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Registration for the IDA World Congress Is Now Open



Register now for the 2015 IDA World Congress on Desalination and Water Reuse! The premier event for the global desalination community, the World Congress takes place at the San Diego Convention Center in San Diego, California from August 30-September 4 and will focus on “Renewable Water Resources to Meet Global Needs.”

World Congress 2015 features a four-day technical program, industry-leading Exhibition, IDA Desalination Academy courses, plant tours and unmatched networking opportunities including 9 open forum discussion panels and the Innovation Theater where new products and services will be spotlighted.

With the Congress less than three months away, we encourage you to register now and enjoy substantial savings with our Early Discounted Registration Fees (available through July 1). See the table on [page 10](#) for all registration rates.

By taking advantage of the early registration discount, you will save \$125 off the late registration price. We also encourage you to register soon to ensure sufficient time for the U.S. visa application process. (Note: You must have a paid registration in order to receive a visa invitation letter.)

[Click here to register now](#)



message

from the Secretary General

Patricia Burke



For some time now, IDA has been involved in the discussion about the use of desalination in California, USA. The issue has achieved far greater significance over the past couple of years, coinciding with planning for our upcoming [World Congress in San Diego](#) and of course, the impacts of the historic drought that continues to impact the region.

Only a short time ago, desalination was like a lightning rod that attracted the wrath of well-meaning but poorly informed stakeholders in the region who expressed deep concerns over energy consumption, potential effects on marine life and other aspects of the environment, and the cost of producing the water.

As the water crisis deepens, however, we have seen a shift in attitudes towards desalination. The mindset towards its use is becoming more accepting. The Carlsbad desalination plant will soon come online, and there is a growing sense of eagerness about its commissioning. Once-mothballed plants are being resurrected and being readied to be put back into service. Even media in the area now comment on how seawater desalination could tap the abundance of water that lies in the Pacific Ocean to offer long-term and reliable relief to the state's thirsty people and businesses.

The answer is not quite that simple, of course. IDA's view has always been that desalination should be part of an integrated water resources management strategy that starts with conservation and includes reuse and other

elements such as harvesting of rainwater or storm water runoff. We are seeing this multi-pronged approach being applied in California, as government officials mandate stringent cut-backs in use, and agencies such as the Orange County Water District implement programs such as the Groundwater Replenishment System that serve as models for other regions of the USA and indeed, for other parts of the world.

This integrated approach works.

When we think of a successful water resource management strategy, Singapore's Four National Taps program is at the top of the list. To quote from [PUB's website](#):

"In just five decades, Singapore has overcome water shortages despite its lack of natural water resources and pollution in its rivers. Driven by a vision of what it takes to be sustainable in water, Singapore has been investing in research and technology. Today, the nation has built a robust, diversified and sustainable water supply from four different sources known as the Four National Taps (water from local catchment areas, imported water, reclaimed water known as NEWater and desalinated water). By integrating the systems and maximizing the efficiency of each of the four taps, Singapore has ensured a stable, sustainable water supply capable of catering to the country's continued growth."

Western Australia is another excellent example of a successful, multi-faceted approach. Perth

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The Value of a Mentor



By Ann Seamonds

The poet Robert Frost once said, “I am not a teacher, but an awakener.” I believe that this sentence truly captures the meaning of mentorship and the

enduring gift that a mentor brings to his or her mentee. A mentor’s value lies not only in providing sound technical or business advice, but also, in my opinion, a sense of empowerment that enables us to believe in our capabilities and take what sometimes seems like a daunting leap into uncertain territory.

I have been extremely fortunate to have had incredible mentors at different stages of my career, one quite early on and one just a few years ago. I’m not sure that either of these very generous people realized their importance in my professional life, but I am absolutely certain that without their encouragement and guidance, my world would have been quite different than it is today.

