



## 10<sup>th</sup> INTERNATIONAL CONFERENCE ON MICRO-IRRIGATION

Conference Center, Dakhla- MOROCCO

25 - 27 Janvier 2023

The 10<sup>th</sup> International Conference on Micro Irrigation, placed under the High Patronage of His Majesty King Mohammed VI May God Assist Him, was held in Dakhla at the convention center, from January 25 to 27, 2023 on the theme of Micro-Irrigation. irrigation in the Era of Technological Innovation and Digital Transformation.

It was organized by ANAFIDE, Moroccan National Committee of the International Commission on Irrigation and Drainage ICID in collaboration with the CCME Council of the Moroccan Community Abroad in partnership with the ICID and with the support of Ministry of Agriculture, Marine Fisheries, Rural Development and Water and Forests.

The scientific partners associated by ANAFIDE with the organization of the conference include the International Water Management Institute IWMI, 3 PRIMA Projects of the European Union, the International Commission on Rural Engineering and Biosystems CIGR Center International Institute of Advanced Agronomic and Mediterranean Studies CIHEAM BARI and the International Water Research Institute, IWRI of the UMP6.

The opening session was chaired by Mr Redouane ARRACH, Secretary General who delivered an opening speech of the 10th International MicroIrrigation Conference on behalf of the Minister of Agriculture, Maritime Fisheries, Rural Development and of Water and Forests, Dr SADIKI Mohamed who is also President of the International Center for Advanced Agronomic and Mediterranean Studies CIHEAM.

During the opening session, welcome words and interventions were also made by

- Mr Deputy Secretary General of the Wilaya of Dakhla Oued Ed-Dahab
- Mr Vice President of the Council of the Dakhla-Oued Eddahab Region
- Mr President of ANAFIDE and Vice President of ICID, Mr Aziz FERTAH
- Mr Mohamed BENSALAH, Representative of the Secretary General of the Council of the Moroccan Community Abroad CCME, Dr Abdallah BOUSOUF
- Mr ICID President Dr Ragab RAGAB
- Mr President of the World Water Council, Mr Louis FAUCHON (intervention made online).

The opening session was also attended by the Iraqi Deputy Minister of Water Resources and General Consultations of consulates open in Dakhla and Laayoune.

Representatives of Consulates of African Countries present in Dakhla and Laayoune were also invited to the opening ceremony

Likewise, Mr Ahmed EL BOUARI, Director of Irrigation and Honorary Vice President of ICID as well as Directors of ORMVAS and Directors of DRA attended this session.

The opening session was moderated by Dr BARTALI El Houssine, former Professor at IAV HASSAN II and Vice President of ANAFIDE.

### Participants

The conference had a significant participation

- 300 participants on the 1st day January 25
- 200 participants on the 2nd day, January 26
- 150 participants during the technical visit on January 27



In addition, a very large number of people around the world were able to follow the work of the conference and its 3 Side-Events online.

It should be noted that several people from Morocco or other countries found themselves unable to participate in person in the conference due to the lack of places on flights to Dakhla.

## EXHIBITION

In parallel with the conference and with the support of REMIG: the Moroccan Interprofessional Irrigation Network, chaired by Mr Ahmed El BOUARI, Director of Irrigation, ANAFIDE organized an exhibition of micro irrigation materials and equipment.

Several Moroccan and foreign companies specializing in the manufacturing, distribution and installation of localized irrigation equipment took part in this exhibition. In addition to these companies, major Moroccan contractors and companies specialized in civil engineering and hydro-agricultural development works were indeed kind enough to grant sponsorship to ANAFIDE for the organization of the conference.

A large number of these companies are members of the Moroccan Interprofessional Network of Irrigation (REMIG).

## Participating Countries, Organizations and Entities

Foreign Participants from 18 foreign countries distributed by continent as follows

### AFRICA

BURKINA FASO (1), EGYPT (2), MAURITANIA (1), NIGER (1), NIGERIA (14), SENEGAL 2, SOUTH AFRICA (5) in addition to MOROCCO.

### AMERICA

USA (2)

### ASIA

INDIA (2), IRAQ (3), SINGAPORE (1), TAIWAN (1),

### EUROPE

FRANCE (2), ITALY (3), PORTUGAL (2), SPAIN (1), UNITED KINGDOM (1)

## Some CONSULATES Representatives from African Countries in the cities of Dakhla and Laayoune

Guinea, Equatorial Guinea, Guinea Bissau, Haiti, Union of Comoros, Togo, Democratic Republic of Congo

## FROM MOROCCO

Ministry of Agriculture, Maritime Fisheries, Rural Development and Water and Forests MAPMDREF

- General Secretariat of MAPMDREF
- Directorate of Irrigation and Development of Agricultural Space DIAEA
- Directorate of Mountain Areas
- Wilaya of the Dakhla-Oued Eddahab Region
- Regional Council of the Dakhla Oued Ed-Dahab Region

