

# The 10<sup>th</sup> International Drainage Workshop of ICID

Pertti Vakkilainen

Professor

Chairman of the Finnish National Committee of ICID, Fincid

## OPENING ADDRESS

Ladies and gentlemen

Welcome to the 10th International Drainage Workshop.

The first drainage meeting of ICID took place in Wageningen in 1979. The latest meeting five years ago was again organised in the Netherlands: at that time in Utrecht, in 2003. The other seven meetings have been held in the USA twice, Egypt, Pakistan, Slovenia, Malaysia and India. The first workshops may be characterized as conventional technical meetings. The focus of recent workshops has been extended to environmental aspects and sustainability among other topics. In the last meeting in Utrecht drainage issues were incorporated into the context of integrated water resources management.

The working group on drainage was established 25 years ago, in 1983, after which the workshops have been one of the main activities of the group. Hence this workshop is proud to celebrate the first full decade of the workshops at the same time that the working group commemorates its first quarter centennial history.

I would add in this context that we organised with Ohio State University a similar drainage meeting here in Helsinki 22 years ago. At that meeting water management modelling, subsurface drainage technique and material leaching from farmlands were discussed. It is my pleasure to meet here today some participants of that previous seminar and I do hope that this week will be as enjoyable and relaxing as the one we spent together in 1986.

Hunger and malnutrition continue to cause tremendous human suffering still today. Population growth estimates propose a need to double food production in the next 20-25 years. Without effective agricultural water management, irrigation and drainage, it will not be possible to reach this goal. Global demand of food is already today difficult to satisfy. Recent hunger riots in several countries around the world tell us in plain language how serious the problem we are facing is already today. I do not need to tell you that we, drainage people, are in a key position to potentially alleviate this huge challenge to humankind.

Hunger and starvation was a part of the Finnish history until the latter part of 19th century. Frost and lack of drainage were the main reasons for insufficient food production. In our climatic and soil conditions only 15% of agricultural fields can be cultivated without drainage. Therefore it was natural and wise to focus on drainage for securing sufficient food supply for the Finnish people. The first method used within agricultural fields was to dig open ditches. Subsurface drainage, which was in a minor extend used already in the 18th century, became an important tool for field water

management in the 1920s. Still today, however, one quarter of our fields is drained using open ditches. The total area of arable land in this country is about 2 million ha.

In Finland the forest industry is very important to the national economy. To assure sufficient wood supply for the forest industry, annual forest growth has been increased by forest drainage. The most intensive draining effort started in 1964 and reached its peak in 1969 when as much as 300 000 ha were drained. The total drained area of forests in Finland is 5,5 million ha, of which peatlands account for 4,5 million ha.

Until the late 1970's the objective of drainage was to arrange soil moisture conditions optimal for cultivation and focus was put only on crop yield and trafficability. Environmental awareness gradually became an important issue as environmentalists began to worry about biodiversity. Open ditch banks that are suitable habitats for various field plants and associated fauna were considered to be better for the environment than subsurface drains. In the late 1970s, water quality problems e.g. eutrofication of lakes and even the Baltic Sea were also emerging. Nutrient loads from cultivated areas were measured and understood to account for about one half of the total nutrient load to our watercourses. Excess use of fertilisers was the true reason for excess nutrient load but environmentalists became suspicious of land drainage.

When we design drainage we should take eutrofication and other environmental problems seriously into account. Besides crop yield and field trafficability, important design objectives should include erosion control and preventing nutrient leaching from the fields. These are not an easy tasks since water flow and behaviour of nutrients on the field and in the soil are complicated phenomena. When drainage is, however, well-designed, it provides optimal conditions for crop growth, trafficability and nutrient balance of the field without compromising too much the state of the surrounding environment. It is important to understand and emphasise that nutrient leaching is dependent on drainage and soil water balance.

Subsurface drainage is an important tool for reducing the load of phosphorus to surface waters. Using controlled drainage we may be able to reduce load of nitrogen. It is true that a diversity of habitats is lower within the fields with subsurface drains compared to the fields with open ditches. We can, however, support biodiversity by applying principles of natural systems water management and environmental river engineering when designing main ditches and channels as well as wetlands.

The topics at this workshop will emphasize water quality aspect in agricultural drainage and methods to mitigate nutrient leaching. The challenges that extreme weather and hydrological conditions, such as flooding and drought, pose to agricultural drainage are also presented. Based on the considerations I have here briefly presented, we decided to organise this workshop in six sessions including the following themes:

1. Drainage and environment in different farming policies
2. Technical solutions to prevent leaching from agricultural drainage systems
3. Agricultural water management, decision support methods and technology
4. Drainage in the context of environmental river engineering
5. Extreme weather conditions, drainage, flood management and land use
6. Drainage, the driver of sustainable environments

The workshop has been organised in co-operation with the Estonian and the Finnish national committees of ICID. We have two venues, Helsinki and Tallinn. The first part of the workshop, Monday and Tuesday take place here at the Finnish Environment Agency, while the second part,

Wednesday and Thursday we will spend in Estonia. To reach Tallinn we will cross the Gulf of Finland, which is the destination for a large proportion of drained waters from Finland and Estonia. Because the arrangements are exceptional, everything can happen. I may request your patience and understanding.

On behalf of the Finnish and the Estonian National Committees I would like to thank all the persons who made and make this workshop possible. We are very glad that so many drainage people are participating in the meeting. Special thanks are due to the writers of the papers and posters, and the Scientific Committee for reviewing the papers. We are really honoured to have in this workshop the renowned keynote speakers. We feel ourselves privileged for having you Mr.Lee, President of ICID, in our meeting. We are very pleased that two vice-Presidents of ICID, professor Kovalenko and Dr. Lubbe are participating in the workshop.

Last but not least, many thanks to all the members of the local organising committee. I would like to thank our Estonian friends and especially Mati Tönismäe, Chairman of the Estonian Committee. He has been responsible for organising workshop activities in Tallinn. Four key organisers in our side of the Gulf of Finland have been Rauno Peltomaa, Helena Äijö, Juha Peltomaa and Jari Koskiahho. Thank you so much for your invaluable contribution.

Dear Friends, again: Welcome to the 10<sup>th</sup> Drainage Workshop of ICID.