

Alberta has much to offer a thirsty planet

IRRIGATION EXPERTS ▶ Scientist says people amazed when told of “what we do here with each drop of water”

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Flooding and water scarcity are probably the biggest issues facing the developing world, and the situation will only worsen as the global population grows and climate change intensifies.

That was part of the message noted scientist Chandra Madramootoo brought to this year's Water, Agriculture and the Environment conference in Lethbridge.

The other part concerned Alberta farmers.

“Alberta has an immense role to play in dealing with food security problems, especially those of almost a billion people who are undernourished,” said Madramootoo, dean of Agricultural and Environmental Sciences at McGill University and president of the International Commission for Irrigation and Drainage.

“They can do this by growing food for export and by teaching others how to use advanced technology.”

Madramootoo has been involved in projects around the world to enhance agriculture, minimize the environmental impact of irrigation, and reduce flood damage. He said irrigation infrastructure and technology are particularly needed as only 275 million of the world's 1,500 million hectares of agricultural land are irrigated, but produce 40 per cent of the world's



Much of the world's food needs are met by irrigated crops, but there is competition for water supplies.

food. But that production uses 70 per cent of the water withdrawn from underground aquifers, lakes and rivers — more in places such as Egypt and some regions of Central Asia.

Increasing competition for water for domestic use, manufacturing, and electricity generation will likely limit the water available for irrigation, intensifying the need for water efficiency, he said.

The situation is made more acute because the Green Revolution has stalled.

“Irrigation infrastructure has to be a great part of increasing food production, but it too has fallen off after great activity in the '70s and '80s,” he said. “We need a global

resurgence in irrigation expansion.”

Although excess water is a problem in some areas, Madramootoo said water storage is a critical need, especially in Africa, which has been largely unaffected by the advances of the Green Revolution. Much of the continent has abundant water supplies, but also many transboundary issues and no way to deliver water to irrigable areas.

Corporate involvement

“We need a new type of public-private partnership, possibly involving institutions like the Gates Foundation or food giants like Costco, Loblaws, Walmart and Safeway working with gov-

ernments,” said Madramootoo. “These chains are counting on supplies from overseas so it would be to their advantage to support food production.”

In some areas of Africa, such as Ethiopia, making better use of the soil water reservoir by improving its water-holding capacity, is the next frontier, he said. In other areas, a better understanding of crop water use is needed while in still others, the answer is improved water management, in everything from water metering and automated canal structures to proper sizing of furrows.

Alberta's farmers and irrigation industry can help, said Madramootoo.

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CHANDRA
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“Alberta has done a remarkable job in its water efficiency,” he said. “Farmers and government have made great investments in water-saving technologies. People are amazed when I tell them what we do here with each drop of water.”

There also needs to be better awareness of potential environmental consequences of irrigation, said Madramootoo, noting 38 per cent of irrigated land, including 40 million hectares in India, is affected by harmful levels of salinity. Aquifer depletion is another huge issue, he said, pointing to the case of the threatened High Plains aquifer in the U.S. Great Plains, which supports a \$20-billion food industry.

“We need to take the lessons of these places to the tropics,” said Madramootoo.