International Desalination Association®

1973 - 2023

Fifty Years of Supporting Global Water Resource Solutions for a Better Tomorrow

The IDA promotes development and appropriate use of desalination and water purification technologies worldwide in water supply, water reuse, water pollution control, water purification, water treatment, and other water sciences and technology.

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A Message to Members and Friends of the International Desalination Association (IDA)

As we celebrate the momentous occasion of the IDA's 50th anniversary, we are filled with gratitude for the incredible journey that has brought us to this significant milestone.

Initially established as the International Desalination and Environmental Association (IDEA), our organization was born from a vision to facilitate collaboration and to open communication channels between treatment plant owners and operators, consultants, and equipment manufacturers. This vision took shape during the first the National Water Supply Improvement Association (NWSIA) conference held in Ft. Lauderdale, Florida, United States, on June 12 - 15, 1973, setting the stage for the remarkable evolution and rich history that has followed.

Over the years, our dedicated volunteers, members, and partners have collectively strived to develop and promote innovations in desalination and water reuse for potable use, as well as for industrial and agricultural purposes. These efforts have not only benefited our organization but have had a profound impact on addressing critical global water challenges. The journey has been one of collaboration, shared knowledge, and a relentless pursuit of excellence in desalination and water reuse.

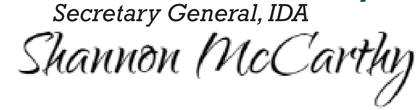
As we embark on this special anniversary celebration, we are committed to collecting more historical highlights and further developing our collective story. The 50th Anniversary of the IDA will be a momentous occasion that extends into our 2024 World Congress in Abu Dhabi, hosted by the Abu Dhabi Department of Energy. We look forward to reflecting on our past achievements, celebrating our present accomplishments, and charting a course for a future where the IDA continues to be at the forefront of advancing sustainable water solutions for the world.

Thank you for being an integral part of our journey … and here's to the next 50 years of innovation, collaboration, and impact to offset water scarcity so that clean water for all will become a reality!

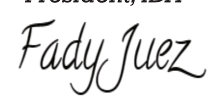
With warm regards,

Shannon & Fady

Ms. Shannon McCarthy
Secretary General, IDA



Mr. Fady Juez
President, IDA

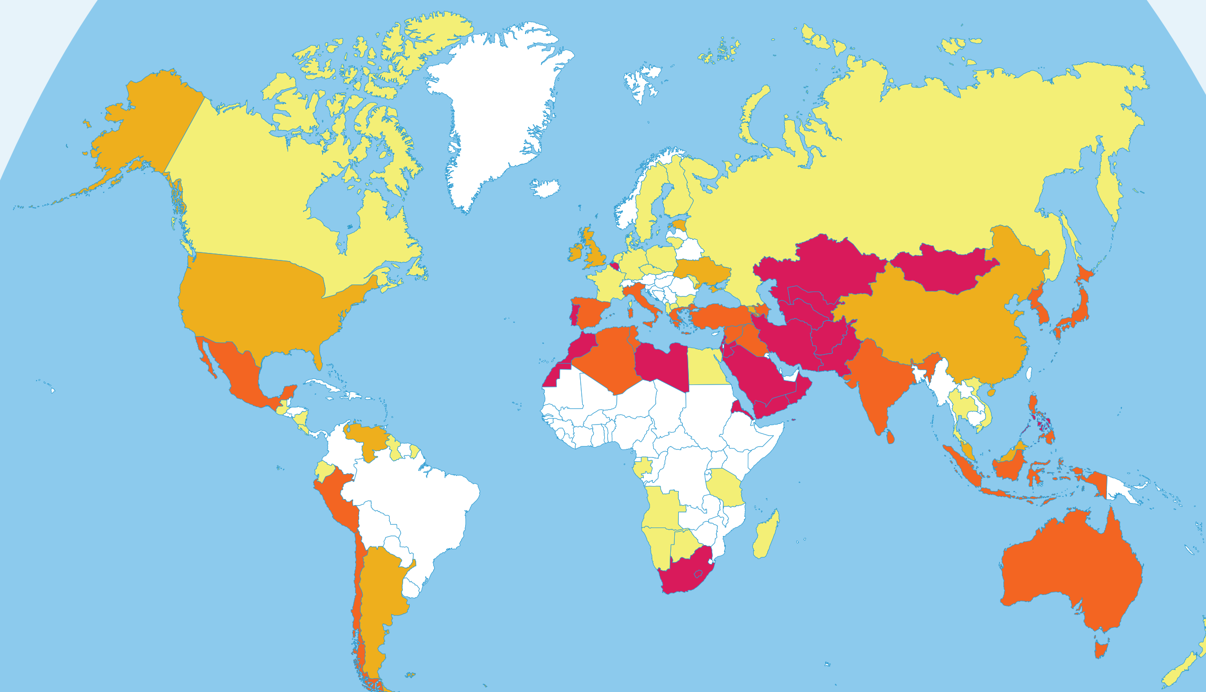


Global Water Stress

This map shows the average exposure of water stress across the earth through the ratio of total water withdrawals to renewable water supply.

Withdrawal to Supply Ratio

- Low Stress (<10%)
- Low to Medium Stress (10-20%)
- Medium to High Stress(20-40%)
- High Stress (40-80%)
- Extremely High Stress (>80%)



*Roughly **two-thirds** of the world's population is affected by water stress for at least one month of the year.*

Universal access to safe and reliable water supplies within sustainable environmental boundaries is critical to our shared global future.

The mission of the International Desalination Association (IDA) is to promote unconventional water resource solutions to offset water scarcity and to enhance resilience, long-term water supply security, and adaptation to climate change. This booklet provides a brief history of notable moments in the development of desalination and wastewater reuse, and the role the IDA has played in supporting that development over the last 50 years. Water is inextricably linked to all facets of our social fabric. The health of our communities, the economy, and the environment are each dependent on the availability of reliable, high-quality water.

Communities have long recognized the uncertainty of the weather, leading to a never-ending pursuit of reliable and safe water supplies, whether for immediate consumption or for agricultural and (more recently) industrial purposes. In agrarian times, this search led to the local well or to streams, rivers, and lakes. Later, as they grew, communities constructed dams and reservoirs, crafting a balance of using groundwater in drought years and surface water in wet years when the rivers and lakes ran full. This approach provided some certainty of water supply.

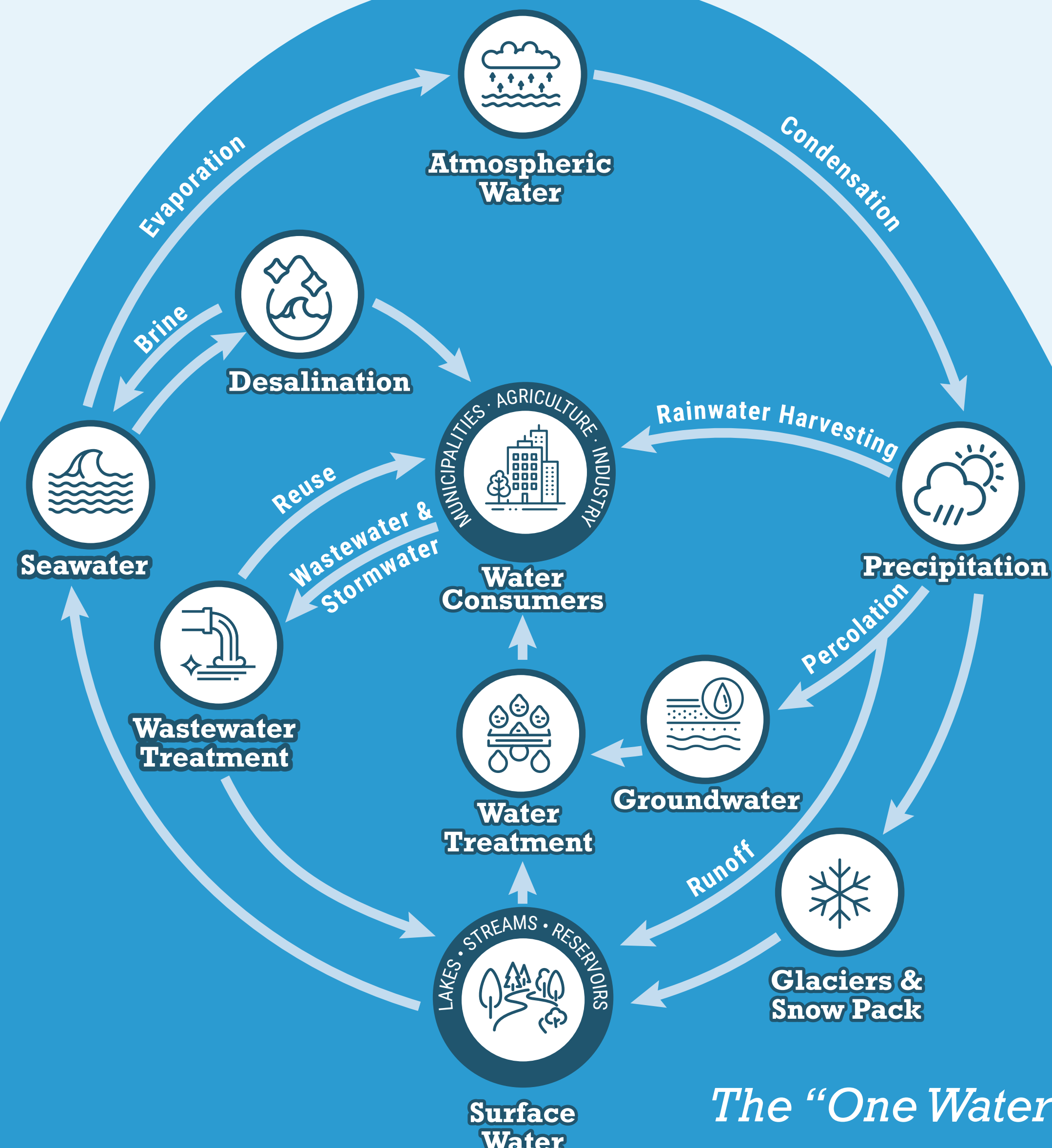
Over time, increasing population, and the attendant increase in water demand, stressed available groundwater and surface water supplies beyond capacity. The evolution from the agricultural age to the industrial age exacerbated the situation. Communities could no longer rely on traditional sources of supply; thus, began an inexorable search for new sources of water including capturing rainfall and stormwater. Ultimately, this search included a look to the sea and to the reuse of wastewater.

