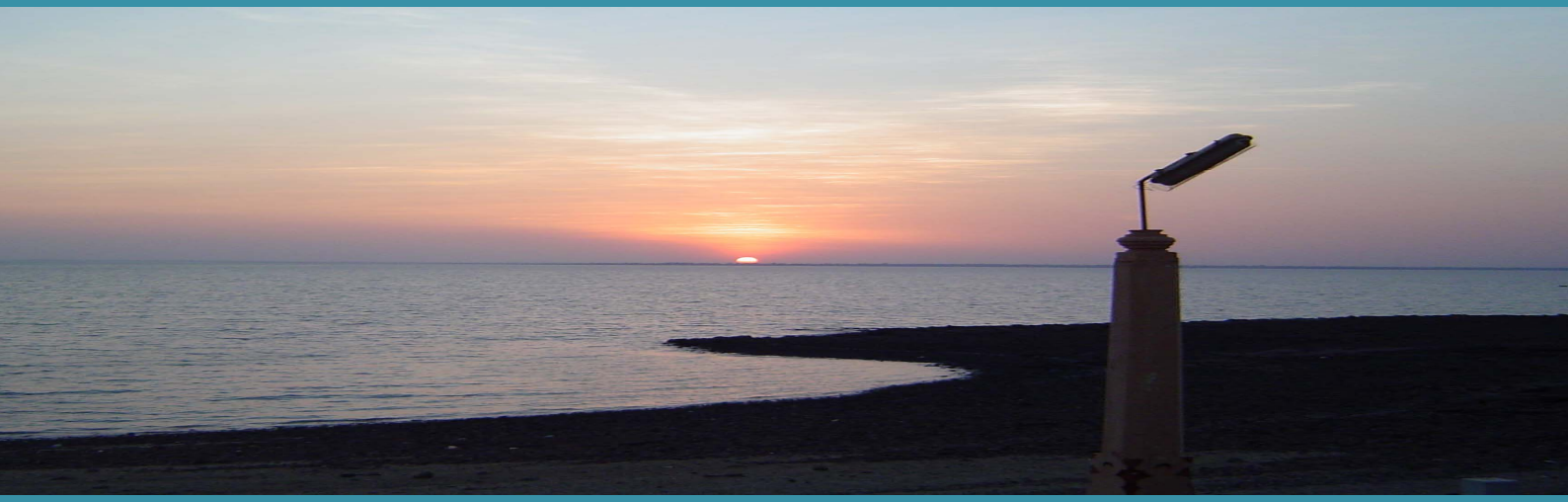
STRIVER POLICY BRIEF

Strategy and methodology for improved IWRM
- An integrated interdisciplinary assessment in four twinning river basins

PB No. 5



Managing Competing Water Uses in Tungabhadra sub-basin, India

New demands for water lead to increasing pressures to re-allocate water. This results in conflicts across and within sectors impacting economic and environmental prerogatives. While there is competition for access to water, different uses of water are not always mutually exclusive. A comprehensive analysis of competing water uses in Tungabhadra sub-basin indicates a strong need for integrated water resources management.

The STRIVER Policy Brief series translate the results from the EC FP6-funded STRIVER project into practical and useful information for policy makers and water managers

Competing Water Uses in Tungabhadra Sub-basin, India

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Abstract

The study identifies the competing water uses in Tungabhadra sub-basin (TBSB), major factors contributing to the water use, new demands, conflicts and ways to address the competing water uses. In Tungabhadra, an overall plan is not prevalent to envisage how the transformation can be achieved with a basin wise management approach. Lack of coordination between the different administrative levels and sectors is one of the main problems. Policies are existent partially but are rudimentary. The Karnataka State Water Policy, 2002 for the first time mentions the need for Integrated Water Resource Management but does not specify how it should be implemented. To put the policy into practice, institutional reforms are required in the water sector. Implementing some of the principles of IWRM in the water sector may be difficult without adequate political support, as hard decisions have to be made. Water management in the basin must be integrated and participative involving the end-users in decision making and continuously supported by adequate resources.

This Policy Brief is based on STRIVER Report Task 9.1 on Competing water uses

Fact box

In the TBSB, water sharing and allocation is based on the Krishna State Water Disputes Tribunal Award (KWDT), which prioritizes allocation for drinking water as the first priority followed by irrigation, industries and environment. Total water allocation across the sectors is 230.31 TMC out of which, agriculture sector gets the major share of 94.3 %, only 1.96 % for drinking water and 3.72 % for Industrial usage.

