

Hosted by



# **IDRA WORLD CONGRESS 2024**

## **ADDRESSING WATER SCARCITY**

8 - 12 DECEMBER  
ABU DHABI - UNITED ARAB EMIRATES

## **Technical Program Overview**

# INVITATION

The flagship International Desalination and Reuse Association event returns to Abu Dhabi a decade after the 2024 IDRA World Congress. The World Congress will take place during the week of December 8-12, 2024, in the dynamic city of Abu Dhabi, UAE, at the Abu Dhabi International Exhibition Center (ADNEC), a spectacular location and state-of-the-art facility.

The 2024 IDRA World Congress is hosted by the Abu Dhabi Department of Energy – with support from the Abu Dhabi Environment Agency, the Abu Dhabi National Exhibition Centre, the Department of Culture and Tourism, the Department of Economic Development Office of the Undersecretary of the Department, Support Services Sector, Corporate Media and Media Identity Department, Internal Audit Office, and Office of Legal Affairs. The 2024 IDRA World Congress and exhibition will provide knowledge-sharing and interaction opportunities for participants on a plethora of both technical and business topics related to the use of desalination and water reuse solutions to ensure a secure water future.

Our world faces challenges in providing adequate and safe water supplies for our populations and industries. Desalination and Water Reuse plays a key role in providing a sustainable and reliable source of water to meet current and future clean water needs, and its importance is increasing as new technologies emerge and freshwater shortages multiply.

The theme of the 2024 IDRA World Congress is Addressing Water Scarcity. We need to chart progress toward resilient processes, technologies, and communities to secure a sustainable future. Desalination and Water Reuse provide resilient solutions to efficiently meet the growing water demand, threats to water security, and the increasing frequency and severity of droughts resulting from climate change. Despite progress towards the UN Sustainable Development Goal #6, Water and Sanitation for All, billions of people still lack access to safe and clean water, sanitation and handwashing facilities, and clean water for agriculture is under threat.

We encourage and invite you to submit an extended abstract to be considered for inclusion in the IDRA's 20th Biennial World Congress Technical Program, culminating in the year of the fiftieth anniversary of the IDRA.



# PROGRAM

The World Congress agenda will span four days, featuring four tracks of full-day parallel technical sessions, high-level plenary sessions, a Leaders Summit, Hackathon, Datathon, engaging business discussions, IDRA Academy Courses, dynamic Plant Tours, an enchanting Welcome Reception, a memorable Gala Dinner, and an inspiring Awards Ceremony.

The Congress Technical Program Committee is led by three esteemed members of the IDRA Board of Directors and two distinguished experts from the Abu Dhabi Department of Energy, who will serve as the Technical Program Committee Co-Chairs. Together, they are assembling a dynamic technical committee comprising members from diverse areas of expertise from across the globe.

## 2024 IDRA WORLD CONGRESS TECHNICAL PROGRAM COMMITTEE CO-CHAIRS:



**MRS. JANTJE JOHNSON**

CEO and Founder,  
OrangeBoat,  
United States



**DR. MARSHALL DAVERT**

Executive Vice  
President, Global  
Major Pursuits  
Director, Stantec



**MR. VICTOR VERBEEK**

Head of Technical  
Development Asia  
Pacific,  
Toray Membrane,  
Australia



**DR. SHAMMA AL MALEK**

Strategy  
Development  
Director, Abu Dhabi  
Department of  
Energy,  
United Arab  
Emirates



**ENG. JAMAL FAHMI SHADID**

Policy Development  
Director, Abu Dhabi  
Department of  
Energy,  
United Arab  
Emirates

## TOPIC CHAIRS:



**DR. MARSHALL DAVERT**

Executive Vice  
President, Global  
Major Pursuits  
Director, Stantec



**DR. YVAN TREVAL**

Development  
Director, SUEZ  
International



**MR. ZAEL SANZ**

Senior Water and  
Sanitation  
Specialist, World  
Bank



**PROF. PHIL HART**

Chief Researcher,  
Renewable and  
Sustainable Energy  
Research Center



**MR. THOMAS ALTMANN**

EVP - Innovation  
and New  
Technology, ACWA  
Power





**PROF. HASSAN  
A. ARAFAT**

Senior Director,  
Khalifa University



**MR. ADRIAN  
SYM**

Chief Executive,  
Alliance for Water  
Stewardship (AWS)



**ENG. ALI  
MAHMOUD  
AHMAD ALSHROUF**

Senior Consultant &  
Researcher, Abu Dhabi  
Agriculture and Food  
Safety Authority  
(ADAFSA)



