



## More food with less water

Water is essential for all food production in the world. It is therefore of the utmost importance that we learn to manage water resources better. A growing world population, rising world food prices, the impending climate changes and greatly increased investment in bioenergy crops on agricultural land threaten the realisation of the UN Millennial Goal of halving world poverty by 2015.

The situation is serious, but it is not impossible to deal with. In this publication, the fourth book of Research Council Formas produced for World Water Week, researchers describe the extent of the water problem and set out proposals for its solution.

One fundamental problem is the matter of priorities. If water resources continue to be used as now, with increasing urbanisation in the world, growing meat consumption and investments in bioenergy, these problems will soon be aggravated. However, if areas of land that have so far been reserved for meat production can be used for greater production of plant foods, there will also be space for energy crops. The threat from the increase in bioenergy production can also be turned into positive initiatives for the ecosystems, such as water filtration or mitigation of soil erosion.

Management of water resources can be made more efficient. In poorer parts of the world, food that has already been produced (and, indirectly, the water used in its production) is wasted through losses in the harvest, storage and transport, while in the richer parts of the world about one quarter of all food that has been bought is thrown away. By calculating the water footprints of agricultural products, their actual cost in terms of water use, in different parts of the food chain and in different geographical areas, can be estimated. The productivity of water used while crops are growing can be considerably improved by better planning of irrigation. Rainwater can also



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be utilised more effectively – this can be achieved by small scale methods in local communities, such as those applied in many places in e.g. India.

Agricultural land is also exposed to a lot of stress. It is predicted that climate changes will result in heavy downpours in parts of the world. These will give rise to increased erosion of agricultural soils, and will need countermeasures at both farm level and in the catchment areas. Soils are also degraded and harvests spoiled by the leakage of nutrients which pollutes seas, rivers and lakes. Pollution of soils occurs through salinisation and concentration of minerals, caused by inadequate drainage or poor water planning with respect to the type of soil.

New methods of cultivation or genetically improved crops can prove to be of decisive importance in dealing with the drier climate that is expected in large parts of the world. Interesting examples of this can be seen in the new rice strains and cropping techniques which use little water, developed specially for conditions in Africa and Asia, or in the recently developed strains of maize which are now undergoing trials.

Water problems must be tackled on a broad front and with a mixture of small and large scale solutions. Many of these measures demand political resolutions based on international negotiations. In this way, the results of multifaceted research can provide guidance for the decisions regarding important prioritisations in the food supply and equity issues that the world is facing.

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**Further reading ([www.formas.se](http://www.formas.se))**

- Water research – what's next? Formas (2004)
- Groundwater under threat, Formas (2005)
- Dams under Debate, Formas (2006)