Accelerating adoption of innovative technologies is critical to meeting future water demands around the globe.

Today, increasing water demand and even more uncertain weather has resulted in ever-increasing water-stressed areas around the globe. Thus, it is even more critical to accelerate adoption of innovative technologies that elevate efficiency and performance across the entire water cycle. This applies not just to addressing water scarcity, but also the growing challenges associated with contaminants of emerging concern -- such as per- and polyfluoroalkyl substances (PFAS) -- known to be present in water sources.

In this environment, it is imperative that water be viewed as a single element, with every aspect of the water cycle deemed equally important. This paradigm, known as "One Water," places equal importance on all potential sources of water supply: rainfall, groundwater, surface waters, stormwater, desalinated water (both seawater and brackish water), and wastewater from municipalities, agriculture, and industry.

Desalination and wastewater reuse have long been viable sources of water supply (even if as a source of last resort). The emergence of modern technologies over the last 50 years (with considerable advancements over the last several decades) have increased their presence in the water supply portfolios of many agencies and business interests as economic (and appropriate) means of addressing water scarcity.



The "One Water" Paradigm

Despite these advances in technology, there remains some public concern over risks that a desalinated or reuse source might contain trace levels of a contaminant following treatment (even if well below a regulated quality standard). However, technologies have been commercially available to produce desalinated and reuse water at-scale that meet drinking water standards for some years now. These concerns, however valid, can hinder accelerated adoption of new innovations designed to alleviate those very concerns. Technology itself is not the issue. But leveraging technology in conjunction with best management practices (BMPs), is the pathway to convincing the public that every drop of water they consume is safe each day and every day. A critical BMP is creating an informed public, which is part of the mission of the IDA!

Water Supply from Early Times

1400-1700s

2000 B.C.

Wastewater Use

India/Indus Valley

During the Harrapan Era, the Indus Valley Civilization used wastewater for irrigation and fertilization of crops.

400 B.C.

Greeks and Romans

Italy/Greece

The Greeks, and later the Romans, designed and constructed systems for transporting wastewater from cities out to agricultural lands.

320 B.C.

Aristotle Writes About Seawater Desalination

Greece

Aristotle wrote, "Salt water, when it turns into vapor, becomes sweet and the vapor does not form salt water again when it condenses," an early description of distillation.

Water availability and reliability has always been a priority.

Societies have gone to great lengths to combat uncertain water supplies from lakes, streams, and wells. As early as 2000 BC, the Bronze Age civilization of the Indus River Valley was applying wastewater to crops (both for irrigation and fertilization). The Greeks and Romans also developed infrastructure for collecting wastewater and delivering it for agricultural applications in circa 400 BC. The Greek philosopher, Aristotle, even imagined the desalination of seawater; although the first documented extensive use of desalination for land application was on the island of Djerba, Tunisia in circa 1560 AD.

1300s

Moors Irrigate with Wastewater

Spain

The Moors constructed networks of canals for agricultural purposes, which included the use of wastewater for irrigation and fertilization.

1560

First Documented Use of Desalination Stills

Djerba, Tunisisa

The Tunisians constructed the first large-scale distillation stills on the island of Djerba, and to this day desalination provides a significant portion of the island's water supply.

Premodern Era: Part 1 1600-1850s

Circa 1680

First Seawater Desalination Patents Filed

England

William Walcott and Robert Fitzgerald file the first (and competing) patents for seawater desalination in 1675 and 1683, respectively, although neither were put into practice due to technical difficulties.

1790

Thomas Jefferson Publishes a Desalination Report

United States

Thomas Jefferson, future President of the United States, drafted a report on "Obtaining Freshwater from Salt Water," and advocated for providing desalination apparatus on "…every vessel sailing from US ports."

Early 1800s

Early Pollution Prevention

United States/United Kingdom

As the industrial revolution gained momentum, so did pollution of waterways, providing impetus for the advent of wastewater treatment works in the United Kingdom and the United States.

The need for reliable water supplies continued to grow.

As the agricultural revolution gave way to the industrial revolution, the need for reliable water supplies increased, as did the desire to protect lakes and streams from pollution. Throughout the 1800s, cities in Europe and North America began implementing more advanced methods for wastewater treatment to protect the environment. Similarly, driven by the innovation of the industrial revolution, more eyes turned to the sea as a source of water supply. The first patents for seawater desalination were filed in England, and in 1790, soon to be United States President Thomas Jefferson published a report on methods for obtaining fresh water from salt water. In 1843, Norbert Rillieux pioneered the invention of the multi-effect evaporator for application in the sugar cane industry. This process later became foundational in early at-scale seawater desalinations efforts, particularly in the support of mining operations.

1843

Application in the Sugar Cane Industry

United States

The development of the steam engine and a greater understanding of thermodynamics lead to the invention of the multi-effect evaporator by Norbert Rillieux to provide pure water for boilers used in sugar cane processing.

1850

Land-Based Desalination at Scale

South America

The first extensive land-based desalination occurs in Bolivia, Chile, and Peru in support of mining operations.

Late 1800s

Multi-Stage Units Appear

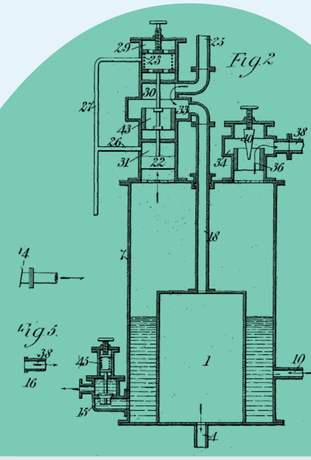
Globally

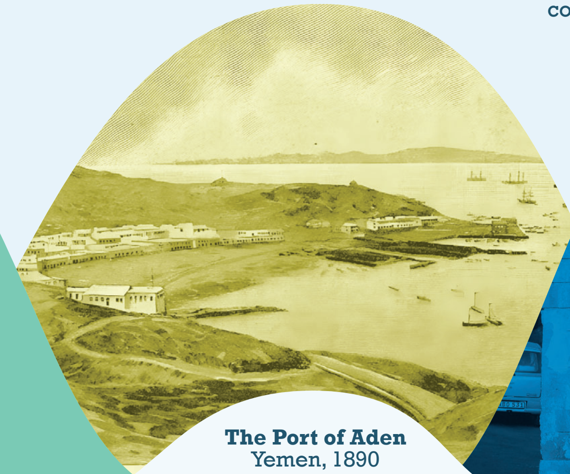
Increases in volume requirements for pure water drives development of modular, multi-stage desalination units

Premodern Era: Part 2

1850-1950s

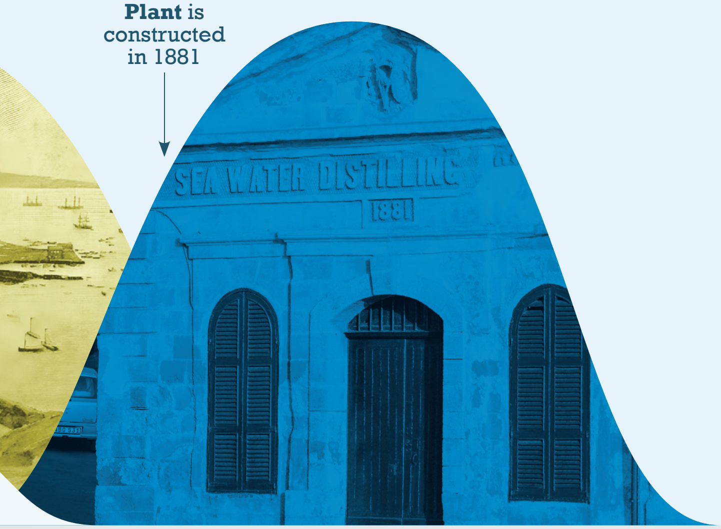
Alphonse Normandy's patent for improving his sea water evaporators circa 1894





The Port of Aden Yemen, 1890

The Tigné, Sliema, Malta **Seawater Desalination Plant** is constructed in 1881



Late 1800s

Industrial Production of Desalination Units

Globally

Industrial production of large-scale, multi-stage desalination units for marine and landside applications grows and consolidates.

1851, 1862

Construction of Vertical Tube Stills

United States/United Kingdom

Alphonse Normandy patented vertical tube, single-stage seawater stills are constructed at various sites in the UK and in Dry Tortugas and Key West, Florida.

1869

First Seawater Desalination Plant

Yemen, Malta

The British Navy constructs the first seawater desalination plant in Aden, Yemen, to supply ships in transit to India with fresh, potable water. An additional facility was later constructed in Malta in 1881.

1895

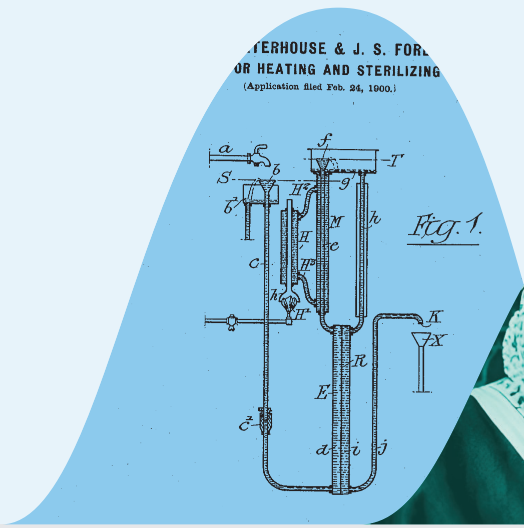
Advances in Multi-Effect Distillation

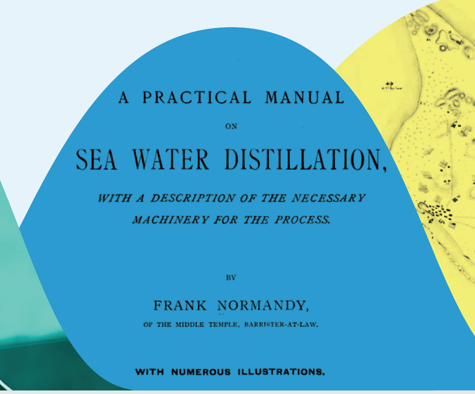
Sudan

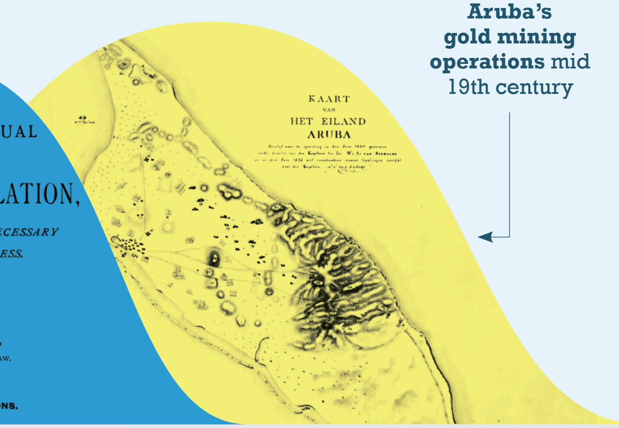
The first six-effect, multi-stage distiller is constructed in the Sudan.