**DR. HOON  
HYUNG**

President, LG  
Water Solutions



**MR. MIGUEL  
ANGEL SANZ**

President, MS  
Water Consult

## SESSION CHAIRS:



**DR. MOHAMED  
SALEH  
ALHADHRAMI**

Standards Energy &  
Water Efficiency Section,  
Department of Energy  
Abu Dhabi



**MS. NADYA  
MOHAMMED  
ALI**

Water Policy &  
Strategy Section  
Head, Department of  
Energy Abu Dhabi



**MR. PEDRO  
ALMAGRO**

General Manager,  
Desalination, Lantania



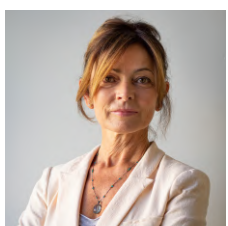
**DR. GIANCARLO  
BARASSI**

Technical Director,  
American Water  
Chemicals



**MR. MOHAMED  
BAYOUM**

Environment  
Specialist, UNDP



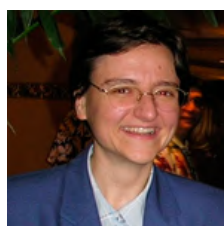
**MS. SOPHIE  
BERTRAND**

Strategic  
Development Deputy  
Director, SUEZ



**MR. BORJA  
BLANCO**

CEO, Aqua Advise



**DR. VERONIQUE  
BONNELYE**

Technical Support  
Manager, SUEZ  
International



**MR. OSCAR  
CALLES**

Manager,  
Desalination and  
Process, TAQA



**DR. ANTONIO  
CASAÑAS**

Senior Account  
Manager, DuPont  
Water Solutions



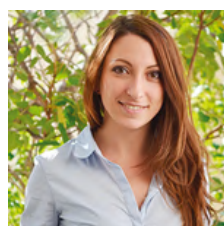
**ENG. GUILLAUME  
CLAIRET**

Chief Operating  
Officer, H2O  
Innovation



**DR. GARY  
CRISP**

Chief Engineer,  
Sequana



**DR. ANTONELLA  
DE LUCA**

Head of Competence  
Center Environmental  
Solutions, Omya  
International AG



**DR. MARK  
DENT**

Regional Manager,  
Alliance for Water  
Stewardship



**DR. MIKE  
DIXON**

CEO, Synauta



**MR. SYLVAIN  
DONNAZ**

Global Technology Leader,  
Biology Applications &  
Systems, Veolia Water  
Technologies & Solutions



**MR. DOUG  
EISBERG**

VP of Sales, Avista  
Technologies



**DR. EMILIO  
GABRIELLI**

Independent  
Consultant



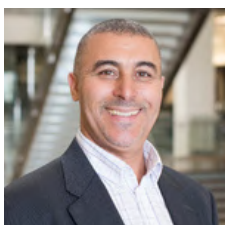
**MS. SILVIA  
GALLEGO**

Sales Manager, LG  
Water Solutions



**DR. BEATRIZ  
GARCIA**

Chief Technology  
Officer, Waterise



**DR. NOREDDINE  
GHAFFOUR**

Professor, King  
Abdullah University  
of Science and  
Technology (KAUST)



**DR. HEIKE  
GLADE**

Senior Researcher,  
University of  
Bremen



**DR. BELEN  
GUTIERREZ**

Head of Desalination  
Department, Research  
and Development  
Direction, GS Inima  
Environment



**PROF. SHADI W.  
HASAN**

Director of the Center  
for Membranes and  
Advanced Water  
Technology (CMAT),  
Khalifa University



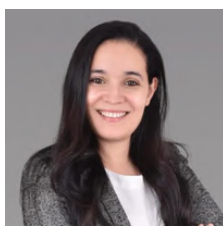
**MR.  
RAMASHANKAR  
JAGWANI**

General Manager,  
PROJECX



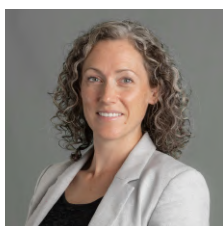
**DR. STEVEN  
LAM**

VP, NPI Operations,  
Gradiant



**DR. LATIFA  
LAHSINE**

Head of  
Desalination Centre  
of Excellence, ENGIE



**DR. JENNY  
LAWLER**

Senior Research  
Director, Qatar  
Environment and  
Energy Research  
Institute, Water Center



