



**International Commission of Agricultural and
Biosystems Engineering (CIGR)**

CIGR

Annual Report 2013 of Section I: Land and Water

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International Commission of Agricultural and Biosystems Engineering

Section 1: Land and Water

1. Introduction

The International Commission of Agricultural and Biosystems Engineering (CIGR) was set up by a Constituent Assembly on the occasion of the first International Congress of Agricultural Engineering, held in Liege, Belgium in 1930. CIGR is an international, non-governmental, non-profit organisation regrouping, as a networking system, regional and national societies of Agricultural Engineering as well as private and public companies and individuals all over the world.

CIGR contains a number of Technical Sections, each active in one particular field of Agricultural Engineering. Each section is governed by an International Section. This annual report is a report of Technical Section I: Land and Water.

2. Mission statement

The mission statement of CIGR Section 1: Land and Water is:

“... to promote the advance of the engineering science in the area of land and water use in agriculture and in rural areas, giving special attention to the conservation of resources, the preservation and re-establishment of environmental balances, and the social and economic impacts of applications in order to realize sustainable development for both urban and rural societies ...”

3. Objectives

The mission statement of Section I implies a range of objectives that contribute to the promotion of engineering science in land and water use in agriculture. These are:

- Improving the knowledge on processes leading to or affecting the quality of land and water resources;
- Developing and applying technologies for land use planning, including forecasting land use changes, and assessing land use impacts;
- Improving the knowledge of hydrological processes as affected by land use and agricultural practices;
- Enhancing knowledge of water contamination by fertilizers and agro-chemicals, and other agricultural sources, as well as assessing control measures;
- Improving technologies for higher performances in irrigation and drainage;
- Assessing environmental impacts of land and water use in agriculture;
- Developing technologies, standards and monitoring systems for wastewater treatment and reuse, and use of low quality water in agriculture.

4. Scope

Considering the objectives defined as above, the scope of CIGR-Section I refers to the following main subject areas:

- Soil management and soil technologies;
- Soil and water conservation and soil erosion assessment;
- Agricultural and rural watershed hydrology;
- Land use planning and management;
- Rural roads and related supporting infrastructures;
- Irrigation scheduling and on-farm irrigation systems;
- Surface and sub-surface drainage systems;
- Irrigation water supply, conveyance and distribution systems;



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- Non-point and point source contamination assessment and control;
- Integrated soil and water use planning;
- Integrated impact assessment of land and water development projects;
- Modern technologies in land and water engineering, including modelling, information systems, remote sensing, decision support and expert systems.

5. Activities

To achieve the objectives, several activities shall be developed by CIGR-Section I. These comprise:

- Organisation, sponsoring and co-sponsoring of seminars, workshops and conferences oriented to the objectives and scope of CIGR-Section I;
- Co-organisation of thematic special sessions, workshops or seminars on occasions of CIGR congresses;
- Collaboration in scientific committees of general themes of CIGR Congresses;
- Contributing to the e-journal of CIGR, both with papers and paper reviews, as well as to other publications of CIGR;
- Supporting the specialised working groups of CIGR of which themes fall in the domain of the Section, the respective Chair Persons becoming members of the Section Board;
- Establishing special relationships with other international societies of which field is common to that of Section I, namely the International Commission on Irrigation and Drainage and the European Society for Soil Conservation, of which representatives are ex-office members of the Board of Section I;
- Developing relations with the regional Agricultural Engineering Societies for implementing common actions; at present one Vice-President of EurAgEng is ex-office member of the Board of Section I;
- Implementing inter-sections activities;
- Promoting exchanges of scientific information with professionals, such as through the FAO Agricultural Engineering sites.

All activities referred above require improved effectiveness from contributions of the Board members but some need particular inputs from the CIGR Bureau. This is the case for:

- Better clarification of relationships between Congress organizing and scientific committees and the CIGR-Section Boards for more effectively achieving common objectives and improving the quality of Congress papers and publications;
- Re-examining the contributions of CIGR Sections to the E-journal of CIGR, probably considering specialized editorial boards relative to each Section domain, such as for the Transactions of ASAE;
- Providing better information and diffusion of the e-journal of CIGR to increase its circulation and its recognition by the scientific and engineering community;
- Promoting the links of the regional Agricultural Engineering Societies with the CIGR Sections; a representative of each of these societies should become either member or ex-office member of each Section Board for improved co-operation;

6. Relationships with other groups and societies

Currently, Section I co-operates with two working groups within CIGR and several external societies, working on topics related to the scope of Section I. These working groups and societies are represented within the section board by liaison members or permanent observers.