## 9 REGIONAL BOARDS OF IRRIGATION AGRICULTURAL DEVELOPMENT OFFICES

ORMVAs of DOUKKALA, GHARB, HAOUZ, LOUKKOS, MOULOUYA, OUARZAZATE, SOUS MASSA, TADLA and TAFILALET

3 Regional Directorates of Agriculture DRA DRA of Guelmim Oud Noun, Layoune and Dakhla Oued Ed-Dahab



## 1 Hydraulic Basin Agency of Dakhla Oued Ed-Dahab

### International Councils, Commissions, Associations and Other Entities

- Council of the Moroccan Community Abroad CCME Rabat
- International Commission on Irrigation and Drainage ICID New Delhi India
- International Commission on Rural Engineering and Biosystems Engineering CIGR, Florida USA
- International Association of Sustainable Agriculture Singapore IAAS
- International Water Management Institute IWMI Cairo Regional Office
- Wallingford Hydraulic Research Institute United Kingdom
- International Center for Advanced Agronomic and Mediterranean Studies, CIHEAM BARI
- International Society of Geosynthetics IGS Paris
- National Institute of Agricultural Research and Water INRAE Anthony France
- International Water Research Institute IWRI/ UMP6 Benguerir Morocco
- National Institute of Agricultural Research Morocco
- National Water Commission
- Association of Rural Engineering Engineers of Morocco AIGR
- Water Group of Laureates of the Hassan II Agronomic and Veterinary Institute

### PRIMA Projects (Partnership for Research and Innovation in the Mediterranean Area) European Union

PRECIMED: Irrigation Management with a view to improving the efficiency of the use of Water and Fertilizers in the Mediterranean Region"

SUPROMED: Sustainable Production in Environments with Limited Water Availability in Mediterranean Agrosystems"

MEDWATERICE on the Development of alternative irrigation techniques for rice growing in the Mediterranean area.

### UNIVERSITIES AND ENGINEERING SCHOOLS

- University of Gainsville Forde USA
- Singapore Management University
- University of Middle Tennessee USA
- Mohammed VI Polytechnic University Benguerir Morocco
- Moulay Ismail University Meknes Morocco
- University of Nador Morocco
- Mohamed V University
- Agronomic and Veterinary Institute HASSAN II -IAV
- Hassania School of Public Works -EHTP Casablanca
- ENA National School of Agriculture of Meknes

### 3 SIDE EVENTS ORGANIZED

- Side Event coordinated by Dr Youssef Brouziyne from IWMI-Cairo on January 25th 3-6 p.m. on the theme



- Catalysis of Sustainable Development through Unconventional Water Projects”
- Side Event coordinated by representatives of the PRIMA SUPROMED PRECIMED and MEDWATERICE Projects January 25 3:00 p.m. - 6:00 p.m.

Sustainable Production in Mediterranean Agrosystems: Micro-irrigation and Water Saving Challenges

- Side Event coordinated by Sr Mohamed BENSALAH of the CCME on January 26 from 10:00 a.m. to 5:00 p.m. on the Water Energy Food Nexus

**4 (MOA), cooperation agreements at regional and international level in the fields of irrigation, drainage and rural engineering, were signed between**

- CIID-IAAS (International Association of Sustainable Agriculture based in Singapore)

Signed by Dr RAGAB President and Dr Pandya SG of ICID and by Dr TAN, Vice President of IAAS

- ANAFIDE-REMIG-CIID

Signed by Mr FERTAHI President of ANAFIDE, Mr El BOUARI President of REMIG (Moroccan Interprofessional Irrigation Network) and Dr RAGAB President of ICID

- REMIG-ANAFIDE-NIGERIAN NATIONAL COMMITTEE of ICID

Signed by Mr FERTAHI President of ANAFIDE, Mr El BOUARI President of REMIG and Dr BALA for the Nigerian National Committee of the ICID for Morocco-Nigeria cooperation in the field of irrigation and Drainage and the organization by Nigeria of The 6th African Regional Conference of ICID scheduled to be held in Abuja in 2025.

- ANAFIDE-REMIG -CIGR

Signed by Mr El BOUARI President of the REMIG Network, CIGR and Dr BARTALI and VP of ANAFIDE.

The launching of a cooperation project between ANAFIDE and the AgriEdge/UM6P Company to support young professionals in initiating startups operating in the field of precision irrigation.

**Papers presented**

34 communications were presented in person during the 2 days of the conference (25<sup>th</sup> and 26<sup>th</sup>), including xx Moroccan and yy foreign. They were divided into the following sub-themes

1/Public policies and promotion of microirrigation: lessons learned 2/Innovation in microirrigation design and technology to improve resilience to climate change

3/Micro-irrigation for small-scale agriculture, challenges, opportunities, and initiatives II- 4/Digital transformation for micro-irrigation management

In addition, the IWMI side event program on January 25<sup>th</sup> afternoon, included 8 communications, which included 2 key note conferences and covered the following 3 sub-themes:

1/Energy for Water; 2/Water for Food and 3/Water for Ecosystems.