**MR. ROBERTO  
MAGNANO**

Managing Director,  
ILF Consulting  
Engineers



**MR. JORGE J.  
MALFEITO**

Director of  
Innovation Water,  
ACCIONA



**MR. NAOLL  
MARY**

Water Security and  
Climate Resilient  
Infrastructure, IFC -  
International Finance  
Corporation



**DR. VICTOR  
MONSALVO**

Head of Eco-efficiency  
Area – Innovation and  
Technology  
Department, FCC  
Aqualia



**DR. TARIQ  
NADA**

Vice President  
Water Business,  
ACWA Power



**DR. ABRAHAM  
NEGARESH**

Associate Director -  
Desalination and  
Reuse Lead, WRc  
Group



**MR. SILVIO  
OLIVA**

Water Consultant





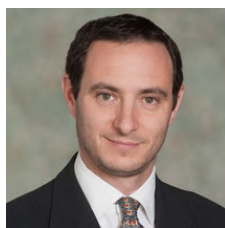
**MRS. DELIA  
PASTORELLI**

Desalination  
Technical Manager,  
SUEZ



**MRS. NURIA  
PENA**

Director of Global  
Scientific Services,  
H2O Innovation



**MR. YVAN  
POUSSADE**

Senior Technical  
Expert, Veolia



**MR. KEVIN  
PRICE**

Principal, AWTT,  
LLC



**MRS. BLANCA  
SALGADO**

Global Technical Service  
and Development  
Leader, Water  
Solutions, DuPont  
Water Solutions



**MRS. OLGA  
SALLANGOS**

Dhekalia Desalination  
Plant Manager,  
Caramondani  
Desalination Plant LTD



**MR. MIGUEL  
ANGEL SANZ**

President, MS  
Water Consult



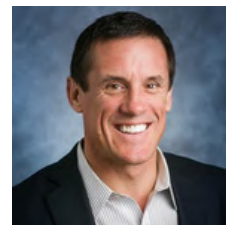
**MRS. CONSTANZE  
SIMMERMACHER**

Portfolio Manager  
Water Treatment  
Plants Singapore /  
Process Engineering  
Lead, Jacobs



**MR. LARS  
SPAETH**

General Manager,  
Passavant -Geiger  
Aqseptance Group



**MR. RICK  
STOVER**

Independent  
Consultant



**MRS. MARIE-  
LAURE THIELEN**

Ingenieur Specialist,  
Laborlec NV /Engie



**DR. VASU  
VEERAPANENI**

Associate Vice  
President, Manager,  
Water Group, Black  
& Veatch



**MR. NIKOLAY  
VOUTCHKOV**

Executive Director,  
NEOM Research  
Institute



**PROF. JOHANNES  
VROUWENVELDER**

Director Water  
Desalination and Reuse  
Center, King Abdullah  
University of Science and  
Technology



**MRS. HATTIE  
WANG**

Vice President,  
ROPV



**DR. DOMINGO  
ZARZO**

Innovation and  
Strategic Projects  
Manager, Sacyr Water

# SUBMISSION

We are seeking original work on a wide variety of topics. Extended Abstract submissions will be accepted until March 10, 2024, through the online Paper Management System accessible on the [wc.idadesal.org](http://wc.idadesal.org) website. Authors must create an online profile and submit their extended abstract using the IDRA template found in the online system.

Extended Abstracts are evaluated based on contribution and impact, originality, accuracy, quality of presentation, and an appropriate comparison to related works. The submission must include the paper's purpose, new results, and conclusions, if available.

## WHAT YOU NEED TO KNOW

- As English is the official language of the World Congress, papers should be submitted in English.
- No previously published or presented material will be accepted. This will be strictly monitored.
- Detailed information for submission of your abstract and participation requirements can be found [here](#).
- Session Co-chairs will review all draft manuscripts for originality, the importance of findings, and relevance to the theme of the World Congress.
- Information collected from those accepted into the program will be used for marketing and promotional purposes such as online announcements, social media, print material, the Final Program, and Proceedings.
- The authors of papers for presentation in the Congress will be expected to sign a participation agreement of requirements and are required to submit a complete manuscript and PowerPoint presentation.
- All accepted podium oral and digital poster presenters must register and pay Congress registration fees once they receive the acceptance letter.

Please direct all inquiries regarding the Technical Program to [papers@idadesal.org](mailto:papers@idadesal.org). The email subject line should state "2024 IDRA World Congress".



