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World's rivers have enough water to feed people, finds research

India Water Review : September 29, 2011, 9:05 am

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A Himalayan river in the Indian state of Himachal Pradesh. (India Water Review file photo)

New Delhi : The world need not despair on account of growing water scarcity. But, it should be cautious how the available water resources are utilised.

In the years ahead, there will be enough water to meet the growing demand for food, a new report has stated. In fact, the world's food, energy, industrial and environmental needs during the 21st century would be sustained as there is enough water in the major river basins to do so, despite water-related conflicts and shortages throughout the rapidly changing societies of Africa, Asia and Latin America.

The encouraging prognosis comes in a report released by the Challenge Program on Water and Food (CPWF) of the Sri-Lanka based CGIAR (Consultative Group on International Agricultural Research).

The CPWF, also based in Sri Lanka, was set up by

CGIAR, a collaboration of research centers funded by governments and organizations including the US, European Union, India and the World Bank.

The report finds that the "sleeping giant" of water challenges is not scarcity, but the inefficient use and inequitable distribution of the massive amounts of water that flow through the breadbaskets of key river basins such as the Nile, Ganges, Andes, Yellow, Niger and Volta.

"Water scarcity is not affecting our ability to grow enough food today," said Alain Vidal, director of the CPWF.

"Yes, there is scarcity in certain areas, but our findings show that the problem overall is a failure to make efficient and fair use of the water available in these river basins. This is ultimately a political challenge, not a resource concern."

"Huge volumes of rainwater are lost or never used," he added, "particularly in the rain-fed regions of sub-Saharan Africa. With modest improvements, we can generate two to three times more food than we are producing today.

While Africa has the biggest potential to increase food production, researchers identified large areas of arable land in Asia and Latin America where production is at least 10 per cent below its potential. For example, in the Indus and Ganges, researchers found 23 percent of rice systems are producing about half of what they could sustainably yield.

The analysis – which involved five years of research by scientists in 30 countries around the world – is the most comprehensive effort to date to assess how, over vast regions, human societies are coping with the growing need for water to nurture crops and pastures, generate electricity, quench the thirst of rapidly growing urban centers, and sustain our environment.

The findings also present a picture of the increasingly political role of water management in addressing these competing needs, especially in dealing with the most pressing problem facing humanity today: doubling food production in the developing world to feed a surging population, which, globally, is expected to expand from seven to 9.5 billion people by 2050.

The 10 river basins that were studied include: the Andes and São Francisco in South America; the Limpopo, Niger, Nile and Volta basins in Africa; and the Indus-Ganges, Karkheh, Mekong, and Yellow in Asia. The basins – distinct and gargantuan geographic areas defined by water flows from highground to streams that feed major river systems – cover 13.5 million square kilometers and are home to some 1.5 billion people, 470 million of whom are amongst the world's poorest.

According to Vidal, the 10 basins were selected for study because they embody the full measure of water-related challenges in the developing world. The research examines the role of policy and governance in managing water resources in ways that reduce poverty and improve living standards for the greatest number of people.

"The most surprising finding is that despite all of the pressures facing our basins today, there are relatively straightforward opportunities to satisfy our development needs and alleviate poverty for millions of people without

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exhausting our most precious natural resource,” said Dr Simon Cook of the International Center for Tropical Agriculture (CIAT) and Leader of the CPWF’s Basin Focal Research Project (BFRP).

For example, Cook and his colleagues found that if donors and government ministries put more emphasis on supporting rain-fed agriculture, food production can increase substantially and rapidly. In Africa, it was found that the vast majority of cropland is rainfed and researchers found that only about four percent of available water is captured for crops and livestock.

“With a major push to intensify rainfed agriculture, we could feed the world without increasing the strain on river basins systems,” said Cook.

The authors also note that boosting food production in the basins studied requires looking beyond crops to consider more efficient uses of water to improve livestock operations and fisheries. Water policies often ignore the role livestock and fish play in local livelihoods and diets. For example, the researchers found that in the Niger basin, freshwater fisheries support 900,000 people while 40 million people in the Mekong depend on fisheries for at least part of the year. In the Nile, researchers note that almost half of the water in the basin flows through livestock systems.

“The basin perspective is critical in order to assess the upstream and downstream impacts of water allocation policies, and to determine opportunities for optimizing the sum of benefits across many residents,” said [International Water Management Institute \(IWMI\)](#), Deputy Director General Dennis Wichelns.

The researchers contrast the poor use of water resources within river basins observed in many areas – which they refer to as “dead spots” for agriculture development – to “bright spots” of water efficiency.

They said bright spots can be found in the large areas of the Ganges, Nile and Yellow River basins, where farmers and governments have responded to development challenges by vastly improving the amount of food produced from available water. They also single out “hot spots” – which can be found in the Indus, Yellow, Nile and Limpopo river basins – where there is mounting concern and conflict over sharing water resources and reaching consensus on development approaches.

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