While many members of IDA have advanced degrees in engineering or other technical fields that are specifically relevant to the desalination and water reuse industries, my journey was quite different and very circuitous. After earning a degree in music, I took a job in a large bank –in theory, a temporary position until I became a great opera singer. Soon thereafter, I was approached by the Treasurer of that bank who took me under his wing, taught me all about investing and equipped me with knowledge and skills that led to my becoming his assistant in managing the bank’s \$100 million investment portfolio. I was fascinated by the work and quite amazed at my ability to grasp

this new field; the opera career experienced a quick death and I devoted myself to this new endeavor.

After my mentor was elected as President of the bank, he expanded my responsibilities to include all kinds of special projects and strategic assignments. Never once did he express any doubt about my ability to succeed, though he always stood ready to offer his sage counsel. Ultimately, I moved with a sense of assurance from the world of investments into directing the company’s marketing and public relations program, and my real career was born.

That was many years ago, but of course, we never stop learning. My most recent mentor encouraged me to leverage the considerable experience and expertise gained in the water treatment business and focus my firm on the global water sector based on that strong foundation. It was wise advice, and that strategy has opened doors that I could never have imagined.

“What does this have to do with IDA?” you might ask. I would answer in one word: “Everything.”

First, IDA has recently launched a [Mentor Program](#). The stated purpose of this forward-thinking initiative is to connect a highly respected industry leader within IDA’s membership with an emerging industry professional through a mentoring relationship that can lead to a transfer of knowledge and broadening of networks between the two. The program is based upon encouragement, constructive comments, openness, mutual trust, respect and a willingness

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The Value of a Mentor

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to learn and share information. While it will initially be aimed at IDA's Young Leaders Program (YLP) members, it may be broadened in scope at a future date.

For the emerging professional – the mentee, this program presents an opportunity to draw on the experience of established industry professionals in terms of their technical knowledge and also their business experience. For the mentor, it presents an opportunity to further strengthen the desalination and water reuse community by fostering the next generation of leaders.

This program represents a unique opportunity to benefit from a mentor. I would strongly encourage you to look into it and take advantage of the experience.

Second, I believe that the true value of IDA lies in the connections it enables – connections between people and ideas, across various aspects of desalination and since IDA is a global organization, also across cultures. These

connections are instrumental in the future of our industry, and they also open new doors – new awakenings – to the individuals who are willing to explore the new possibilities these relationships enable.

Third, while IDA's Mentor Program establishes the framework for a more structured program that is often valuable in a "distance" relationship, each of us has the opportunity to be a mentor within our own sphere of influence. Sometimes, the role is fleeting; sometimes, it is enduring. Either way, "paying it forward" as a mentor is one of the most important contributions we can make. In truth, we never know when our words of encouragement or the sharing of our perspectives in a mentorship role can have a profound effect on someone's future.

Ann Seamonds is Editor of the IDA News and oversees IDA's public relations program through her firm Seamonds & Company. She can be reached at seamonds@seamonds.com

For more information about the IDA Mentor Program, please contact Ronan McGovern at mcgov@mit.edu

Nuclear Desalination in Saudi Arabia – An Update



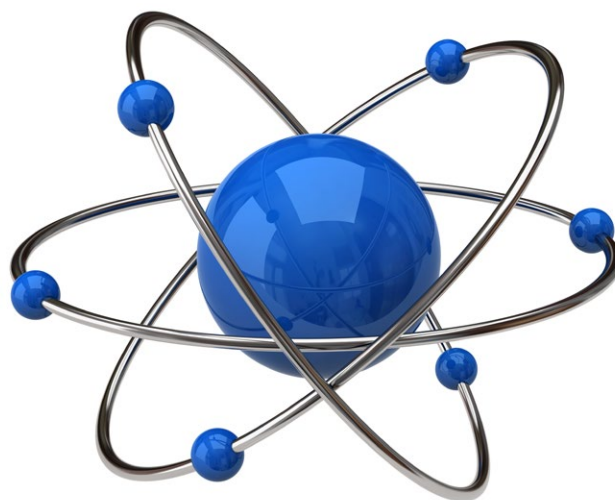
By Maher A. Alodan, Ph.D.