The industrial revolution drove innovation in the search for water supplies.

While wastewater reuse was still largely limited to irrigated agriculture, the late 1800s saw numerous advances in industrial scale distillation-based desalination for marine and land-based applications. Dr. Alphonse Normandy of France patented the first vertical tube single stage sea water still in the United Kingdom. In 1910, his son, Frank Normandy, published the definitive text (at the time) entitled, "A Practical Manual for Sea Water Distillation". His designs provided the basis for installations by the British and United States to support naval operations around the world. Distillation technology was also adapted to provide local water supplies on five continents, culminating in construction of the first large-scale desalination plant in Aruba, the Netherlands Antilles in 1930.







Aruba's gold mining operations mid 19th century

1900

The Advent of Multi-Stage Flash Distillation

United States

Addison G. Waterhouse files a US Patent that anticipates multi-stage flash distillation.

1907

Construction of the "Kindasa"

Kingdom of Saudi Arabia

Two land-based, seawater desalination plants known as "The Kindasa" (the Condenser) are constructed in Jeddah, to support pilgrims at the outset of the Hajj.

1910

Seawater Distillation Enters the Literature

United Kingdom

Frank Normandy, the son of desalination pioneer Dr. Alphonse Normandy, published the definitive text, "A Practical Manual on Sea Water Distillation".

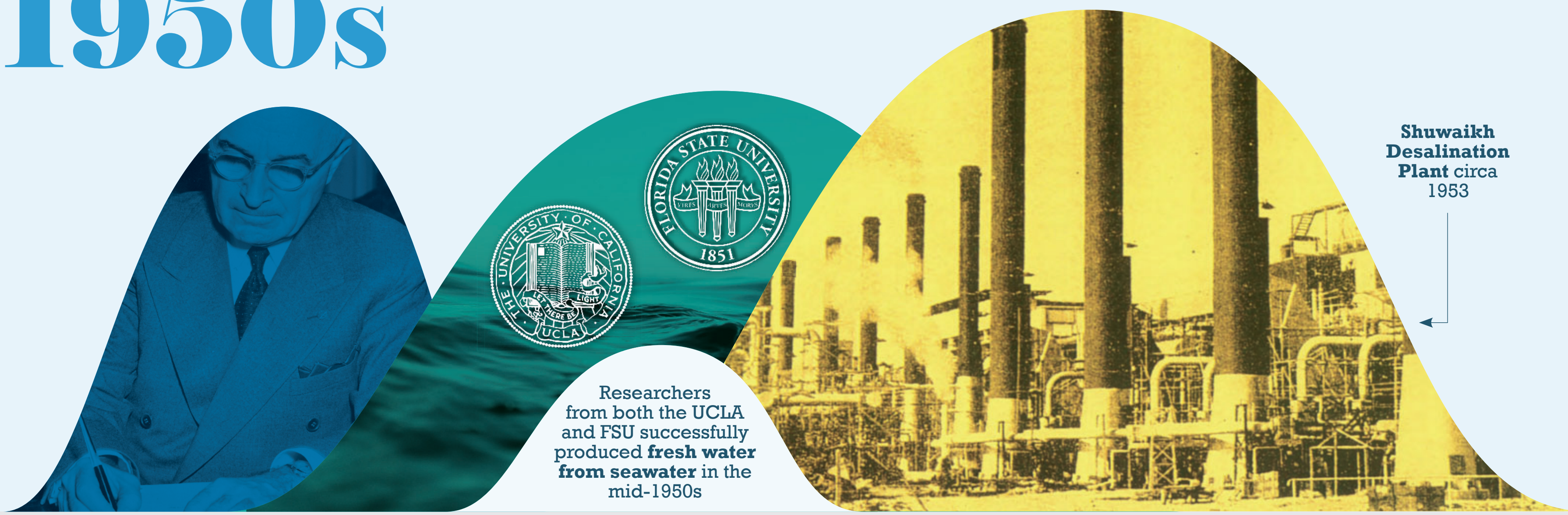
1930

Desalination Facilities Expand in Scope

Aruba

The Gold Mining Company began desalinating seawater from Spanish Lagoon on Aruba, Netherlands Antilles in 1903. In 1930 they constructed the first large-scale, multi-effect thermal desalination plant to provide municipal and industrial water.

Beginning of the Modern Era 1950s



Researchers from both the UCLA and FSU successfully produced **fresh water from seawater** in the mid-1950s

Shuwaikh Desalination Plant circa 1953

1952

The "Modern Era" of Desalination Begins

United States

United States President, Harry Truman, signs the "Saline Water Act," creating the Office of Saline Water (OSW) in the US Department of the Interior.

1955

Prelude to the Emergence of Reverse Osmosis

United States

In the mid-1950s, the concept of Reverse Osmosis (RO) as a viable means of desalination appears in the academic literature.

1957

Desalination in the Middle East Accelerates

Kuwait

Westinghouse commissioned to provide four large-scale, vertical, four-stage flash distillation units at the Shuwaikh facility in Kuwait. The plant became operational in 1960.

The 1950s ushered in the "modern era" of desalination.

With the Cold War driving technological innovation across many fronts, United States President Harry Truman signed the Saline Water Act in 1952 creating the Office of Saline Water (OSW) in the United States Department of the Interior with the admonition to "make the deserts bloom". Step changes in technology including the advent of multi-stage flash (MSF) evaporator units, electrodialysis (ED), and reverse osmosis (RO) membranes paved the way for large-scale, industrial applications. Research by UCLA professors Dr. Sydney Loeb and Dr. Srinivasa Sourirajan on asymmetric cellulose acetate membranes culminated in the first brackish water reverse osmosis (BWRO) system commissioned in Coalinga, California in 1965 (the first municipal water supply RO application).

1957

Opening the Door for Large-Scale Desalination

Scotland

Professor Robert Silver from the University of Glasgow patents multi-stage flash (MSF) evaporation, paving the way for the first practical large-scale desalination facilities.

1958

Emergence of Electrodialysis Technology

United States

Ionics develops and constructs the first electrodialysis (ED) desalination unit in Coalinga, California.

1959

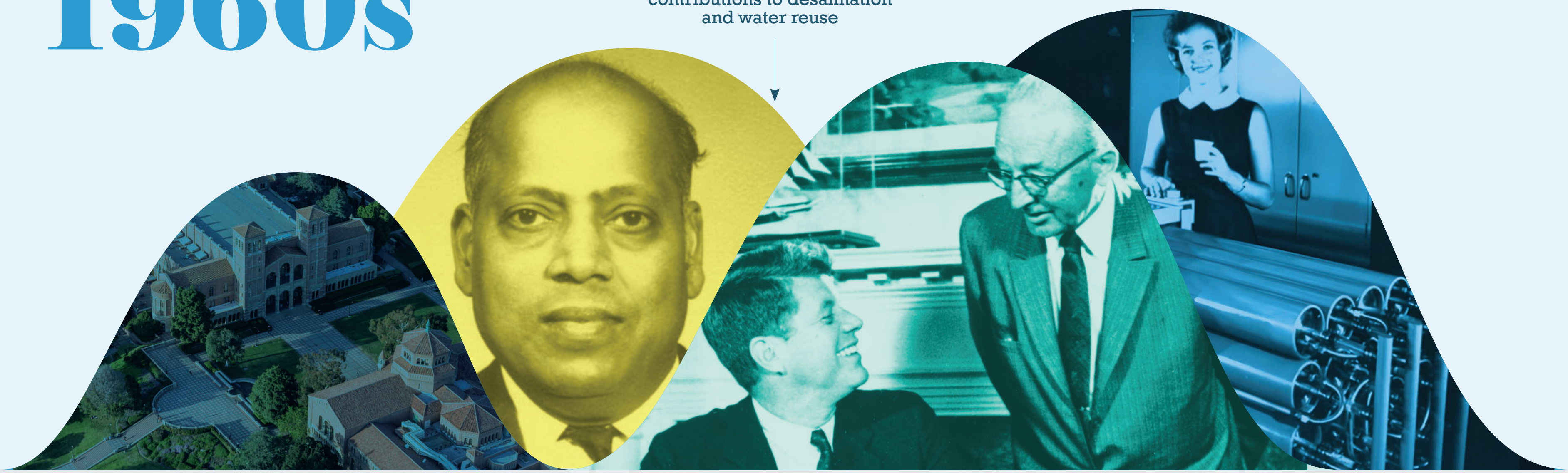
The First Reverse Osmosis Membrane

United States

University of California, Los Angeles (UCLA) professors Dr. Sydney Loeb and Dr. Srinivasa Sourirajan conduct groundbreaking development of Reverse Osmosis (RO) membranes in the lab, paving the way for practical, scalable membrane applications.

The Modern Era 1960s

Considered the father of reverse osmosis, **Dr. Srinivasa Sourirajan** 1923-2022 made large contributions to desalination and water reuse



1960

Advancement in Reverse Osmosis Membrane Technology

United States

University of California, Los Angeles (UCLA) professors Dr. Sydney Loeb and Dr. Srinivasa Sourirajan successfully develop a asymmetric cellulose acetate membrane, greatly improving Reverse Osmosis (RO) effectiveness.

