Feature

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Water: The Forgotten Crisis

By Dr. Colin Chartres, Director General, IWMI

This year, the world and, in particular, developing countries and the poor have been hit by both food and energy crises. As a consequence, prices for many staple foods have risen by up to 100%. When we examine the causes of the food crisis, a growing population, changes in trade patterns, urbanization, dietary changes, biofuel production, and climate change and regional droughts are all responsible. Thus we have a classic increase in prices due to high demand and low supply. However, few commentators specifically mention the declining availability of water that is needed to grow irrigated and rainfed crops. According to some, the often mooted solution to the food crisis lies in plant breeding that produces the ultimate high yielding, low water-consuming crops. While this solution is important, it will fail unless attention is paid to where the water for all food, fibre and energy crops is going to come from.

A few years ago, IWMI (the International Water Management Institute) demonstrated that many countries are facing severe water scarcity, either as a result of a lack of available fresh water, or due to a lack of investment in water infrastructure such as dams and reservoirs. What makes matters worse is that this scarcity predominantly affects developing countries where the majority of the world's under-nourished people─ approximately 840 million ─ live.

The causes of water scarcity are essentially identical to those of the food crisis. There are serious and extremely worrying factors that indicate water supplies are steadily being used up. Essentially every calorie of food requires a liter of water to produce it. Thus those of us on western diets, use about 2500-3000 liters per day. A further 2.5 billion people by 2030 will mean that we have to find over 2000 more cubic kilometers of fresh water per year to feed them. This is not any easy task given that current water usage for food production is 7500 cubic kilometers per year and supplies are scarce. According to the Comprehensive Assessment of Water Management in Agriculture─ a recent study which drew on the work of 700 scientists, unless we change the way we use water and increase "water productivity" (i.e. more crop per drop) we will not have enough water to feed the world's growing population (estimated to increase from 6 billion now to about 8.5 billion in 25 years). Compared with the lengthy agenda to combat climate change, this is a very short time indeed and yet the impacts of water scarcity will be profound. However, very little is being done about it in most countries.

Since the formulation of the UN Millennium Goals in 2002, much of the water agenda has been focused around the provision of drinking water and sanitation. This water comes from the same sources as agricultural water and as we urbanize and improve living standards there will be increasing competition for drinking water from domestic and other urban users, putting agriculture under further pressure. While improving drinking water and sanitation is vital with respect to health and living standards, we cannot afford to neglect the provision and improved productivity of water for agriculture.

There are potential solutions. Better water storage has to be considered. Ethiopia, which is typical of many sub-Saharan African countries, has a water storage capacity of 38 cubic metres per person. Australia has almost 5000 cubic meters per person, an amount that in the face of current climate change impacts may be inadequate. While there will be a need for new large and medium-sized dams to deal with this critical lack of storage in Africa, other simpler solutions are also part of the equation. These include the construction of small reservoirs, sustainable use of groundwater systems including artificial groundwater recharge and rainwater harvesting for smallholder vegetable gardens. Improved year- round access to water will help farmers maintain their own food security using simple supplementary irrigation techniques. The redesign of both the physical and institutional arrangements of some large and often dysfunctional irrigation schemes will also bring the required productivity increases. Safe, risk free reuse of
wastewater from growing cities will also be needed. Of course these actions need to be paralleled by development of drought- tolerant crops, and the provision of infrastructure and facilities to get fresh food to markets.

Current estimates indicate that we will not have enough water to feed ourselves in 25 years time, by when the current food crisis may turn into a perpetual crisis. Just as in other areas of agricultural research and development, investment in the provision and better management of water resources has declined steadily since the green revolution. I and my water science colleagues are raising a warning flag that significant investment in both R&D and water infrastructure development are needed, if dire consequences are to be avoided.

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Notes to Editors :

Australian soil and water scientist, Dr. Colin Chartres is Director General of the Sri Lanka-based International Water Management Institute (IWMI), a non-profit research organization focusing on the sustainable management of water resources for food, livelihoods and the environment. IWMI is one of 15 research centers supported by the Consultative Group on International Agricultural Research (CGIAR). Chartres has 30 years' experience in driving research and policy reform in natural resources management. Prior to his appointment, he was Chief Science Advisor to Australia's National Water Commission where he led a baseline assessment of Australia's water resources and development of a science framework for the Commission. He also worked in various capacities with the Australian Commonwealth Scientific and Research Organization (CSIRO), and chaired the Global Research Alliance's Water Action Council.

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