

Global competition for water resources

Contribution to Framework for actions leading to sustainable water use
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Estimates of future demands for water suggest that billions of people will live under water-stressed conditions. The demand for water will increase suggesting the increase of water withdrawal from natural systems. Current freshwater withdrawal from blue water sources approximate 4000 cubic km per year which is used for irrigation, industry and domestic purposes. With agriculture accounting for more than two-third of freshwater withdrawals, approximately 3000 cubic km per year is used for food production, in addition to water from rainfall.

Prompted by high oil prices, the potential risks associated with global climatic change, finite energy resources and geo-political tensions, governments' directives promote the replacement of fossil fuel by bio-energy. Any component of organic material can theoretically be converted into energy for use in transport or as electricity. The production of the biomass for production of bio-energy will require similar resources as food production and will put a claim on land, water and other resources. Already several millions of hectares are dedicated to production of feedstock (biomass) especially in Brazil and the United States, and increasingly in Europe and Asian countries.

The implications of this additional demand for feedstock for bio-energy on the global resource base are unknown. Current estimates of the global production capacity of feedstock for bio-energy are based on land availability, with no attention to production constraints due to water and other resources, including nutrients. The estimated range in production potentials is wide in terms of energy, ranging from zero to "several times the present oil consumption". The attention for Fuel seems to overrun discussions about the resource availability for food and ecosystems. Debates rather emphasize the competition between Food (including Feed) and Fuel and the concerns to sustain Forests. A strong plea is needed to raise attention for water and ecosystems in debates on bio-energy.

In the forecasts for future water withdrawal the demand for bio-energy has not been considered so far. Calculations are needed on the basis of production ecological approaches to secure realistic and ecologically sustainable practices in estimating future water requirements. A rough estimated based on a generic calculation procedure shows the amount of water that would be needed for the production of bio-energy will exceed current requirement for food production if we take current estimates of biomass production based on land availability. The pressure on water resources will be immense. Research is needed on this matter to inform policy makers about feasible option for using biomass as a feedstock for energy and the implications on water resources and ecosystems maintenance. Quick actions are needed to prevent irreversible exploitation of resources, damaging biodiversity, land and water resources.

Further reading and references

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