1961

The first US Seawater Desalination Plant

United States

United States President, John Kennedy, remotely turns on the first US seawater desalination plant in Freeport, Texas, from the White House. Vice President, Lyndon Johnson, attended the event in person.

1962

Desalination Continues its Global Trend

Europe

The European Working Party on Fresh Water from the Sea Special Committee, sponsored by the European Federation of Chemical Engineering, was established as a result of the success of "The 1st European Symposium on Fresh Water from the Sea".

1963

Spiral Wound Membranes Emerge

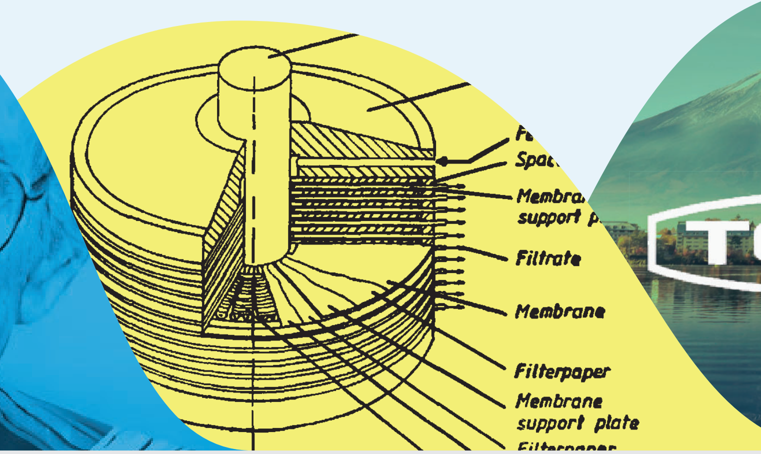
United States

General Atomics develops the first spiral wound Reverse Osmosis (RO) membrane, which it later patented in 1967. Today, circa 99% of all membranes in use are manufactured from a spiral wound design.

New technologies emerge.

Up until the 1960s, electrodialysis (ED) was the dominant desalination technology with over two hundred installations around the world. In 1961, US President John F. Kennedy remotely activated the first sea water conversion facility in Freeport, Texas. Electrodialysis was systematically replacing multi-stage flash (MSF) desalination due to improved effectiveness. Challenges with reverse osmosis (RO) membrane fouling that had not yet been overcome. Desalination truly went global this decade with the "1st European Symposium on Fresh Water from the Sea" held in Athens, Greece in 1962 by the European Federation of Chemical Engineering. By the late 1960s, significant advancements in membrane fabrication improved the viability of RO as a method of desalination.

Dr. Sidney Loeb was a pioneer of Reverse Osmosis and Desalination



1965

The First Municipal Application

United States

The first brackish water reverse osmosis (BWRO) system is constructed in Coalinga, California, based on a design by UCLA professor, Dr. Sidney Loeb. This is the first municipal water supply application of RO in the United States.

1967

Hollow-Fiber Membranes Emerge

United States

DuPont introduces the first commercially successful hollow-fiber Reverse Osmosis (RO) membrane modules to improve operational efficiency.

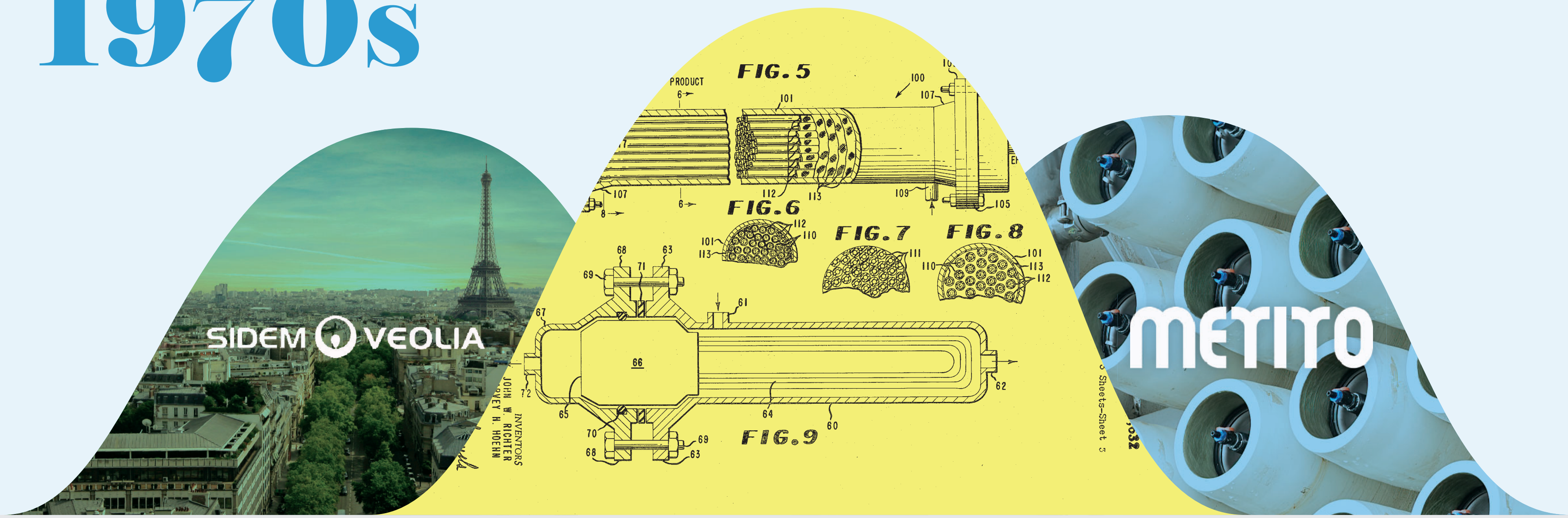
1968

New Manufacturing Entrants

Japan

Toray begins research and development into Reverse Osmosis (RO) membranes.

The Modern Era
1970s



1970

SIDEM is Established

France

Societe Internationale de Dessalement (SIDEM), now a subsidiary of Veolia Water Technologies, is established to deliver large-scale desalination units around the world.

1971

Membrane Manufacturing Technology Improves

United States

DuPont obtains the patent for aromatic polyamide membranes from Richter-Hoehn with the intent to improve structural integrity of Reverse Osmosis (RO) membranes.

1972

Brackish Water Reverse Osmosis Advances

Libya

Metito constructs the first Brackish Water Reverse Osmosis (BWRO) plant in Libya.

Today's AMTA was originally founded as the NWSIA

American Membrane Technology Association

Mrs. Patricia Burke served as IDA Secretary General from 1973-2017

1973

The NWSIA is Established

United States

The National Water Supply Improvement Association (NWSIA) is established to promote desalination, reuse, and other water science.

1973

The IDEA is Established

United States

The International Desalination and Environmental Association (IDEA) is established as a non-profit organization to promote "communication of desalination plant owners and operators, consultants, and equipment manufacturers."

International Desalination Association®

The International Desalination and Environmental Association (IDEA) is formed

The 1970s brought a period of increased institutional focus on desalination, wastewater treatment and reuse, and protection of the environment. The United Nations Educational, Scientific and Cultural Organization (UNESCO) promoted the concept of an "Earth Day" to advance ecological sciences through pioneering work on ecosystems, biosphere reserves, capacity building, scientific assessments, and policy briefs to assist decision-makers in managing natural resources sustainably. In the United States, this led to the formation of the National Water Supply Improvement Association (NWSIA). It was in this setting that the International Desalination and Environmental Association (IDEA) - predecessor of the International Desalination Association (IDA) - was established in 1973 as a non-profit 501c corporation. Throughout the decade the IDEA, the NWSIA, and the European Symposium continued their good work supporting innovation in desalination and reuse around the world through their global conferences.

The Modern Era
1970s

British Overseas
Territory
Gibraltar

1973
First Vertical Tube Multi-Effect Distillation (MED) Installation

Gibraltar

Aiton & Company constructed a 300,000 gpd seawater distillation plant for the British Territory of Gibraltar. At the time of its construction, roughly 70% of the world's installed seawater desalination capacity had been constructed by the British, much of it to support the British Naval Fleet.

1974
Electrodialysis Reversal (EDR) Process Developed

United States

Ionics, now a part of Veolia Water Technologies & Solutions, introduces a modification to the electrodialysis process (ED) process significantly reducing membrane fouling. EDR remains a practical application for brackish groundwater desalination today.

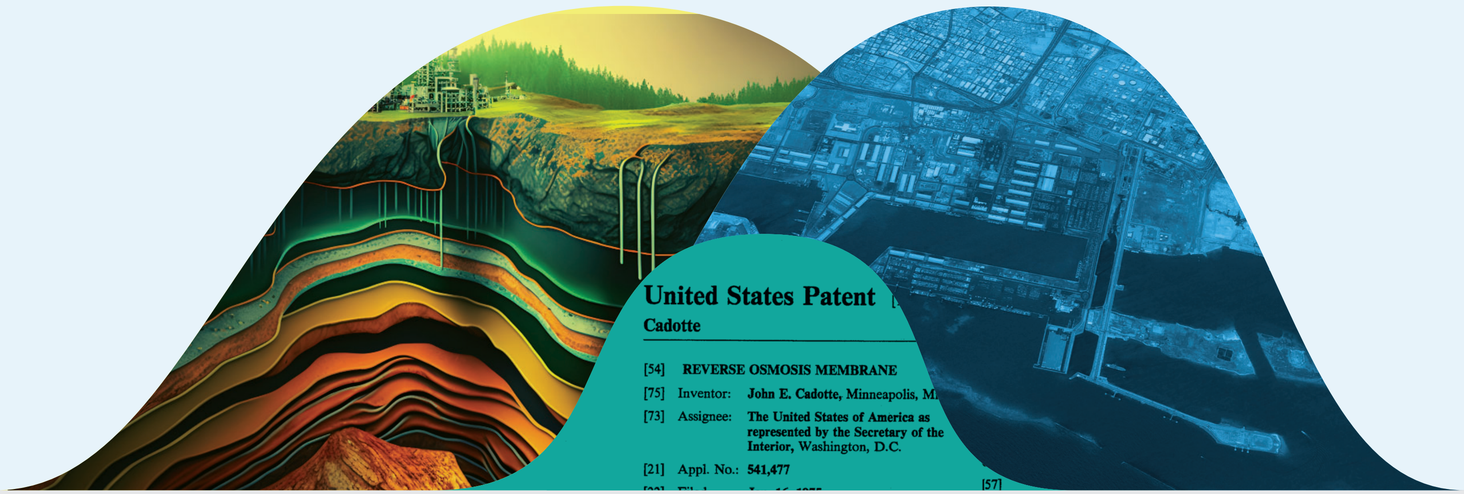
1974
SWCC is Established

Kingdom of Saudi Arabia

The Saline Water Conversion Corporation (SWCC) is established in Saudi Arabia in response to water supply shortages for residential and public consumers.