# SCHEDULE



**10 MARCH 2024**

Deadline: Extended Abstract Submission

**22 MARCH 2024**

Acceptance: Notification to Authors

**22 MAY 2024**

Deadline: First draft Manuscripts Submission

**15 JUNE 2024**

Deadline: Presenter Registration, Photo and Bio Submissions, Final Manuscript and Copyright Agreement

**15 AUGUST 2024**

Available: Advance Program

**15 SEPTEMBER 2024**

Deadline: First Draft PowerPoint Presentations

**30 OCTOBER 2024**

Deadline: Final PowerPoint Presentation

**8 DECEMBER 2024**

Available Final Program



# TOPICS

The IDRA seeks the best quality papers to solidify current industry knowledge and challenge existing assumptions to advance growth in our industry. We are interested in hearing success stories and case studies where serious issues were experienced and solved. Sharing knowledge helps us to improve technology and our industry. We encourage submissions focused on practical operations directly from plant operators—likewise, cutting-edge research aimed to enhance the economics of non-conventional water resource solutions dramatically.

We encourage authors to take the time to plan their papers carefully, write with clarity, and deliver practiced, clear, and well-communicated presentations that strictly run within the allotted time so that all authors have the same opportunity to present their ideas. Each topic area below is explained with examples, and we encourage authors to think broadly.

Technical Program Themes and Sub-themes (case studies are encouraged):

## **ADDRESSING WATER SCARCITY THEME OVERVIEW:**

- Water-Energy-Food-Research-Climate Nexus
- Adaptation and Mitigation to ensure clean water

## **THE AIM IS TO DEVELOP AN OVERALL TECHNICAL PROGRAM THAT WILL ADDRESS NEEDS-DRIVEN TECHNICAL SOLUTIONS TO ENSURE:**

- Water for Agriculture
- Water for drinking and municipal needs
- Water for industry

## **TECHNICAL PROGRAM PILLARS/TOPICS:**

- Alternative Sources of Water: Desal and Reuse
- Alternative sources of energy
- Corporate and Social Responsibility (SDG #6, #7, #12)
- Innovation and A.I. development supported by needs-based research.



The IDRA is seeking extended abstract submissions under the following ten topics:

**1. DESALINATION AND REUSE: REGULATIONS**

**2. DESALINATION AND REUSE: INNOVATION AND EMERGING TECHNOLOGIES**

**3. DESALINATION AND REUSE: PPP AND FINANCE**

**4. DESALINATION AND REUSE: ENERGY**

**5. DESALINATION AND REUSE: CLIMATE ADAPTATION**

**6. DESALINATION AND REUSE: SUSTAINABILITY AND ENVIRONMENTAL RESPONSIBILITY**

**7. DESALINATION AND REUSE: NET ZERO AND A CIRCULAR WATER ECONOMY**

**8. DESALINATION AND REUSE: IRRIGATION AND FOOD SECURITY**

**9. DESALINATION AND REUSE: SOCIAL RESPONSIBILITY**

**10. LESSONS LEARNED IN DESALINATION AND REUSE**

**1. DESALINATION AND REUSE: REGULATIONS**

**Topic Chair: Dr. Marshall Davert, Executive VP, Global Major Pursuits Director, Stantec**

Regulations significantly impact the planning, design, and operation of any water treatment/distribution system. In addition, it also requires existing systems to implement modifications to meet new requirements.

We welcome abstracts on the impact of regulations for the topics listed below.

- Water Quality Monitoring and Health: Addressing PFAS/PFOS, Microplastics, and pollutants.
- Water Reuse Direct Potable Water Reuse and In-direct Potable Water Reuse
- Intake and Outfall Systems
- Distribution Network and Systems
- Smart Infrastructure
- Water Usage Optimization
- Promoting and ensuring the balance between decarbonization and security of supply

## **2. DESALINATION AND REUSE: INNOVATION AND EMERGING TECHNOLOGIES**

**Topic Chair: Dr. Yvan Treal, Development Director, SUEZ International**

Innovation is essential to meet the ever-moving goalposts of water security and sustainability.

Innovation can be a novel and/or emerging technology but it can also be the optimization of an existing technology and/or process-system.

