Why Balance Water Use ?

The Development Target set by the UN Millennium Assembly in 2000 is to halve by 2015 the proportion of people living in extreme poverty, of those who suffer from hunger, and of those who are unable to reach or afford safe drinking water. In the effort to achieve these far reaching goals, freshwater and skilful water resources management will have to play a fundamental role.

Water is a *sine qua non* for most human activities, and therefore for the accelerated development aimed at by the General Assembly. Besides for sheer human survival, water is needed for industrial production, for the functioning of hospitals and other urban amenities, for irrigated agriculture, for the production of energy, for navigation, etc.

At the same time, water has turned out to be a victim – maybe the main one – of economic growth. This is due to the widespread "wilful neglect" of the fact that waste production is intimately linked to the wealth generating processes but degrades the water for other users dependent on the same river system.

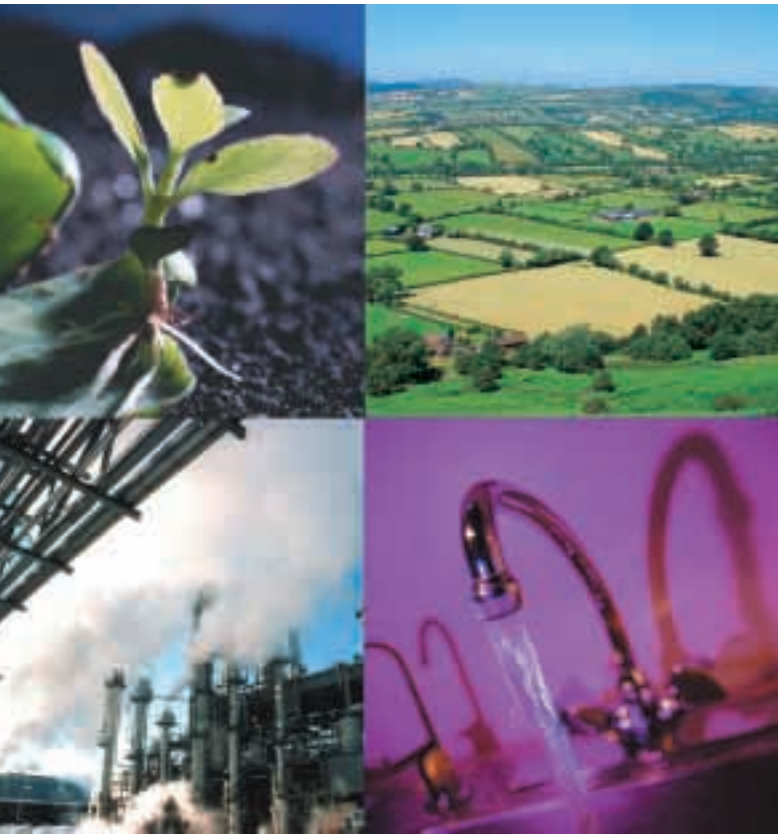
Upstream/Downstream Patterns

Basically the water accessible for use in rivers and aquifers originates from the precipitation over the drainage basin. It is the non-evaporated part of the precipitation that continually recharges rivers and aquifers. The non-evaporated fraction is, however, dependent on land cover and land use, especially in tropical regions with high evaporative demand of the atmosphere. In such regions, river runoff is vulnerable to land cover change including deforestation, reforestation, fires, etc.

From rivers and aquifers water is being withdrawn for a multitude of different purposes. After use, it will return to the water cycle in two main ways:

- after irrigation, the consumptive use evaporates and leaves the basin not available for reuse downstream, while the surplus part goes as a return flow to the land where it finds its way back to a local river or aquifer often in a more polluted state.
- after throughflow-based uses in cities and industries, the water returns more or less loaded with pollutants which degrade the water quality and complicates downstream reuse.

The upstream/downstream pattern of water withdrawals, consumptive uses and return flows are given by the geographical locations of water stakeholders in the basin. As long as the water demands are small relative to the water availability, allocation of water does not involve much competition. The main problems tend to be the pollution load added as part of the wealth production processes. But when water demands grow, problems may exacerbate quickly. An effective water resources management will have to find ways to successfully orchestrate the chain of consecutive users so that all relevant uses can be properly met.



Compromise Building Mechanisms

The challenge now originates from especially two fundamental problems: the consumptive uses which deplete the river flow, reducing downstream availability, on the one hand, as can be seen in many developing country rivers today, and on the other hand pollution loads, which reduces downstream usability and may even cause considerable human suffering as witnessed in the Aral Sea region.

As the population continues to grow, the need to produce more food increases further, and as the industrial development proceeds, water demands may start to compete internally. This will call for the development of criteria for priorities. Efforts will be needed to put compromise building mechanisms in place. For that purpose, stakeholder participation will have to be built into the decision making process to secure that the decisions are socially acceptable.

These prioritization criteria will have to include adequate attention to the water needed to support riparian wetlands and aquatic ecosystems: an "uncommitted environmental flow" has to remain in the river in ecologically important river stretches.

In today's world, many regions have already reached a water withdrawal level where most river flow is already committed and the rivers are "closing" in the sense that no water remains that can be put to more consumptive use. This means that the compromise building processes have to be looked into more closely and stakeholder participation has to be properly organized and be given legal status. ■

Editor's note:
The subject of water use balancing will be examined specifically in this year's Stockholm Water Symposium, which takes place within the context of the World Water Week in Stockholm August 11-17 2002.

Over the next six pages, Stockholm Water Front previews each of the activities taking place during the week.

Be sure to check SIWIs homepage, www.siwi.org, regularly for the latest program information. In addition, check the site daily during the Water Week for ongoing reports, commentary and video presentations from key events.