The pace of technologic advancement increases.

Advances in treatment technology and increased regulatory support led to the widespread adoption of water reuse for a variety of applications including groundwater recharge, industrial processes, and even potable reuse in some regions. In southern California, the Orange County Water District constructed Water Factory 21 to treat wastewater and desalinate seawater for injection into the coastal groundwater aquifer to mitigate sea water intrusion. In the Middle East, the Kingdom of Saudi Arabia (KSA) constructed the largest dual-purpose multi-stage flash (MSF) distillation and reverse osmosis (RO) facilities in the world at that time in Jeddah and Al Jubail, and the Jeddah seawater reverse osmosis (SWRO) plant was expanded and became the first plant in the world commissioned using cellulose triacetate hollow fiber membranes manufactured by Toyobo.



1977

Reclaimed Wastewater Used to Protect Groundwater from Seawater Intrusion

United States

The Orange County Water District in Southern California constructs a state-of-the-art wastewater reuse facility, Water Factory 21, for injection into the coastal groundwater aquifer to prevent seawater intrusion.

1978

Membrane Technology Continues to Improve

United States

J.E. Cadotte invents a thin-film aromatic desalination membrane that operates at a lower pressure and is chlorine resistant; greatly extending its useful life.

1979

"The Kindasa" is Modernized

The Kingdom of Saudi Arabia

A new seawater reverse osmosis (SWRO) plant is using a spiral wound polyamide membrane is commissioned in Jeddah, replacing the original distillation desalination facilities. The facility was expanded in 1989 using cellulose triacetate hollow fiber membranes.

The Modern Era 1980s

1980s

Advances in Technology Drive Regulatory Support

Globally

Advances in the reliability of treatment technology drive increased regulatory support around the world, leading to more widespread adoption of water reuse for a variety of applications including groundwater recharge, industrial processes, and even (indirect) potable reuse.

1982

First Joint IDEA/ NWSIA Conference

Italy

The first joint conference of the International Desalination and Environmental Association (IDEA) and the National Water Supply Improvement Association (NWSIA) is held in Florence, Italy.

1983

The World's Largest Dual-Purpose Desalination Plant is Commissioned

Kingdom of Saudi Arabia

Phase 2 of the Al Jubail treatment facility commissions forty (40) multi-stage flash (MSF) distillation units, making it the world's largest dual-purpose (industrial and municipal) seawater desalination plant.

Desalination and reuse move forward on all fronts: technology, industry support, and regulatory recognition.

In addition to desalination for potable use, global concerns about water scarcity and pollution led to increasing interest in treating wastewater for non-potable reuse. The International Desalination and Environmental Association (IDEA) and the National Water Supply Improvement Association (NWSIA) combine efforts in 1983 to support the advancement of alternatives to conventional water supplies. The Kingdom of Saudi Arabia commissions the world's largest dual-purpose desalination plant, providing for both municipal and industrial uses. IDE Technologies makes advancements in reducing net production costs by recovering energy from the distillation condenser units.

1983

First IDEA World Congress

Italy

The first International Desalination and Environmental Association (IDEA) world congress on "Desalination and Water Reuse" is held in Florence, Italy, in recognition of the diverse applications made possible by advances in membrane technology.

1984

First Dual-Purpose, Multi-Effect Distillation (MED) Plant

Isreal

IDE Technologies installs the first dual-purpose multi-effect distillation (MED) plant in Ashdod, Israel, using the turbine condenser cooling water as an energy source coupling it with a 50-MW turbine.

1984

NWSIA Grants First Scholarship

United States

The National Water Supply Improvement Association (NWSIA) holds its annual conference in Orlando, Florida, and grants its first scholarship award in support of students entering the water sciences field.

The Modern Era 1980s

1985

IDEA Changes its Name!

Bermuda

The International Desalination and Environmental Association (IDEA) changes its name to the International Desalination Association (IDA).

1985

The IDA First Congress

Bermuda

The International Desalination Association (IDA) conducts its first World Congress at which it adopts its first constitution and Dr. Jim Birkett is elected as the first President.

1986

The NWSIA Becomes an IDA Affiliate

United States

The International Desalination and Environmental Association (IDEA) and the National Water Supply Improvement Association (NWSIA) merged in 1982. Subsequent to the name change to International Desalination Association (IDA), the NWSIA becomes an affiliate of the IDA under its original name.

The 1980s were an active time for industry associations around the world.

The National Water Supply Improvement Association (NWSIA) and the International Desalination and Environmental Association (IDEA) merged into a single organization, and in 1985 the IDEA formally changed its name to the International Desalination Association (IDA) and the combined organization added affiliates in India, Japan, and North America. Meanwhile, the European Symposium continued to expand its reach and the Water Sciences and Technology Association (WSTA) was established in Bahrain in 1987 with representatives from all the Gulf Cooperation Council (GCC). The Las Palmas III Desalination Plant on Gran Canaria, Spain, became the first large-scale seawater desalination plant fitted with spiral wound membranes.

1989

Modernization of Existing Facilities Continues

Kingdom of Saudi Arabia

The seawater reverse osmosis (SWRO) plant in Jeddah is expanded by a factor of four using cellulose triacetate hollow fiber membranes developed by Toyobo.

1990

The Spanish Desalination Proving Grounds

Gran Canaria, Spain

The Canary Islands served as a proving ground for desalination in Spain, with multi-stage flash (MSF) distillation at the Jinamar Las Palmas I/II plant. In 1992, Las Palmas III became the first seawater reverse osmosis (SWRO) fitted with spiral wound membranes and reverse running pumps for energy recovery.

1991

India and Japan Become IDA Affiliates

India, Japan

The India Desalination Association (InDA) and the Japan Desalination Association (JDA) become affiliate members of the International Desalination Association (IDA).

The Modern Era

1990s

1991

Expansion of Desalination in the Middle East

Qatar

Societe Internationale de Dessalement (SIDEM), now a subsidiary of Veolia Water Technologies, installs a large-scale multi-effect distillation (MED) facility in Qatar.

1991

Drought-Driven Desalination

United States

The city of Santa Barbara, California, declares a drought emergency and constructs a 6.75-million-gallons-per-day (mgd) seawater reverse osmosis (SWRO) plant.

1992

Treating Brackish Irrigation Water Run-Off

United States

The United States Bureau of Reclamation commissioned a 72.0 million gallons per day brackish water reverse osmosis (BWRO) facility to treat agricultural run-off from the Wellton-Mohawk Irrigation and Drainage District for release to the Colorado River and Mexico.

The scope and scale of facilities continues to grow.

The 1990s saw the construction of both membrane and thermal large-scale desalination projects. In 1992, the United States Bureau of Reclamation (USBR) commissioned a brackish water RO facility to treat agricultural run-off from the Wellton-Mohawk Irrigation and Drainage District for release to the Colorado River and delivery to Mexico. In the Middle East, Qatar and the United Arab Emirates (UAE) commissioned multi-effect distillation (MED) and multi-stage flash (MSF) distillation plants, respectively. Incremental improvement of membrane reliability continued with the introduction of low-fouling and energy-saving polyamide (ESPA) membranes.

1994

Pakistan Becomes an IDA Affiliate

United Arab Emirates

The Pakistan Desalination Association (PakDA) becomes an affiliate member of the International Desalination Association (IDA).

1994

The Al Taweelah Power and Desalination Complex Takes Shape

Pakistan

Fisia Italimpianti installs six multi-stage flash (MSF) distillation units at Al Taweelah.

1994

Progress Made on Low-Fouling Membranes

United States

TriSep introduces a low-fouling membrane for Reverse Osmosis (RO) and other applications.

The Modern Era 1990s

1997

The EDS Becomes an IDA Affiliate

Europe

The International Desalination Association (IDA) recognizes the reconstituted European Desalination Society (EDS) as the Regional Affiliate representing the European Region.

1997

The WSTA Becomes an IDA Affiliate

GCC

The Water Sciences and Technology Association (WSTA), which represents the Gulf Cooperation Council (GCC) countries, becomes an IDA Associate Affiliate.

1997

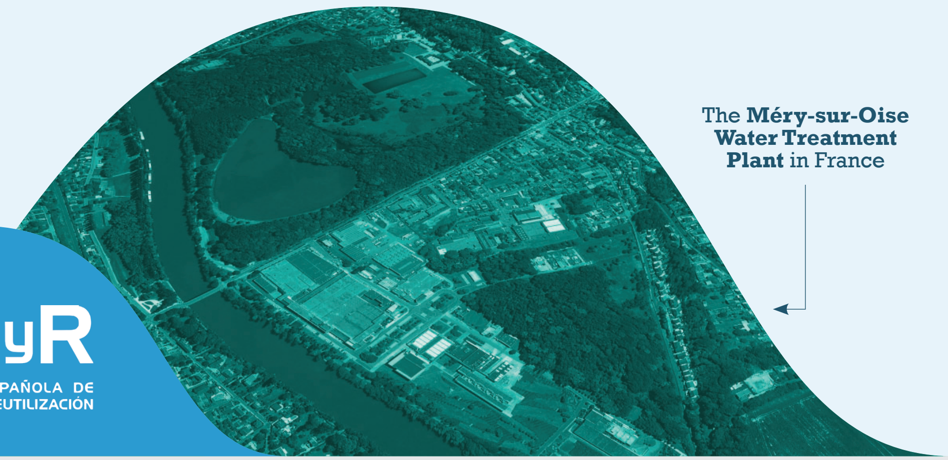
The Al Taweelah Power and Desalination Complex expands

United Arab Emirates

Doosan is awarded a multi-stage flash (MSF) distillation units at Al Taweelah as part of the first integrated water and power projects (IWPP) in Abu Dhabi.