The Kingdom of Saudi Arabia poses a unique situation in nuclear desalination. The Kingdom has water scarcity, and the need for finding new water resources in addition to electricity is vital for the socioeconomics of the country. Safe and adequate supplies of water are vital for continuous growth of the Kingdom.

Already as of 2012, the average water consumption per capita in the Kingdom reached 250 liters/day, and the annual increase in desalinated water consumption was 14.5 percent. [King Abdullah City for Atomic and Renewable Energy's \(K.A.CARE\)](#) forecast shows that the desalinated water production will soon reach 10,000,000 m³/d with an annual growth rate of 7 percent.

The Kingdom is the largest producer of desalinated water in the world, and fossil fuel has been the only source of energy that is used in desalination facilities. In addition, the Kingdom has the largest water output share of desalinated water regionally and globally, and it hosts all three types of commercial desalination plants. A total of 41 MSF, MED and RO large scale plants are in operation on the Arabian Gulf and Red Sea coasts by the Saline Water Conversion Corporation (SWCC) of Saudi Arabia.

King Abdullah City for Atomic and Renewable Energy (K.A.CARE) was established in April, 2010 by Royal Order. It is mandated to introduce a new energy paradigm in the Kingdom by transforming the energy mix with about 50% derived from atomic and renewable energy



sources by 2040. The nuclear energy is envisaged based on a developed strategic plan to supply the Kingdom with an optimized amount of desalinated water and electricity by nuclear power.

Nuclear desalination has been developed and demonstrated over decades in select countries such as Pakistan, Kazakhstan and Japan. It was based on extracting nuclear steam to desalination plants from experimental small-scale water-cooled and sodium-cooled reactors. They were able to prove that the existing nuclear power plants (NPPs) can be utilized for cogeneration of desalinated water and electricity from nuclear power reactors, addressing unique features of nuclear safety on an experimental scale.

No further effort was made to bring nuclear desalination on a commercial scale due to lack of such demands on a national scale. The Gulf region may be the first in its national energy requirements to justify cogeneration of electricity and water on a commercial scale. A new approach is needed to merge nuclear power

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Will FO Always Be Looking at Niche Markets?



Paul O'Callaghan



Dr. Graeme Pearce

BlueTech Research will release a report on Forward Osmosis in August 2015.

This article, based on information from the report, includes contributions from Paul O'Callaghan, CEO, BlueTech Research, and one of the report's authors, Dr. Graeme Pearce.

Forward osmosis (FO) has been making steady progress in the past few years towards a number of niche markets but is facing difficult challenges on the road to commercialization. It is an intellectually stimulating concept, and this is one reason it has received so much attention and been a source of exaggerated claims in recent years.

This article presents excerpts from the forthcoming BlueTech report analyzing the current status and commercial potential of FO.

Why FO has not broken through

Most people in desalination are familiar with reverse osmosis (RO), which uses pressure to force water to flow across a semi-permeable membrane in the opposite direction to the ionic concentration difference. In desalination, this leaves the salt behind, while water passes through. The process demands a lot of energy, but successfully achieves its goal of producing pure water from feeds ranging from slightly brackish groundwater through estuarine sources to the most saline seawater.

After several decades of modest uptake, RO has become fully mature in the last 15 years, and is now widely adopted, with several established membrane manufacturers, whose products are almost identical in terms of dimensions and performance.

FO, by contrast, relies on the osmotic principle directly, with the solvent migrating and seeking to dilute a concentrated draw solution. To date, it has mainly been the domain of smaller players, often venture-backed, such as Trevi, Oasys, Modern Water, Porifera and Hydration Technologies Inc.

The larger players in the membrane industry have largely watched from the sidelines and have not jumped in. Dow, Toray and Hydranautics, all leaders in RO membranes, are visibly absent from the FO world.

The study was keen to explore the reason for this. What was the perspective of "Big Water" on FO: did they view it as "playing in the sandbox" or a technology with real potential? The incumbents in any industry, and this is also true of RO, are generally focused on sustaining innovation, whereas discontinuous or disruptive innovation tends to come from new entrants.