We are interested in receiving papers and case studies on topics such as:

- Reaching the Lowest Cost Desalination and/or reuse plants
- Material Selection for Robust Systems
- From Ideas to Commercialization: limitations, successes and failures
- Bioengineering
- Membrane Science
- Zombies
- Zero Liquid Discharge
- Transforming Brine into a product and/or brine reuse
- Machine Learning, Artificial Intelligence, Big Data, Digital Twins
- Benchmarking and Data Ontology
- Data-driven Decision Support
- Cybersecurity in Water
- Engineering Optimization in the Design and Process of Seawater and Brackish Desalination and Water Reuse Plants

## **3. DESALINATION AND REUSE: PPP AND FINANCE**

**Topic Chair: Mr. Zael Sanz, Senior Water and Sanitation Specialist, World Bank**

Financial impact on water cost and project viability is relevant to address the actual macroeconomic situation that could jeopardize the global clean water availability challenge.

The innovation in financing structures and coverages is relevant to achieving project development even in adverse scenarios. The adaptation capacity of these solutions will open new investment opportunities.

We look for papers and case studies related to topics such as:

- New Creative Financing Structures to Optimize Water Cost
- ESG Financing, Green Bonds
- Innovations on Securities and Guarantees
- Government Support to manage Water Costs, New Tax Structures, Grants...
- Carbon Negative Finance Incentives to Leverage Water Cost Reduction
- Project Delivery Models for Big-Desal



- Big Data for Financing Models
- Long-term Successes with Project Models and Financing
- Desalination Price Challenges and Realities
- Water Price, Inflation, Wars, Conflicts, Interest Rates Increase and their impact on water availability
- Financing Adaptation to Particular Conditions to a Project Location

## 4. DESALINATION AND REUSE: ENERGY

**Topic Chair: Prof. Phil Hart, Chief Researcher, Renewable and Sustainable Energy Research Centre**

Energy use in desalination and reuse continues to be a fast-changing area in both how it is produced, and consumed, as well as how it is managed. This is especially true around the world in municipal, industrial, and agricultural applications. We are looking for case studies that show the use of renewable energy including solar, wind, wave, gravity, salinity gradients, etc. In particular, we are looking for case studies of how mega plants are continuing to increase sustainability and at the same time driving down capital and operational costs in relation to energy and the CO2 footprint. We are also interested in the smaller scale applications using renewable energy and innovative energy management, especially research programs leading the way for greater resilience, sustainability, and security. For a totally new area, a couple of papers on atmospheric water harvesting and its implications are encouraged. The smaller-scale applications or unit operations may either be presented as a case study or a research paper.

We welcome the submission of papers and case studies on topics such as:

- Solar, Wind, Wave, Gravity, Salinity Gradient Project Case Studies
- Nuclear power including fission and fusion
- Improvements for Hybrid Renewable Projects
- Mega Projects Using Renewable Energy
- Cutting-edge Research in Desalination and Renewable Energy
- Energy Recovery Systems

## 5. DESALINATION AND REUSE: CLIMATE ADAPTATION

**Topic Chair: Mr. Thomas Altman, EVP - Innovation & New Technology, ACWA Power**

The role of climate on water security has become obvious around the world. It is exposing communities to a wide range of challenges including depleting aquifers, seawater intrusion into the groundwater supplies, and flooding. Water security can be achieved by integrating different technical approaches. In addition, decarbonizing the water sector contributes to less fossil fuel dependency, which enables new water treatment/distribution systems.

We welcome papers and abstracts on climate adaptation and mitigation on topics such as:

- Brine Management, Valorization and Resource Recovery
- Clean Energy
- Carbon Neutral/Reduction
- Pre-Treatment and Post-Treatment (marine ecosystems and public health)
- Produced Water
- Green (and other colors of) Hydrogen

## **6. DESALINATION AND REUSE: SUSTAINABILITY AND ENVIRONMENTAL RESPONSIBILITY**

**Topic Chair: Prof. Hassan A. Arafat, Senior Director, Khalifa University**

The IDRA is strongly committed to sustainability and Environmental responsibility in the water sector. We need to be part of the solution, minimizing the negative impact that these solutions could create for the present and for future generations.

We would like to receive papers and case studies on topics such as:

- Water Security
- Pros and Cons of Current Permitting and Regulations
- Environmental Impact Assessments
- Long-term Impacts of Brine Management on the Environment
- Energy and Chemical Efficiency in Desalination Processes
- Sludge Treatment in Reuse
- Challenges facing the Oil and Gas industry

## **7. DESALINATION AND REUSE: NET ZERO AND A CIRCULAR WATER ECONOMY**

**Topic Chair: Mr. Adrian Sym, Chief Executive, Alliance for Water Stewardship (AWS)**

Net zero refers to the balance between the amount of greenhouse gas (GHG) that's produced and the amount that's removed from the atmosphere. It can be achieved through a combination of emission reduction and emission removal.