The march of technology continues.

Technological improvements continued throughout the 1990s with Doosan awarded the first integrated water and power project (IWPP) in Abu Dhabi, the world's largest mechanical vapor compression (MVC), and the largest multi-effect distillation-thermal vapor compression (MED-TVC) plants were commissioned in Sardinia, Italy and Taweelah, UAE, respectively. The intersection of reverse osmosis (RO) desalination and wastewater reuse membrane technology continued with the commissioning of Dow nano-filtration (NF) membranes for the removal of organics in the Mery Sur Oise plant in Paris, France. The International Desalination Association (IDA) continued to grow its membership with the European Desalination Society (EDS), the Water Science and Technology Association (WSTA), and the Spanish Association of Desalination and Reuse (AEDyR) joining as affiliates.



The **Méry-sur-Oise Water Treatment Plant** in France

1999

Spain Becomes an IDA Affiliate

Spain

The Spanish Association of Desalination and Reuse (AEDyR) becomes a Regional Affiliate member of the International Desalination Association (IDA).

1999

First Large-Scale Plant with Pelton Wheel

Spain

The Bahia De Palma on Mallorca, Spain, is the first large-scale seawater reverse osmosis (SWRO) desalination plant equipped with a Pelton Wheel for energy recovery.

1999

World's Largest MVC Desalination Plant

Italy

IDE installs the world's largest (for the period) mechanical vapor compression (MVC) seawater desalination plant in Sardinia, Italy.

1999

Nano-Filtration for Drinking Water

France

The Méry-sur-Oise Water Treatment Plant in France utilizes DOW nano-filtration membranes to remove organic compounds to deliver high-quality drinking water. The membrane process train is run in parallel with a conventional filtration process.

The Modern Era
2000s

1999

The Al Taweelah Power and Desalination Complex improvements

United Arab Emirates

SIDEM supplies the world's largest multi-effect distillation/thermal vapor compression (MED/TVC) installation at Al Taweelah integrated water and power projects (IWPP) in Abu Dhabi.

2003

Singapore PUB Commissions NEWater

Singapore

The Singapore Public Utilities Bureau (PUB) commissions the Bedok micro-filtration/reverse osmosis/ultra-violet disinfection (MF/RO/UV) treatment facility as part of the NEWater scheme to provide for indirect potable reuse to improve water security.

Advancements in membrane technology change the face of desalination and reuse.

The early 2000s saw significant advances in membrane technology and the development of hybrid facilities. For example, in 2003, the Singapore Public Utilities Board (PUB) commissioned the Bedok indirect potable reuse plant as the first element of its NEWater program. The Bedok plant was a hybrid installation of microfiltration (MF), reverse osmosis (RO) and ultra-violet (UV) disinfection. The states of Florida and Texas continued as leaders in desalination in the United States, while California increasingly evaluated the reuse of treated wastewater for non-potable and indirect potable reuse. These advances had significant impact on both desalination and wastewater treatment for reuse as they demonstrated the viability of both as potential alternative water supplies. The theme of the 10th International Desalination Association (IDA) World Congress in 2003 was "Desalination: The Source of Sustainable Water Supplies".

2003

10th IDA World Congress

Bahamas

The International Desalination Association (IDA) holds its 10th World Congress on Paradise Island, the Bahamas, with the theme "Desalination: The Source of Sustainable Water Supplies."

2003

First MSF/SWRO Hybrid Plant

United Arab Emirates

Doosan commissions the first multi-stage flash distillation/sweater reverse osmosis (MSF/SWRO) hybrid installation at the Fujairah plant in UAE

The Modern Era 2000s

2003

Advancement in Seawater Membrane Applications

United States

Hydranautics introduces a new seawater composite (SWC) membrane that improves performance for seawater reverse osmosis (SWRO) applications

2004

Advancement in Reverse Osmosis Energy Efficiency

Switzerland

Sulzer delivers first large-scale seawater reverse osmosis (SWRO) plant based on a pressure center concept to increase energy efficiency.

2005

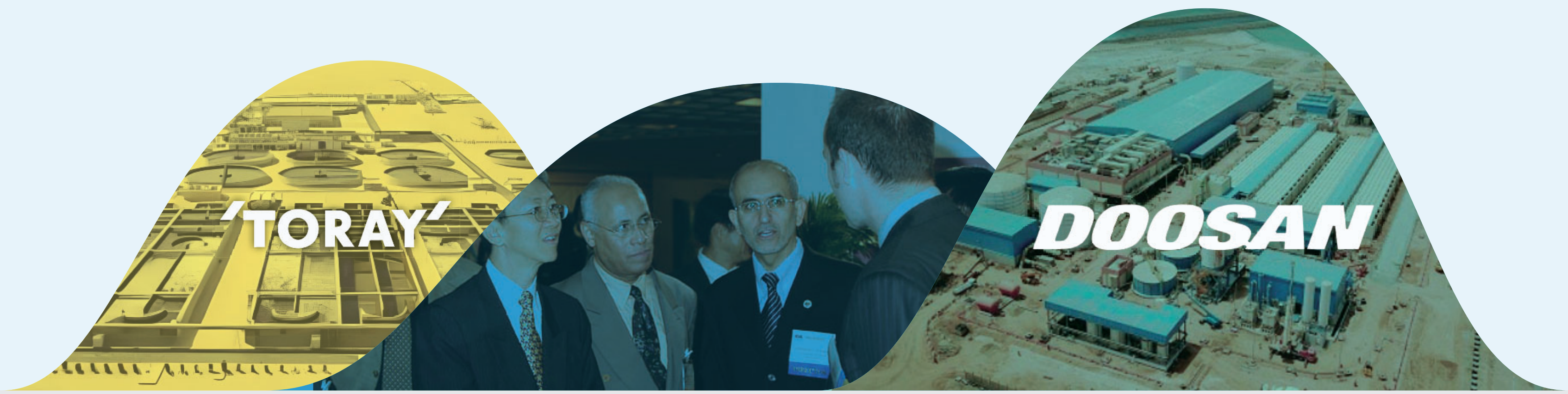
World's Largest MED-TVC Installation

United Arab Emirates

SIDEM installs the world's largest multi-effect distillation/thermal vapor compression (MED-TVC) installation at the Hamriyah seawater reverse osmosis (SWRO) desalination plant at Sharjah in Abu Dhabi.

The Middle East leads the way for large-scale desalination.

An ever-growing demand for water in the Middle East resulted in the commissioning of some of the largest sea water desalination plants in the world in the United Arab Emirates (UAE), Kuwait, the Kingdom of Saudi Arabia (KSA), and Israel. Advancements in both membrane and thermal technologies made this possible. The 11th International Desalination Association (IDA) World Congress in 2005 recognized this advancement with the theme of was “Desalination: The Tide has Turned”.



2005

World’s Largest Water Reclamation Facility

Kuwait

The Sulaibiya Wastewater Treatment and Water Reclamation Plant installed Toray reverse osmosis (RO) membranes in the world’s largest (at the time) water reclamation facility.

2005

11th IDA World Congress

Singapore

The International Desalination Association (IDA) holds its 11th World Congress in Singapore, with the theme “Desalination: The Tide has Turned.”

2005

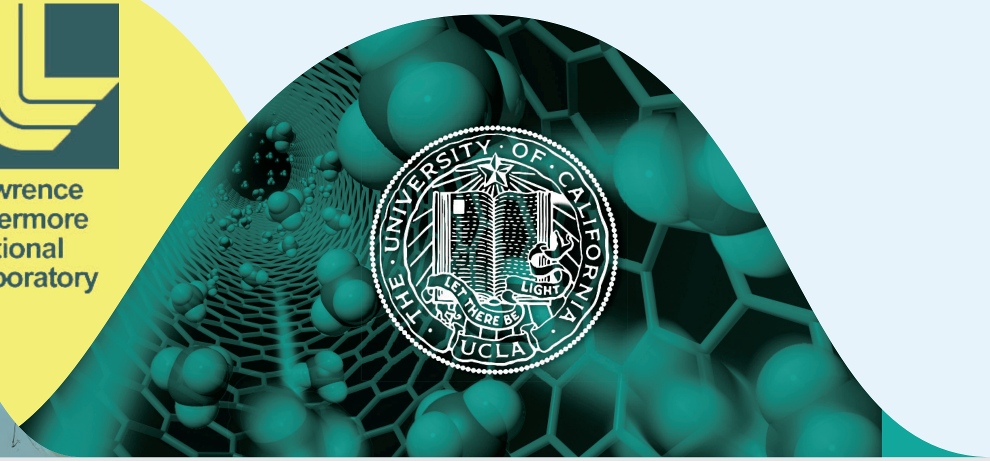
World’s Largest Seawater Desalination Plant

Kingdom of Saudi Arabia

The Kingdom of Saudi Arabia awards Doosan the Shuiabah multi-stage flash (MSF) distillation plant, which at that time became the world’s largest.

The Modern Era
2000s

Lawrence
Livermore
National
Laboratory



2005
Ashkelon SWRO Plant
Israel

The Ashkelon seawater reverse osmosis (SWRO) plant becomes Israel's first large-scale seawater desalination plant.

2006
Advancement in Membrane Technology
United States

The Lawrence Livermore National Laboratory (LLNL) in California produces a lab-scale carbon nanotube membrane with the objective of enhancing mass transport across membranes based on particle size and/or chemical affinity.

2006
Advancement in Membrane Technology
United States

Researchers at the University of California, Los Angeles (UCLA), develop a thin film nanocomposite membrane where the chemistry of the upper selective layer and the porous support layer can be independently selected to optimize composite membrane performance.

The International Desalination Association (IDA) membership continues to grow.

In 2006, the IDA welcomed the Caribbean Desalination Association, the Australian Water Association (AWA), and the Asia Pacific Desalination Association (APDA) as regional affiliates. The pace of technological advances and commissioning of ever-larger facilities continued increased through the 2000s. Advancements in carbon nanotube membranes and thin-film nanocomposite membranes at lab-scale gave a look into the future of reverse osmosis (RO) and potable reuse. In addition to these advances, large-scale thermal plants continued to be commissioned around the world.

