

Thirsty Land

Untapped Opportunity

JACQUES DIOUF says that drought and water scarcity is the greatest threat to global food production, and calls for greater investment in water control



Mark Edwards/StillPictures

World food supply is still at the whim of the weather. Eighty per cent of the world's food crises are linked to water and especially to drought. The chronic vulnerability of people in Africa's Sahel zone demonstrates this fact time and again – last year in Niger, today in the Horn of Africa.

With 852 million chronically hungry people in the world today and world population expected to grow by an additional 2 billion people by 2030, feeding this growing population and reducing hunger will only be possible if agricultural yields can be increased significantly. And increased food production will depend largely on investment in the control of water, the cornerstone of agricultural development.

Irrigation, which currently provides only about 10 per cent of agricultural water, plays a crucial role in crop production, especially in arid or semi-arid regions. When rains are weak or erratic, irrigation can ensure crop production and allow farmers to invest in more productive agriculture, which means not only greater food security and better nutrition for rural populations, but also job creation and increased earnings and trade opportunities.

Productivity from irrigated land is about three times higher than from rainfed land. Today, irrigation covers about 20 per cent of the world's cropland, but irrigated land contributes 40 per cent of total food production.

In Africa, only seven per cent of the arable land is irrigated, compared with 38 per cent in Asia. Africa uses less than six per cent of its renewable water resources, compared with 20 per cent in Asia.

Rural infrastructure

Approximately 40 per cent of Africa's commercial food import bill (which was \$16 billion in 2003) comprises staples – wheat, maize, rice, and sugar – as traditional rainfed production has been unable to match food demand, particularly from the rapidly expanding urban centres. Management of Africa's water resources to improve both rainfed and irrigated production and investment in associated rural infrastructure is therefore the only sensible alternative to rising food import bills. According to the Commission for Africa's report *Our Common Interest*, \$2 billion of investment will be needed each year to develop water control for agriculture in Africa.

The Near East is the world's most arid region with the highest levels of water deficit. Water resources in ►

16 countries in the region amount to less than 500 cubic meters per person per year, compared to the global average of almost 7,000 cubic meters. Irrigation has always been crucial to agriculture in this region, where water resources are often exploited beyond their replenishment capacity. Moreover, growing urban and industrial demand for water associated with high population growth means a gradual reduction in the volume of water available to agriculture.

Any increase in agricultural productivity requires an improvement in irrigation technologies and a diversification in production towards crops with high added value. Other components of good water management in this part of the world are the recycling of treated waste waters and a better control of soil drainage and salinity.

Food security

Small-scale water harnessing, irrigation and drainage works carried out at rural community level with local labour are effective, low-cost water control options. Water harvesting – collecting water in structures ranging from furrows to small dams – allows farmers to conserve rainwater and direct it to crops. And localized methods such as drip irrigation, which direct water only where it is needed, are more efficient than flooding fields and using sprinklers.

The Food and Agriculture Organization (FAO) has been promoting simple, low-cost water control technologies, such as those through its Special Programme for Food Security, which supports localized actions in over 100 countries to strengthen agriculture and improve living conditions in rural communities. Since 1995, \$800 million provided by donors and national governments have been invested in programmes designed by FAO to improve food security.

Vast potential

Large-scale public irrigation schemes, which represent the bulk of the world's irrigation, have contributed to alleviate poverty and boost agricultural production in Asia, the Near East and parts of Latin America. In a context of rapid economic development, these ageing systems face the challenge of modernization: upgraded infrastructures and increased flexibility and reliability of water services are required to meet the needs of agriculture in transition.

In all cases, considerable public and private investment in infrastructure, technology and the development of farmer capacity for water management is still needed if we are to increase food production in a sustainable way and meet the target set by the World Food Summit of reducing by half the number of hungry people by 2015.

Improved agricultural water control is a growth engine for rural development – enhancing food security and improving nutrition, creating jobs and revitalizing local markets. As the demand for food continues to grow with rising population and incomes, we cannot afford to leave this vast potential untapped ■

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