Cropping pattern suggested in the basin was specified for semi arid crops but paddy and sugarcane dominate. Unauthorized irrigation of a second crop during summer in head reach of the canal deprives water to the tail end areas. Accessibility, availability and inequity in drinking water supply are prominent. About 15 towns faced scarcity during summer of 2007. Unaccounted use of water ranged between 20-40 per cent, another serious problem that needs to be addressed. There is little awareness about water conservation and usage. Run off from agricultural fields, industrial effluents, domestic sewage and mining activities cause pollution. Runoff from the agricultural fields has resulted in salinity, alkalinity and water logging in the downstream of the command area affecting an area of 52000, 8345 and 35850 ha respectively. Fish kills are frequent affecting livelihoods of fishermen. Health impacts of pollution are not analyzed regularly. Water quality is affected in more than 100 villages from industrial pollution. Around 20 towns have no underground drainage system and sewage treatment plants. Eleven towns discharge waste water into the river.

Introduction

Since the Green Revolution in 70s, water needs for irrigation have changed dramatically in basins such as India. Irrigated crops dominate and are highly water demanding. Water allocation for different sectors becomes a challenging task with emerging new demands especially in the river basins that are transboundary in nature. In TBSB, management is based on administrative and not hydrological boundaries resulting in various allocation, distribution and usage problems within and across sectors. Water allocation in the basin is not prioritized based on water availability and needs, but based on political decisions. As a result, the powerful lobby groups manage to get the water at the cost of others, further intensifying the conflicts.

The case of Tungabhadra sub-basin

The present study was conducted within the TBSB in 2007-08, one of the case basins in the STRIVER project. Tungabhadra is a tributary of the larger river system namely Krishna located in the peninsular India. The aim of the study was to analyse competing water uses and their needs and expectations in TBSB. Specific objectives were to:

- Understand the present water allocation and distribution system
- Analyze the main factors that influence current allocation and distribution system
- Suggestions for efficient allocation and distribution based on the situation analysis.

The river Krishna is the second biggest river in peninsular India which flows across three states – Maharashtra (26.8%), Karnataka (43.8%) and Andhra Pradesh (29.4%). The water sharing between the three states is supposed to be governed by the Krishna Water Disputes Tribunal (KWDT) set up in 1969 under the Inter State Water Disputes Act of 1956. The Tribunal gave its final award, which dealt with two aspects, sharing of available waters based on 75% dependability and sharing of surplus waters. It is also stated that in case of non-cooperation by States in sharing the surplus, the Parliament should take the decision to distribute the surplus through enactment specified in the KWDT report. Conflicts have intensified between the states sharing Krishna waters, and have been highly politicized adding to the overuse and water scarcity problems. Resolving interstate conflicts on water sharing has to be given high priority while promoting integrated management.

Water allocation

At the sectoral level, agriculture consumes major share of water in the TBSB (almost 95%) and supports 80 per cent of the population. Ground water exploitation for irrigation has increased dramatically in the basin. Drinking water demands from expanding urban areas is now the major competing factor for irrigation, especially in some parts of the basin where water is being diverted through permanent pipe lines. The total volume of water supplied is 344.5 MLD, out of which 331.4 MLD constitutes surface water and 13.09 MLD from groundwater sources.

Fig.1 Transporting Drinking Water, Chennagiri town, Karnataka, India.

Industrial sector is another major consumer with 27 large-scale industries, and about 2,543 small-scale industries. 6.1 TMC of surface

water is allocated to industrial use. In the TBSB, Hydropower is generated by utilizing water released for irrigation purposes. Electricity generation is dependent on water releases made for irrigation to Right Bank Low Level Canal and river assistance to Rajolibunda Diversion Scheme and KC canal. Power generated is shared between Andhra Pradesh and Karnataka. In Tourist/religious places floating population have added to increasing consumption but no data is available on water consumption. Similarly, there is no provision made to maintain minimum environmental flows. Water allocation is not planned properly and mostly based on *adhoc* decisions.

Institutional Mechanisms

There are no institutional arrangements at the State level to consider sectoral water demands, plan and manage water resources. Responsibilities of water management are fragmented between departments without formal mechanism to ensure co-ordination. With increasing water scarcity and conflicts between various competing sectors and at various levels - macro as well as micro level of distributaries, communities and individual users, the formal water rights as a mechanism for water allocations and accountability has gained importance. Currently, the water rights are governed by the Water Policy and Irrigation Acts, of the respective states. However, there is no clear legal framework specifying water rights, even though various acts have some basis for defining some form of rights.