Marafiq Wastewater Treatment Plant, Saudi Arabia

2006

World's largest MED/ TVC Installation

Kingdom of Saudi Arabia

SIDEM is awarded the world's largest multi-effect distillation/thermal vapor compression (MED/TVC) installation at the Marafiq Desalination Plant in Saudi Arabia.

2007

IDA Membership Grows

Global

The Asia Pacific Desalination Association (APDA), the Australian Water Association (AWA), and the Caribbean Desalination Association (CaribDA) become Regional Affiliates of the International Desalination Association (IDA).

The Modern Era

2000s

2007 IDA World Conference →

2007

Australia's First SWRO Plant

Australia

The Kwinana Desalination Plant in Perth becomes Australia's first seawater reverse osmosis (SWRO) facility.

2008

Indirect Potable Reuse System

United States

The Orange County Water District and the Orange County Sanitation District in California jointly commission the Groundwater Replenishment System (GWRS) which is the world's largest wastewater purification system for indirect potable reuse.

2008

The Al Taweelah Power and Desalination Complex Expands

United Arab Emirates

commissions six multi-stage flash (MSF) distillation units at the Al Taweelah B Desalination Plant making it the world's largest seawater MSF facility.

The years of “First and Largest”.

In 2007, the Water Corporation commissioned the Perth Seawater Desalination Plant in Kwinana, providing Australia with its first large-scale seawater RO facility. Abu Dhabi commissioned the world’s largest multi-stage flash (MSF) units at the Taweelab B Extension, and Kuwait awarded its first large-scale seawater reverse osmosis (SWRO) facility at Shuwaikh to Doosan.

2008

IDA Membership Grows

Singapore, Middle East

The Singapore Water Association (SWA) and the Levant Desalination Association (LDA) become Regional Affiliates of the International Desalination Association (IDA).

2009

Kuwait’s First Large-Scale SWRO Project

Kuwait

Doosan is awarded the Shuwaikh seawater reverse osmosis (SWRO) plant, Kuwait’s first large scale desalination facility.

2009

IDA Expands Outreach Programs

Global

The International Desalination Association (IDA) launches a Young Leaders Program and a Fellowship Program to promote education and outreach in the water sciences fields of desalination and reuse.

The Modern Era
2010s

2010 Global Water Summit →

2010
Ras Al-Khair Power and Desalination Plant
Kingdom of Saudi Arabia

The Saline Water Conversion Corporation (SWCC) awards the integrated water and power project (IWPP) Ras Al-Khair Power and Desalination Plant to the Doosan Group/ Saudi Archirodon. The facility is comprised of multi-stage flash distillation units, RO units, and five high-efficiency gas turbine units producing 2400 MW of power (200 MW of which are utilized by the desalination plant).

2010
Drought-Proofing Sydney
Australia

The Sydney Water Corporation (SWC) commissions the Kurnell seawater reverse osmosis (SWRO) plant to provide a potable drinking water supply for Greater Metropolitan Sydney in response to the millennial drought that affected all of Australia.

2010
Singapore PUB NEWater Operational
Singapore

The Changi Water Reclamation Facility is one of the world's largest and most advanced water reclamation facilities and provides nearly 30% of Singapore's water supply.

Desalination and reuse become firmly established as viable alternatives of the water supply portfolio.

The pace of commissioning large-scale projects based on proven membrane technology in both desalination and treated wastewater for reuse continued in the early 2010s. The International Desalination Association (IDA) continued to add affiliates and to expand its programs. Both potable and indirect potable desalination and reuse are seen as viable options to meet water demands.

2012

Large-Scale Desalination on the West Coast

United States

After years of opposition and litigation, construction begins on the Claude “Bud” Lewis Carlsbad Desalination Plant. This seawater reverse osmosis (SWRO) plant will deliver circa 50-million-gallons-per-day (mgd).

2013

IDA Expands Outreach Programs

Global

The International Desalination Association (IDA) launches IDA Desalination Academy to support education in the water sciences fields of desalination and reuse.

2013

Municipal Water Supply in Israel

Israel

The Sorek Desalination Plant will be one of the world’s largest seawater reverse osmosis (SWRO) facilities and will supply approximately 20% of the municipal water demand in Israel.

2014

Large-Scale Reuse

United States

The San Diego Pure Water Program will reduce San Diego County’s dependence upon imported water from 85% to less than 50%. Phase I of the program will deliver 34 mgd by 2025 and Phase II of the program will deliver another 53 mgd by 2035.

The Modern Era

2020s

2015 IDA World Congress

2015

Ras Al-Khair Power and Desalination Plant

Kingdom of Saudi Arabia

The Ras Al-Khair Power and Desalination Plant wins "Desalination Plant of the Year" award.

2018

Tuas Desalination Plant

Singapore

The Tuas Desalination Plant, Singapore's third desalination plant, will increase the country's desalination capacity up from 100 mgd to 130 mgd, meeting up to 30% of Singapore's current water demand.

Desalination and reuse enters a new "Golden Era."

The demand for reliable, high-quality water -- whether for consumption, for agriculture, or for industry -- is not going to decrease any time soon. How are we, as a society and as technologists, going to respond? What is the role of technology? What is our responsibility as technologists? Large-scale projects continue to be commissioned around the world, and the IDA, soon to be the International Desalination and Reuse Association (IDRA), will continue to play a major role in the promotion of unconventional water resource solutions to offset water scarcity and to enhance resilience, long-term water supply security, and adaptation to climate change.

2022 Ocean Brine Mining Conference

2018

Large-Scale SWRO Plant

Kingdom of Saudi Arabia

Saline Water Conversion Corporation (SWCC) announces plans to construct the world's largest desalination plant in Rabigh, Saudi Arabia, northwest of Jeddah.

2022

SWRO and Solar Photovoltaics

United Arab Emirates

ACWA Power has contracted with a consortium of Abengoa and SEPCO III to construct the next phase of the Taweelah seawater desalination plant. Upon commissioning it will become the world's largest seawater reverse osmosis (SWRO) plant integrated with the largest photovoltaic park.

2023

The IDA 50th Anniversary

Spain

Coinciding with the 50th-anniversary celebration of the International Desalination Association (IDA), the IDA Seville Summit on Water and Climate Change will take place on 15-18 October 2023 in the spectacular setting of Seville, Spain.

Tomorrow's Challenges

Considering the Future

Understanding and Explaining the Challenge

Desalination and wastewater reuse will play a crucial role in the sustainability of our global village due to linkages to all aspects of the entire water cycle. Therefore, each must be promoted in all geographies across the globe. This is obvious for water-scarce regions. But promotion is needed in areas where water is plentiful as well. For these regions, wastewater reuse to supply industrial and manufacturing processes, urban district cooling and heating, irrigation of public open spaces, and ultimately indirect (and direct) potable reuse are equally environmentally sustainable.

Innovative technologies within the desalination and water reuse space abound, many of which are well-proven in meeting rigorous water quality standards known to be fully protective of public health. Technology is not the issue. Rather, it is the adoption of these innovations that must be accelerated if our global future is to be sustainable for our future generations. There are several practical approaches that promote the effectiveness of leveraging technology with best practices.

Adapting to the Challenge

Nature's forces made manifest from shifting global climate patterns leaves us no choice but to adapt as quickly as possible, prioritizing our actions in accordance with the most immediate needs. We must maximize the limits of existing technology while maximizing our efforts to innovate with new.

Though adaptation has mostly been reacting to climate impacts, innovative adaptive technologies will play a huge role in building resiliency into our future. This means: i) accelerating our efforts in applied research with pilots and demonstrations focused on reducing water consumptive demands in heavy use sectors including energy, heavy industry, agriculture, and municipal, ii) broadening applications for reuse, iii) increasing desalination efficiencies for higher recoveries at lower energy inputs, iv) developing beneficial resource recovery from brines, v) providing higher quality of treatment at lower costs, and vi) aggressively detecting and eliminating leaks in distribution systems. Academics, consultants, technology developers, venture capitalists, and regulators must all collaborate in pushing technology envelopes if we are to attain a water-balanced future.

First, the treatment efficacy of current proven technologies, such as micro and ultrafiltration, reverse osmosis, advanced oxidation, and high-level disinfection can be intensified to enhance performance and reliability. This could include increasing the levels of process redundancy, increasing the number of monitoring points, and broadening system automations. These intensifications generate high quality water for reuse applications because they address scarcity and removal of potential contaminants.

Second, with increased monitoring, the result is significant increases in the quantity and quality of performance and operational data. This data can be compiled into clusters and organized by parametric sensitivity and

Research has shown that the most effective means for garnering support for innovations that stakeholders view with skepticism is direct demonstration.

will be meta-data input to machine learning algorithms that drive real-time control of devices that direct reuse product water either into distribution or into reject. These "smart" methods will greatly enhance the reliability of the reuse process thereby providing the highest degree of public confidence.

Third, when innovative ideas and approaches are backed by defensible, scientific evidence, and published in peer-reviewed literature, credibility to the innovation is enhanced significantly. Often, an innovation is pushed into markets without adequate, science-based due diligence. If it then fails, not only is the public's endorsement of the innovation tainted, but the public's confidence for other innovations is damaged. Consequently, solutions remain elusive. In the context of desalination and wastewater reuse, because stakeholder buy-in is core to full deployments of applications, having peer-reviewed publications of the innovative approaches, such as those described above, is paramount to integration into standard practice.

Finally, research has shown that the most effective means for garnering support for innovations that stakeholders view with skepticism is direct demonstration. The practice of desalination and reuse is no exception. Utilities find repeatedly that the deployment of demonstration pilots of the reuse process, its technology elements, its operability, its performance, and its reliability is a powerful tool for messaging confidence. People respond positively when they can see and touch the real system in operation at a scale that is comprehensible. Investments in demonstration pilots are a fraction of a full-scale system, and the value gained is priceless.

Mitigating the Impacts

Achieving emissions reduction targets necessary to meet a 1.5oC maximum temperature rise by the end of this century requires massive efforts in mitigating the impacts of climate change, which is reversing the current trends. Though technology plays a crucial role by providing opportunities for the reversing actions such as carbon capture and storage and utilizing captured CO2 in goods and products for societal benefit, the real challenge facing mitigation is a social one. This means that our collective social behaviors with respect to carbon requires a major paradigm shift. This includes fully decarbonizing all aspects of our economic activities that drive our GDP, it means being fully circular in managing all our wastes, it means pushing water consumption limits to unprecedented levels.

