

MORE CROP LESS DROP – CLOSING THE TECHNOLOGY GAP

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The Food and Agriculture Organization of the United Nations (FAO) has estimated that about 1 in 6 people suffer from malnutrition and food shortages. In absolute terms, this equates to more than 850 million people, many of whom are children, who do not have enough food in order to lead healthy and productive lives. Of these, some 815 million are from the developing countries, and in some countries such as Afghanistan and Somalia, more than two thirds of the population is undernourished. At the World Food Summit (Rome, 1996) a target was set to reduce this number to half by the year 2015. Subsequently the United Nations General Assembly in 2000 included this target into the Millennium Development Goals. To achieve this target, the number of under-nourished people will have to be reduced by 22 million a year. Unfortunately, the rate of achievement is presently a reduction of only 6 million a year, less than a third of the target.

The continuing rate of population growth will further aggravate the situation. From a population base of 6 billion today, world population is estimated to increase to 8.1 billion by 2025 and to 9.3 billion by 2050. At the present rate of population growth, we will need to double our food production by the year 2025. Most of this additional food production will come as a result of irrigation. World-wide, the areas which are irrigated comprise only 17 % of the world's cropland, yet from this small percentage it contributes 40 % of the total food production. Thus irrigated lands are producing twice as much food as the non-irrigated lands. However, in the process, irrigated agriculture is the biggest user of water, and is responsible for using approximately 70 % of all the fresh water withdrawn for use in the world. It is estimated that agriculture will need 17 % more water to meet the addition food demand from population growth.

Managing the limited water resources will be critical to achieve food security. The challenge will be to increase food production without a proportionate increase in water use i.e. "more crops less drop". On the demand side, this can be achieved by increasing crop yields and cropping intensities while on the supply side irrigation systems can be made more efficient and effective. Such efforts demand not only scientific but also holistic approaches, foremost of which will be the need to fill the knowledge gaps relating to hydrological and hydraulic processes and water resources management issues as well as technological gaps in water resources facilities and products under varying climatic and geomorphological conditions.

The Paper looks at food production, food security and the competing demands being imposed on the limited available water resources. Research and Development (R&D) will play an important role in bridging the technology gap necessary to ensure that no child need go to sleep in hunger. The Paper will also, in looking ahead, highlight some specific areas of research needs and direction in irrigation and drainage systems.