The two working groups of CIGR represented in the Section I board are:



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1. The CIGR Working Group on Water Management and Information Systems
2. The CIGR Working Group on Earth Observation for Land and Water Engineering

The societies represented in the Section I board are:

1. The European Society of Agricultural Engineers (EurAgEng)
2. The ICID Committee on Sustainable Use of Natural Resources for Crop Production
3. The European Society for Soil Conservation (ESSC)
4. The World Road Association (PIARC)
5. The International Society of Paddy and Water Environment Engineering (PAWEES)
6. The International Institute of Water and Environmental Engineering (2IE), Group EIER-ETSHER (Groupe des Ecoles Inter Etats des Ingenieurs et des Techniciens Superieurs), based in Africa

7. Inter-regional conferences

From 1998 until 2012 CIGR Section I organized a yearly conference under the umbrella Inter-regional conference on Environment-Water (EnviroWater). In 2012 the board of CIGR Section I decided to close this Inter-regional conference series and to replace it with a new series with a new name. The umbrella title of the new series is: Inter-regional conference on Land and Water Challenges.

In 2013, the 1st Inter-Regional Conference on Land and Water Challenges was held from 10 until 15 September in Bari, Italy. The host organization was the Mediterranean Agronomic Institute of Bari (MAIB), part of the international Centre for Advanced Mediterranean Agronomic Studies (CIHEAM). The title of the conference was: Water, environment and agriculture: Challenges for sustainable development. The objective of the conference was to present and discuss the latest achievements in the field of sustainable use of natural resources at different scales and to promote a better development of agriculture in the future. The conference themes were:

1. Water use performance and water productivity
2. Conservation agriculture and water saving
3. Sustainability of groundwater exploitation for agriculture
4. Decision support systems and modelling tools
5. Innovative data-acquisition and information and communication technologies
6. Irrigation technologies and management practices for environmental upgrading
7. Use of treated and low quality water in agriculture
8. Climate change: adaptation and mitigation
9. Drought/Flood risk management
10. Socio-economic aspects of land and water management
11. Policies, governance and institutional development
12. Water-food-energy nexus, eco-efficiency and ecological footprint

The conference program included 96 oral presentations, 36 poster presentations and 135 full papers, involving 500 authors from almost 50 different countries. In total, 150 people were participating, including some very renowned keynote speakers. The keynote speakers and eight young scientists who contributed to the conference were granted free access to the conference. The editors of the conference proceedings are N. Lamaddalena, M. Todorovic and L.S. Pereira. The proceedings include an abstract book (300 printed copies) and full papers at a memory card and USB stick.



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The next Inter-regional conferences are:

- 2nd Inter-Regional Conference on Land and Water Challenges, as a part of the CIGR World Congress, China, September 2014
- 3rd Inter-Regional Conference on Land and Water Challenges will be held in Colonia, Uruguay, September 2015.
- 4th Inter-Regional Conference on Land and Water Challenges will be held in Cancún, Mexico, April 2017 (tentative place and date).

8. Sponsored and/or co-sponsored activities

The sponsored and/or co-sponsored events in 2013 were:

- The first Inter-Regional Conference on Land and Water Challenges, Bari, Italy, 10-14 September 2013.
- Seminar on "Agricultural Irrigation Management for the Latin America, the Caribbean and the South Pacific Countries", Sept. 2-22, 2013, Beijing, China

Upcoming (co)sponsored events are:

- Workshop on "Improving Water Use Efficiency in Agriculture", June 1-6, 2014, Beijing, China.
- Seminar on "Agricultural Irrigation Management for Developing Countries", May 14-June 3, 2014, Beijing, China.
- The second Inter-Regional Conference on Land and Water Challenges, at the occasion of the 18th CIGR World Congress. September 15-19, 2014, Beijing.
- Ecohydrological Process and Pasture Management Session, following the 18th CIGR World Congress. September 19-21, 2014, Hohhot, China.
- Workshop on "Agricultural Hydrology and Water Resources Management", September 20, 2014, Beijing, China.

9. CIGR-journal: Agricultural Engineering International

The CIGR serves the international membership by providing a low cost, widely available journal, Agricultural Engineering International. The Section I representatives in the editorial board of the CIGR-journal are Dr. Jose Manuel Monteiro Gonçalves and Dr. Antonio Brasa Ramos. In order to meet the difficulties in finding reviewers, both representatives get support by other board members. Dr. Louis Pereira is supporting Jose Manuel Monteiro Gonçalves and Dr. José Tarjuelo is supporting Antonio Brasa.

10. Board meetings

The board meeting 2013 of Section I was held on September 9 in Bari, Italy, at the occasion of the 1st Inter-Regional Conference on Land and Water Challenges. The board meeting was attended by 7 members, while 4 people were invited to participate on behalf of the organization of the inter-regional conferences in 2013 and 2015.



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