1973-2023

IDA Conferences & Milestones

Year	Key Conferences & Milestones	Location
1973	National Water Supply Improvement Association (NWSIA) is formed.	United States
1973	First National Water Supply Improvement Association (NWSIA) conference	Fort Lauderdale, FL, US (June 12 - 15)
1973	International Desalination and Environmental Association (IDEA) is formed.	United States
1974	First International Desalination and Environmental Association (IDEA) conference	Antigua, West Indies
1975	Second International Desalination and Environmental Association (IDEA) conference	Puerto Rico (April 23 - 25)
1976	Third International Desalination and Environmental Association (IDEA) conference	Mexico City, Mexico
1977	Fourth International Desalination and Environmental Association (IDEA) conference	Tokyo, Japan
1979	Fifth International Desalination and Environmental Association (IDEA) conference	Nice, France
1981	National Water Supply Improvement Association (NWSIA) name changed to the Water Supply Improvement Association (WSIA)	
1982	Sixth International Desalination and Environmental Association (IDEA) conference	Manama, Bahrain (Nov. 29 - Dec. 3)
1982	First Joint Water Supply Improvement Association (WSIA)/International Desalination and Environmental Association (IDEA) conference	Florence, Italy
1982	Joint meeting of key committees of International Desalination and Environmental Association (IDEA), Water Supply Improvement Association (WSIA), and the Working Party for Fresh Water from the Sea (WP)	Lido, Paris, France

Year	Key Conferences & Milestones	Location
1983	Joint conference of the International Desalination and Environmental Association (IDEA) , Water Supply Improvement Association (WSIA), and the Working Party for Fresh Water from the Sea (WP)	
1983	First International Desalination and Environmental Association (IDEA) World Congress on "Desalination and Water Reuse"	Florence, Italy (May 23 -27)
1984	Water Supply Improvement Association (WSIA) - First Scholarship Award Granted	Orlando, FL, US (May 13 - 18)
1985	The International Desalination and Environmental Association (IDEA) name changed to the International Desalination Association (IDA)	
1985	First International Desalination Association (IDA) World Congress, co-sponsored with the Working Party for Fresh Water from the Sea (WP)	Bermuda (Nov. 17 - 22)
1987	Second International Desalination Association (IDA) World Congress on "Desalination and Water Reuse", co-sponsored with Working Party for Fresh Water from the Sea (WP)	Cannes, France (Sept. 14 - 17)
1989	Third International Desalination Association (IDA) World Congress on "Desalination and Water Reuse", co-sponsored with Working Party for Fresh Water from the Sea (WP)	"Kuwait City, Kuwait (Nov. 4 - 8) "
1991	Third International Desalination Association (IDA) World Congress on "Water: The Challenge of the 90's"	Washington, DC, US (Aug. 25 - 29)
1993	Water Supply Improvement Association (WSIA) name changed to the American Desalting Association (ADA)	

1973-2023

IDA Conferences & Milestones

Year	Key Conferences & Milestones	Location
1993	Fifth International Desalination Association (IDA) World Congress on “In Harmony with the Environment”	Yokohama, Japan (Nov. 3 - 6)
1996	Sixth International Desalination Association (IDA) World Congress on “Water, Energy, and Environment”	Abu Dhabi, UAE (Nov. 18 - 24)
1997	Seventh International Desalination Association (IDA) World Congress on "Water is Essential for Life"	Madrid, Spain (Oct. 6 - 9)
1999	Eighth International Desalination Association (IDA) World Congress on “The Value of Water in the 21st Century”	San Diego, CA, US (Aug.29 - Sept. 3)
2001	Conference postponed until 2002	
2002	Ninth International Desalination Association (IDA) World Congress on “Desalination: Water for a Better Future”	Manama, Bahrain (March 8 - 13)
2003	Tenth International Desalination Association (IDA) World Congress on "Desalination: The Source of Sustainable Water Supplies"	Paradise Island, Bahamas (Sept. 23 - Oct. 3)
2005	Eleventh International Desalination Association (IDA) World Congress on “Desalination: The Tide has Turned”	Singapore (Sept. 11 -16)
2007	Twelfth International Desalination Association (IDA) World Congress on “Desalination: Quenching a Thirst”	Maspalomas, Grand Canary, Spain (Oct. 21 - 26)
2009	Thirteenth International Desalination Association (IDA) World Congress on “Desalination for a Better World"	Dubai, UAE (Nov. 7 - 12)

Year	Key Confrences & Milestones	Location
2011	Fourteenth International Desalination Association (IDA) World Congress on “Desalination: Sustainable Solutions for a Thirsty Planet"	Perth, Australia (Sept. 4 - 9)
2013	Fifteenth International Desalination Association (IDA) World Congress on “Desalination: A Promise for the Future"	Tianjin, China (Oct. 20 - 25)
2014	International Desalination Association (IDA) Academy International Water Summit	Abu Dhabi, UAE (January)
2014	International Desalination Association (IDA) Academy International Water Summit	Santa Margherita, Italy (March)
2015	Sixteenth International Desalination Association (IDA) World Congress on “Renewable Water Resources to Meet Global Needs”	San Diego, CA, US (Aug. 30 - Sept. 4)
2018	Seventeenth International Desalination Association (IDA) World Congress on “Ensure Your Water Future”	Sao Paolo, Brazil (Oct. 16 - 20)
2019	Eighteenth International Desalination Association (IDA) World Congress on “Crossroads to Sustainability"	Dubai, UAE
2022	Nineteenth International Desalination Association (IDA) World Congress on “Charting Resilient Water Solutions"	Sydney, Australia (Oct. 9 - 13)
2023	The International Desalination Association (IDA) Celebrates its 50th Anniversary at the "IDA Summit on Water and Climate Change"	Seville, Spain (Oct. 15 - 18)
2024	Twentieth International Desalination Association (IDA) World Congress	Abu Dhabi, UAE (Dec. 8 - 12)

International Desalination Association

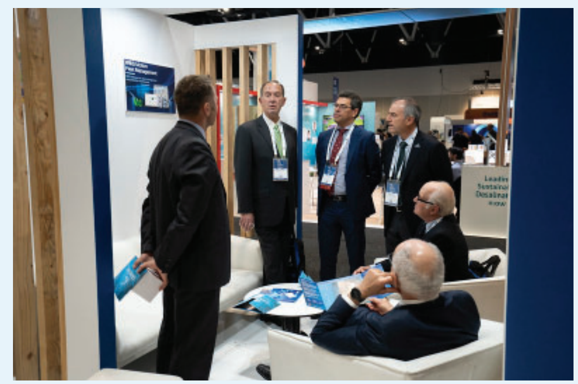
Past Presidents

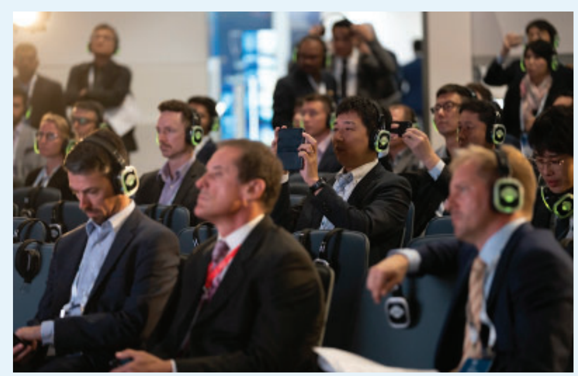
Years	President	Secretary-General
1973 - 1974	Mr. Royal Newman	
1974 - 1975	Mr. John T. Carr	
1976 - 1977	Mr. Neil M. Cline	
1977 -1978	Mr. L. Wordsworth Snell III	
1979 - 1980	Mr. William E. Warne	
1981 - 1983	Mr. Herbert B. Sliger	Ms. Patricia Burke (Executive Director)
1983 - 1985	CO-PRESIDENTS: Mssrs Floyd Miller (of the WSIA) and Neil McArthur (IDEA)	Ms. Patricia Burke
1985 - 1987	Dr. Jim Birkett	Ms. Patricia Burke
1987 - 1989	Mr. Adil Bushnak	Ms. Patricia Burke
1989 - 1991	Mr. Leon Awerbuch	Ms. Patricia Burke
1991 - 1993	H.E. Jamil Al-Alawi	Ms. Patricia Burke
1993 - 1995	Mr. Randolph L. Truby	Ms. Patricia Burke

Years	President	Secretary-General
1995 - 1997	Mr. Fouad Makhzoumi	Ms. Patricia Burke
1997 - 199	Mr. David Furukawa	Ms. Patricia Burke
1999 - 2002	Mr. Ghassan Ejjeh	Ms. Patricia Burke
2002 - 2003	Dr. William T. Andrews	Ms. Patricia Burke
2003 - 2005	Mr. Abdulhamid A. Al-Mansour	Ms. Patricia Burke
2005 - 2007	Mr. Jose Antonio Medina	Ms. Patricia Burke
2007 - 2009	Ms. Lisa Henthorne	Ms. Patricia Burke
2009 -2011	Mr. Imad Makhzoumi	Ms. Patricia Burke
2011 - 2013	Dr. Corrado Sommariva	Ms. Patricia Burke
2013 - 2015	Dr. Abdullah Al-AlShaikh	Ms. Patricia Burke
2015 - 2017	Mr. Emilio Gabbrielli	Ms. Patricia Burke
2017 - 2019	Mr. Miguel Angel Sanz	Ms. Shannon K. McCarthy (Executive Director)
2019 - 2022	Mr. Carlos Cosin	Ms. Shannon K. McCarthy
2022 - 2024	Mr. Fady Juez	Ms. Shannon K. McCarthy

International Desalination Association

Event Photos





The IDA promotes development and appropriate use of desalination and water purification technologies worldwide in water supply, water reuse, water pollution control, water purification, water treatment, and other water sciences and technology.

IDRA

Focused on Desalination and Reuse

2023 -

*Fifty **More** Years of Supporting Global Water Resource Solutions for a Better Tomorrow*