The introduction of Participatory Irrigation Management (PIM) in both Andhra Pradesh and Karnataka states and the subsequent changes made in the irrigation sector resulted in shifting irrigation water management responsibilities from the State department to Water Users Associations (WUA), without giving much time for adaptation. Complete transfers of powers were ensured as far as responsibilities were concerned while only partial transfer occurred in the case of water quantity assessment, water supply, etc. Andhra Pradesh and Karnataka have invested vast amount of resources to implement PIM. Andhra Pradesh demonstrated the political will by initiating widespread irrigation reforms through legislation. Despite such will and interest, the program has not taken off to the expected levels. Substantial amounts of money were spent on the reform process - mainly for improving the ailing irrigation systems rather than strengthening institutional structures. One of the reasons attributed to poor performance of PIM was the domination of rural and political elite in functioning of Water User Societies and partial transfer of powers. PIM not only included decentralization and stakeholder participation, but also reframing water as an economic good. But the concept was new to farmers as they viewed water as a natural resource and free for use. It is no different in the TBSB, where the targeted number of WUAs to be formed is at 1133, out of which 722 have been registered. However, only 8 WUA's are functioning effectively.

Figure 2: Paddy in semi-arid region, TBSB, Karnataka, India

Policy implications

It is important to adopt IWRM for improved water management and prevent further degradation and sustainable water use. In Karnataka State Water Policy, 2002, mention is made towards integrating various interests and developing basin level management units. The state also plans to set up multi-sectoral water planning, inter-sectoral water allocation, planning of water development programmes,

and resolution of water resources issues. However, several of these initiatives have not been implemented so far. These initiatives should be supported with adequate resources and political will. An overall plan is required to envisage how the transformation can be achieved with a basin wise management approach. This is not possible before the transboundary conflicts are resolved.

The existing policies should be revised to address the current and future water scenarios in the basin. Among the existing ones, regulatory mechanisms for implementing and enforcing them are limited or non-existent. To put the policy into practice is likely to require the reform of water law and water institutions. This can be a long process and needs to involve extensive consultations with affected agencies and the public. IWRM can address a number of problems, promote efficient water use and thereby resolve competing water demands. IWRM will become more relevant as climate variation and extreme events such as droughts become more frequent in basin such as TBSB. It is not easy to implement IWRM, given the history of water management and domination of sectoral approach in TBSB. In the TBSB, the supportive system to link the water users and providers is still weak. Inefficient governance aggravates increased competition for the finite resource. Moreover, water management is usually in the hands of top-down institutions, the legitimacy and effectiveness of which have increasingly been questioned. The concept of integrated water resources management has been accompanied by promotion of the river basin as the logical geographical unit for its practical realization. But, in TBSB, perhaps integration can also be realized at micro watershed level and scaled upwards. There are several organizations across the basin working across sectors, and such organizations should be included inefforts to integrate management and address competing water uses.

Water management within the agricultural sector needs to address a wide range of issues, management of supplies and demands, increasing efficiency of water use, balancing competing demands, sustainability of agro-ecosystems and other water-dependent ecosystems. Complex socio-economic pressures and limitations in human, financial and institutional capacity lead to principal constraints, which need to be resolved. Capacity building is needed to prepare water users, water managers and policy makers for adopting an integrated approach to water management.

Figure 3: Women waiting to collect water, Guddada Anveri village, Karnataka, India.

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STRIVER Report 2008. Managing Competing Water Uses

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The STRIVER Policy and Technical Brief series translate the results from the project into practical and useful information for policy makers and water managers.

The Briefs are also available online: www.striver.no

About STRIVER
STRIVER- Strategy and methodology for improved IWRM - An integrated interdisciplinary assessment in four twinning river basins is a three year EC funded project 2006-2009 under the 6th framework programme (FP6) coordinated jointly by Bioforsk and NIVA. The point of departure for STRIVER is the lack of clear methodologies and problems in operationalisation of Integrated Water Resource Management (IWRM) as pointed out by both the scientific and management communities.13 partners from 9 countries participate as contractual partners in addition to an external advisory board.

Title of project:
Strategy and methodology for improved IWRM - An integrated interdisciplinary assessment in four twinning river basins (STRIVER)

Instrument: SUSTDEV-2005-3.II.3.6: Twinning European/third countries river basins.
Contract number: 037141
Start date of project: July 2006 Duration: 36 months

Project funded by the European Commission within the Sixth Framework Programme (2002-2006)

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Front-cover photo: by Udaya Sekhar Nagothu

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Launch date: 17 November 2008