Another aim of the BlueTech Research investigation was to delve into what was the current situation in this technology area: for which applications might FO make sense, and will it remain a niche technology or eventually affect the mainstream market?

To prepare the report, the authors interviewed leading membrane figures in the water industry as well as the innovative companies that are

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Will FO Always Be Looking at Niche Markets?

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active. An analysis of the patent landscape and published papers was also undertaken.

There are many variants of FO depending on the objective of the separation, and different terms are used such as direct osmosis and osmotic dilution and concentration, but the generic term FO will be used here.

Commercialization at early stage

Despite years of development, the technology has only recently been considered seriously for commercial development, and uptake is still in its infancy. The technology is still at the pilot / demonstration scale stage and, in terms of market adoption, is in the domain of Innovators.

However, a review of recent conference papers shows that interest in FO is now acute, with many papers from academia and newly formed membrane and system suppliers providing multiple sessions on this technology. (Editor's note: Forward osmosis will be covered in the Emerging Technologies track at the 2015 IDA World Congress, August 30-September 4 in San Diego.)

So what are the challenges faced by FO as it strives towards commercialization? Firstly, there is the issue of membrane fouling.

Membrane fouling and FO

In RO and membrane filtration, the feed side of the membrane faces the fouling challenge, whereas the permeate or filtrate side is only in contact with the purified product. Even if the flow is reversed, for example in a backwashing

process, the purified stream does not create a fouling challenge.

In FO, fouling occurs on both sides of the membrane due to the possibility of particulates and other foulants on the feed side and the highly concentrated draw solution on the permeate side, which may cause concentration polarization. Different solutions have been tried to ameliorate membrane fouling, but none is universally accepted, and the first commercial products have used widely different membrane chemistries and structures.

For some FO applications, feed-side fouling may present the greatest challenge, whereas for others, the greater challenge may be on the permeate side, depending on the treatment objective. Currently, most commercial products are based on the spiral wound concept used in RO, but there are also products based on plate and frame designs and hollow fibres.

The diversity underlines the fact that there is no universally accepted route to overcome the technical challenge, an aspect analysed in detail in the report.

Increasing patents from diverse sources

It is interesting to see some of the players that hold significant IP positions, in terms of numbers of patents, relating to FO. The figures shown in Figure 1 below indicate clearly that there has been a steady increase in the number of published research papers in the area of

FO over the past five years, with a 60% increase between 2012 and 2013.

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Will FO Always Be Looking at Niche Markets?

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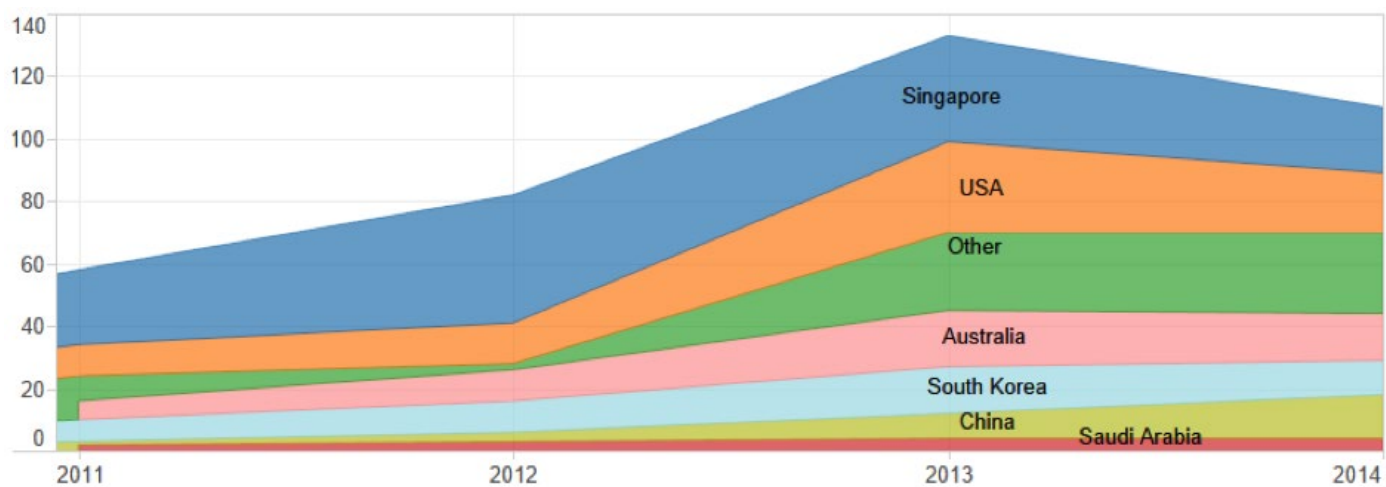


