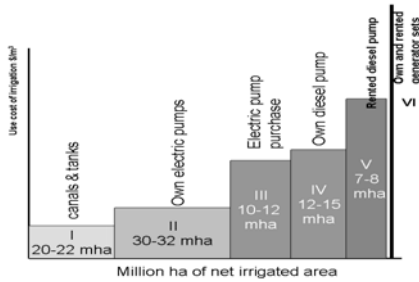
WP3: Water Productivity

Water productivity work package aims to provide understanding of basin performance on agricultural water utilization, maps water productivity for major crops and fisheries, assess scope for improvement, and identify factors affecting WP. It uses an innovative approach by integrating remote sensing and

GIS products with the locally available census data and ground-truthing.

WP 4: Institutional Analysis

This package analysed the institutions with a broad view encompassing water-related policies, laws and administrative structures as well as informal water institutions such as water user organizations, water markets and civil society organizations working in the water resource, energy and fisheries sector.



WP 5: Intervention Analysis

This work-package aimed at identifying potential and productive physical and policy interventions capable of improving the water productivity and alleviating poverty in the Indo-Gangetic Basin (IGB) in a sustainable manner.

Zero tillage



Laser land levelling



Basin Facts

- Basin Area: 225 million ha
- Population (2001): 747 million
- Percentage rural (2001): India, 74.5; Bangladesh, 79.9; Nepal, 85.0; Pakistan, 88.0
- Mean annual rainfall: 1,254 mm
- Climate: Range of arid, semi-arid, humid tropical, temperate
- Water Demand for India (2000): 330 billion m³
- Water demand for Bangladesh (projected, 2010): 21.4 billion m³
- Water demand for Pakistan (2001): 95.32 billion m³
- Total net cropped area: 114 million ha
- Percentage of annual water use by sector (1996): agriculture, 91.4%; domestic, 9.3%; industry, 0.5%; livestock, 0.3%. CPWF Web site

WP 6 – Knowledge Management

Knowledge management aimed to:

- Share the information and knowledge products as public goods
- Support decision making in the basin regarding natural resources and agriculture management
- Investment decisions by donors and the governments

A project website launched to be the knowledge gateway for agricultural water management in IGB basin.

The project has also developed a comprehensive database on all the major parameters related to water, climate, productivity, poverty and water governance laws in the Indus-Gangetic Basin.

Project Highlights

- High population growth is a significant driver of depleting and degrading natural resources.
- Head Count Ratio (HCR) has improved significantly in the recent years; yet, income of a large part of the poor population still well below the poverty line.
- Inflows in Gorai River Catchment (Bangladesh) reduced due to the upstream construction of the Barrage.
- Outlet runoff affected by land use within the catchment as well as the inflow coming from the Ganges.
- Land use changes can significantly increase flows, providing more freshwater flow into the Sundarban mangrove forests.
- Water productivity of both rice and wheat is generally low, implying great scope for improvement.
- General decline in WP from North-west to South-east .
- The variability shows no direct relationship with climate conditions, implying the significance of irrigation.
- Sugarcane, pulses and millet make significant contributions to the overall productivity of water.
- High surrogate water price is driving out smallholder irrigation.
- Agriculture electricity supply is dwindling and is increasingly unreliable.
- Much irrigation expansion in the basin is then occurring through increase in numbers of diesel pumps.
- Public irrigation systems grossly under-price irrigation; but these are getting marginalized despite massive government and donor investments.
- In the IGB, major challenge is to find ways of bringing down agricultural water use cost below the ‘upper threshold’ beyond which abundantly available water becomes too expensive for the poor to use to maintain livelihoods and food security.
- Including sugarcane and mustard in the cropping system could enhance the WP in the IGB.
 - Adopting RCTs allow farmers to increase area and intensity of cropping
 - Delayed transplanting of paddy saves precious groundwater and the energy.

Workshop objectives	Workshop outputs	What would we learn?
<ul style="list-style-type: none"> ● Share the major findings from various work-packages. ● Synthesize research results and plans for knowledge exchange. ● Dissemination of project outputs and create an impact with the stakeholders. 	<ul style="list-style-type: none"> ● An evaluation of the results and recommendations of the project ● Report synthesizing project outputs ● Poverty and water poverty maps at national/ sub-national and household level in the basin. ● Water use and water productivity maps for the major crops/ systems. ● Assessment of water resources including the impact of glacier melts. 	<ul style="list-style-type: none"> ● Clear understanding of the overall water situation in IGB ● Demographic pressures and their links to water and food ● Scope for WP improvement in IGB ● Policies and institutions enabling better WP by enhancing access to land and water ● Potential interventions for improving WP ● Use of RS/ GIS for basin level productivity mapping. ● Strengths and weaknesses of water governance laws and policies in the basin countries. ● Use of SWAT, SWAP, WEAP, SEBAL models.

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