

Water and Irrigation Development

*INTERNATIONAL CONFERENCE
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Irrigated agriculture is expected to play a major role in achieving food security and improving the quality of life, especially in the context of global population growth and climate change, if escalating conflicts are to be avoided and environmental degradation is to be reversed.

In the past, increase in agricultural production has come from expansion of land under cultivation. Nowadays, there are clear signs that many parts of the world have already reached or are fast approaching limits to area expansion. This reality poses natural constraints to development. These constraints compel Researchers, Technicians and Decision - makers to review the strength and the weakness of current trends in water and irrigation system management, and rethink technology, institutional and financial patterns, research thrust and manpower availability so that system efficiency can be improved in a sustainable manner.

On these themes an International Conference was held in Cremona (Italy), on 25-27 September 2001, organized by the Lombardia Region and the Italian Association of Land Irrigation and Reclamation Agencies, with the patronage and scientific support of ICID and EurAgEng.

The Conference attracted more than 200 participants and consisted of an Opening Session, three Topic Sessions and a Closing Round Table focusing on the following subjects:

- ◆ Agricultural and environment. Sustainable use of natural resources;
- ◆ Water management. Laws, rules and institutional aspects;
- ◆ Water management. Financial aspects.

At the Opening Session, the Chief of the Organizing Committee, G. Negri, highlighted the scope, the goals and the aims of the Conference, and R. Ragab and D. De Wrachien brought the greetings, respectively, of ICID and EurAgEng. Four Keynote lectures followed the aforementioned addresses, delivered by: R. Ragab (Centre for Ecology and Hydrology of Wallingfor), I. Ijjas (University of Technology and Economics of Budapest), M. Smith (FAO, Rome) and M. Petit (Institute Nationale Agromique, Paris).

In the Topic Sessions, each starting with an invited review report, 62 papers were presented, 38 in oral presentation and 24 as posters. The Conference, at the Closing Round Table, agreed on the following statements:

◆ Meeting food and fibre population needs without jeopardizing the resource base and the environment will continue to pose major challenges to scientists, technicians and decision-makers in the next decades.

◆ The prospect of expanding the gross irrigated area is limited by the dwindling number of economically attractive sites for new large irrigation and drainage projects. Therefore, the increase in agricultural production will have to come, for a substantial part, from significant improvement in the operation, management, rehabilitation and modernization of the existing systems.

◆ System irrigation efficiency is very important to meet the food and fibre demands of the present and future generations. The overall global average irrigation water use efficiency is about 45%. So, there is no

doubt that improving the irrigation efficiency will continue to pose major challenges for the future. In addition, a new paradigm has to be adopted to rethink the concept of water use productivity. To this end, two approaches are needed: increasing efficiency with which current crop requirements are met and increasing the efficiency with which water is allocated among different applications.

◆ Related to the upgrading of existing drainage systems and the installation of new ones, there are several aspects worth taking into account, such as: determination of required level of service, interaction between water management and crop yields, effects on the local surface and subsurface water resources, disposal of unusable irrigation water, environmental impact (waterlogging and salinization). On the whole, the success of a drainage project is strongly linked to the creation of a favourable environment that is attractive for the farmers to initiate and continue the proposed activities.

◆ An integrated approach to irrigation and drainage development is needed, able to maximize water application, reduce deep percolation and intercept, isolate and recycle unusable water.

◆ Depending on the increasing influence of climate change on water resource availability, engineers and managers should begin rethinking design criteria, operating rules and water allocation policies. In this regard, management strategies should extend not only to resources, but also to demands.

◆ In an era of transition from state to market, governments will not be able to continue financing irrigation and drainage activities as they used to do. The private sector (mainly water user associations) should gradually take over the tasks up to now performed by the public administrations, such as operation and maintenance of existing infrastructures. Also the financing of new infrastructures should stem from direct participation of the beneficiaries.

◆ Public administrations and water user associations should work out suitable means to achieve a consensus on the principle "economic use versus environmental values". In other words, a feasible commitment should be reached between the application of water for economic reasons (such as for food and fibre production) and the need of environment protection.

◆ Successful technological innovation on irrigation and drainage development depends on broad research programs and on the number and quality of human resources involved. These programs and resources must be closely linked with national institutions and international agencies, so that an efficient networking system can be established, able to find environmentally sound solutions to operational problems and provide an international forum for debating irrigated agriculture issues.

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