



Growing More Food – Using Less Water

Water use in agriculture

- ▶ Agriculture accounts for 70% of all freshwater withdrawals compared to 20% for industry and 10% for municipal and domestic use. In Africa and Asia more than 80 % of water is for agriculture compared to less than 40% in Europe and North America
- ▶ In Africa and Asia less than 10% of the water is withdrawn by industry, in Europe and North America the figure is 50%.
- ▶ Rapid population growth in urban areas means less water for farming.
- ▶ Water also needed for less consumptive, but important uses such as hydropower, navigation and sustaining the environment and ecosystems.
- ▶ The challenge for global agriculture is to grow more food with declining allocations of land and water.
- ▶ To do this will require a much more responsive approach to water use and water management in agriculture.

Water and food relationship

- ▶ Food production kept pace with the increase in global population from 2.5 billion in 1950 to 6.5 billion today through improvements in cereal yields and expansion of irrigated land, particularly in Asia.
- ▶ Now food prices have risen again and with the population expected to hit 9 billion by 2050 the world is going to have to massively improve water productivity in agriculture if it is to feed itself.
- ▶ On average human beings need to drink between 2 and 4 litres of fluids a day but consume 2 000 to 5 000 through the water used in producing their food.
- ▶ It takes around one litre of water to produce one calorie of food energy.
- ▶ Growing urbanization and increased wealth in many parts of the world has led to an increase in demand for a varied diet including more meat. Protein rich-diets require substantially more water than vegetarian diets.

Climate change and biofuels

- ▶ Climate change is likely to hit the poorest smallholder farmers particularly hard as they farm marginal lands and relying on rainfall to sustain their livelihoods.
- ▶ Extreme weather events, such as storms and flooding, can contaminate freshwater and damage facilities used by farmers to store and carry water.
- ▶ Around 2% of water for irrigation is used for liquid biofuel production. It takes 2 500 litres of water to produce 1 litre of liquid biofuel used for transportation – enough to provide basic food for one person for one day.
- ▶ Even though globally the amount of water withdrawn for biofuel production is modest, they may worsen water scarcity problems in some areas.

Irrigation and rain fed production

- ▶ 40% of total food production in developing countries is grown on irrigated land. By 2030 the amount will be close to 50%.
- ▶ Only 7% of cropland in Africa is irrigated and only 4% in sub-Saharan Africa, compared to 38% in Asia. In total, 29 % of arable land in developing countries is irrigated.
- ▶ Between 1961 and 1999, the amount of irrigated land in the world grew 1.8% a year, resulting in a total increase of almost 130 million hectares.
- ▶ Between 1997 and 2030 water withdrawal for irrigation in developing countries is expected to have grown by 14%.
- ▶ Africa only uses 5% of its renewable water resources, and sub-Saharan Africa even less than 3%, so the potential for improved irrigation is enormous.
- ▶ An FAO conference in Libya in December 2008 estimated Africa needs \$65 billion investment for a twenty-year period for around 1 000 water improvement projects - the equivalent of 17% of OECD yearly agriculture subsidies or 5.4% of global military spending.
- ▶ The performance of existing irrigation systems will need to be raised and more arable land converted to intensive production while mitigating environmental impacts.