The program of PRIMA Projects side event on 25<sup>th</sup> afternoon was composed of 6 communications

Finally, the CCME side event on January 26<sup>th</sup>, on the Water Energy Food Nexus 20 interventions distributed to cover the following sub-themes:

1. The connection between water, energy and food security in Morocco and governance issues: assessment and perspectives
2. The connection between water, energy, and food security at the international level successful experiences
3. Artificial intelligence, new technologies, Food, and water security
4. Mastery of modern technologies and its role in preserving water resources



**Conference Papers published in a special issue of the World Water Policy Journal**

In agreement with the Editorial Board of World Water Policy Journal, some best papers presented at the 10<sup>th</sup> IMIC Conference are published in this Journal (<https://onlinelibrary.wiley.com/doi/full/10.1002/wwp2.12148>)

**PROMOTION OF AFRICAN NATIONAL ICID COMMITTEES**

Thanks to the efforts of ANAFIDE’s President, Mr Aziz FERTAHI who is ICID Vice President in charge of promoting ICID activities in the African Continent, ANAFIDE has provided ample support to the Nigerian National Committee for the preparation and first announcement of the ICID 6<sup>th</sup> African Regional Conference of Irrigation which will be organised by NANCID in Abuja Nigeria in 2025.

Furthermore, an important Nigerian delegation attended the Dakhla Conference with support from ANAFIDE which organized for them a special technical tour to the Sea Water Desalination Plant in Agadir. This plant provides irrigation water for an area of 15000 ha.

On the other hand, ANAFIDE has provided financial support to the Niger National Committee of Irrigation and Drainage in order to cover its membership fees to ICID for one year and resume its membership in ICID. Similar action is being prepared to support membership of Togo in concertation with ICID C.O.

Equally a number of young african water professionals were invited by ANAFIDE to attend the conference using sponsorship received from Chinese ICID National Committee (CNCID).

**DAKHLA STATEMENT**

The 10th International Conference on Micro Irrigation and Side-Events was ended with the Dakhla Declaration which was prepared by a committee representing ANAFIDE, ICID, Directorate of Irrigation, CCME summarizes the main points emerging from participants’ recommendations and highlights the importance of promoting cooperation, research and development to increase use of Micro irrigation and water saving in irrigated agriculture. The Declaration was read by Dr Ragab Ragab President of ICID. (See attached document)

**TECHNICAL VISIT on January 27<sup>th</sup>, 2023**

The technical visit took place on Friday January 27 from 9 a.m. to 2 p.m. The site visited is a greenhouse production unit for cherry tomatoes and melons produced for export. Around a hundred participants took part in this visit. The greenhouses are installed in a low land. This difference in topography with surrounding land aims at sheltering and protecting the greenhouses from wind forces. Strong wind frequently occurs in the Dakhla region.

The greenhouses are managed by a group of 15 young farmers from Dakhla. The total area is 100 ha of which 50 ha are currently exploited. Irrigation water comes from artesian wells from a non-renewable fossil aquifer.

In order to preserve the water table, the Sakia Al Hamra -Oued Ed-Dahab hydraulic basin agency has limited the total area of greenhouses in the region at 800 ha which could be supplied by irrigation water from the aquifer.

A new large irrigated area will soon be created in the Dakhla Region through their irrigation project under way. This project will supply with desalinated sea water for irrigation a total of 5,000 ha of land. This PPP project is created by the Ministry of Agriculture MAPMDREF and its construction is supervised by the Irrigation Directorate DIAEA. It will use water produced by a desalination plant powered by a wind energy unit.

**ACKNOWLEDGEMENT AND DEEP THANKS to the Institutions, Organisations, Private Companies, Committees and Networks for their kind sponsoring of the 10<sup>th</sup> International Micro Irrigation Conference:**

Directorate of Irrigation and Agricultural Land Planning((DIEA), Regional Council of the Dakhla-Oued Eddahab Region, WILAYA of Dakhla-Oued Eddahab, Mess des Officiers at Dakhla, Regional Boards of Irrigation ORMVAS (of Doukkala, Gharb, Haouz, Loukkos, Moulouya, Ouarzazate, Tadla, Souss Massa, Tafilalet), Council of Moroccan Community Abroad, (CCME); International Water Management



Institute (IWMI Cario Régional Board) , Chinese National Committee of ICID (CNCID), Private Laboratories for Construction materials and roads testing (LABOROUTES, LABOTEST), Moroccan Interprofessional Network of Irrigation (REMIG), Compagnies of é Irrigation Equipment production/supply and Studies (AGRO EXPERTISE, ALVAPLAST, BORU WORLD, CMPGP, HORTI SUD, KIRALMA, ERI SER, IRRISYS, MAGRISER, NETAFIM, PLASTIMA, RIVILUS, SICDA, UNIVERS PHYTO, ...), Geosynthetic supply and installation compagny (RIEGONOR), Crédit Agricole du Maroc, Precision Agriculture, Buisness Unit at UM6P (AGRIEDGE), Compagnies of Civil Engineering works for Irrigation, water mobilization and conveying (CAPEP, NGE, SNCE, SNTM, SOMAGEC, SOGETRAMA, STAM, ), Engineering Design and Technical Assistance Compagnies (ADI, NOVEC,)

El Houssine BARTALI  
Vice Président

Dr El Houssine BARTALI, PhD

Conference Coordinator, Vice President of ANAFIDE, Moroccan National Committee of CIID

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