The circular water economy is an innovative approach to water management that mimics the natural water cycle by closing the loop on water use and reducing waste.

We would like to receive case studies and papers on topics such as

- Water Footprint
- Carbon Footprint
- Stewardship and Protection of Water Sources
- Closed Loop Systems
- Smart water management in water treatment systems and water distribution networks

## **8. DESALINATION AND REUSE: IRRIGATION AND FOOD SECURITY**

**Topic Chair: Eng. Ali Mahmoud Ahmad Alshrouf, Senior Consultant & Researcher, Abu Dhabi Agriculture and Food Safety Authority (ADAFSA)**

The four pillars of food security are availability, access, utilization, and stability.

Agriculture irrigation accounts for 70% of water use worldwide and over 40% in many OECD countries. Intensive groundwater pumping for irrigation depletes aquifers and can lead to negative environmental externalities, causing significant economic impact on the sector and beyond. In addition, agriculture remains a major source of water pollution; agricultural fertilizer run-off and pesticide use contribute to the pollution of waterways and groundwater.

We invite you to submit case studies and papers on topics such as:

- Utilization of unconventional water sources, desalination, and water reuse, in water treatment for food, beverage, and agriculture production.
- Development of crops that require less water and/or are more tolerant to higher water salinities.
- Case studies on the efficient use of desalination and recycled water for irrigation.

## **9. DESALINATION AND REUSE: SOCIAL RESPONSIBILITY**

**Topic Chair: Dr. Hoon Hyung, President, LG Water Solutions**

Social responsibility is a means of achieving sustainability. Adopting key social responsibility principles, such as accountability and transparency, can help ensure the long-term viability and success of any organization or system. Corporate social responsibility is generally categorized in four ways: environmental responsibility, ethical/human rights responsibility, philanthropic responsibility, and economic responsibility

We would like to receive case studies and papers on topics such as:

- Generating and providing water in geographically and socially challenged regions.
- Best practices
- Community Engagement and Education
- Economic Benefits of Clean Water for Local Communities
- Environmental practices
- Safety on-site



## 10. LESSONS LEARNED IN DESALINATION AND REUSE

**Topic Chair: Mr. Miguel Angel Sanz, President, MS Water Consult**

A lesson learned is knowledge or understanding gained by experience. The experience may be positive, as in a successful test or mission, or negative, as in a mishap or failure.

We look forward to receiving abstracts on topics such as:

- Project design and implementation.
- Operation and maintenance
- Engagement and Education of operators and community
- White elephants





# EVENT INFORMATION

The IDRA World Congress has been recognized as the premier global event in the desalination and Water Reuse industry since it was first held in 1987. Since our first Congress in 1987, the IDRA has been committed to developing and promoting the appropriate use of desalination and desalination technology as a critical part of the solution to address the world's water problems.

The Congress offers exceptional opportunities to expand your knowledge of current and emerging desalination and Water Reuse Technologies. Participants include end users (utilities and industrial), researchers, consultants, academia, manufacturers, and suppliers of complete systems and components (including chemicals and materials).

## ABOUT IDRA

Established in 1973, the International Desalination and Reuse Association (IDRA), formerly known as IDA, stands at the forefront of the global desalination and water reuse community. Dedicated to fostering technical solutions, IDRA actively promotes utilizing these technologies to address the pressing global challenges of clean water scarcity. As a non-profit and non-political organization, IDRA boasts an extensive network spanning over 60 countries, complemented by 15 affiliate member organizations, encompassing a broad spectrum of regional and national entities.

Our inclusive membership base reflects the diversity of professionals invested in the field, including scientists, developers, off-takers, regulators, end-users, engineers, consultants, media representatives, and researchers. These individuals hail from various sectors, such as governments, corporations, and academia, contributing to a rich tapestry of expertise within IDRA.

Furthermore, IDRA operates as a Non-Governmental Organization (NGO) with consultative status recognized by the United Nations Economic and Social Council (ECOSOC). Additionally, IDRA holds a significant role as a member of the UN Water Special Framework for Water Scarcity in Agriculture (WASAG), hosted by the UN Food and Agriculture Organization (FAO) Land and Water Division. This strategic positioning reinforces our commitment to global collaboration and underscores the importance of our role in addressing water scarcity challenges internationally.





Hosted by

دائرة الطاقة  
DEPARTMENT OF ENERGY



**IDRA WORLD  
CONGRESS**  
Addressing Water Scarcity

8-12 December 2024  
ADNEC Convention Center,  
Abu Dhabi, UAE