Figure 1: Annual Number of Forward Osmosis Research Papers Published¹

It is also clear from Figure 2 that the number of Forward Osmosis papers granted has been increasing consistently year on year between 2009 and 2014. This is certainly an indication that there is a) the potential for IP generation in this area, and b) that universities and private companies see value in building IP positions in this area.

The patents are coming from a very diverse range of sources including Oasys (7%), Yale University (7%), National University of Singapore (7%) and University of Reno Nevada.

Failure to surmount hurdles

FO is a promising technology but presents a difficult set of technical hurdles and has so far failed to make a significant commercial impact. However, recent interest has grown sharply both from academia and several specialized companies, and there has been good progress in addressing the challenges. Several attractive application niches are now developing which could present an ideal opportunity for diverse product offerings from specialized suppliers.

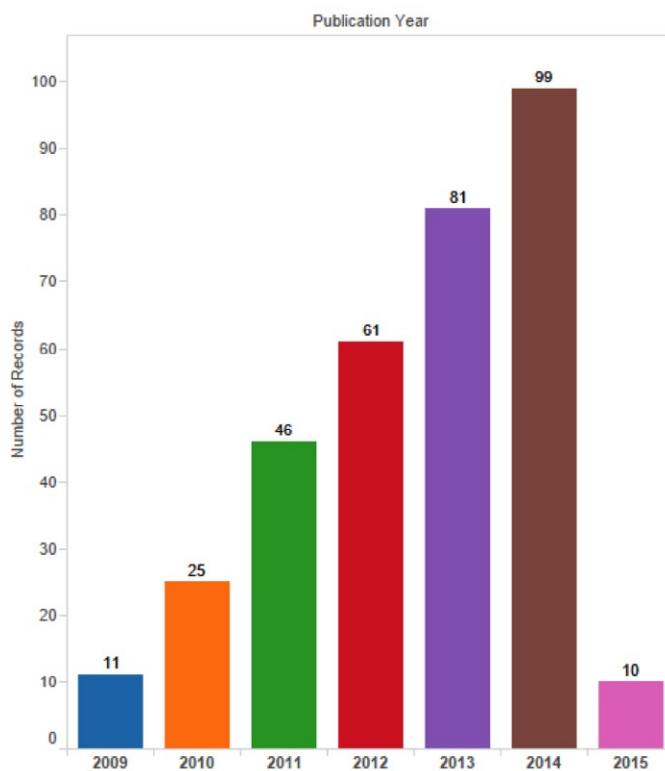


Figure 2: Annual Number of Forward Osmosis Patents Granted²

* *The Insight Report on Forward Osmosis* will be available to BlueTech clients in August 2015. For more information visit: <http://www.bluetechresearch.com> or contact paul.ocallaghan@bluetechresearch.com

¹ Source: BlueTech IP Watch™

² Source: BlueTech IP Watch™

Countdown to the World Congress



Join Us in San Diego!

The site of the 2015 IDA World Congress, San Diego is a world-class destination offering spectacular beaches, restaurants, hotels, attractions and easy access to transportation. Considered to be the epicenter of desalination and water reuse development in the USA, the area hosts many of the industry's leading membrane manufacturers, universities, research and development, centers, project developers and industry leaders.

The San Diego area is considered the birthplace of commercial reverse osmosis, and it is still called the Silicon Valley of membrane technology – home to many technology advancements and innovations.

As part of the World Congress experience, delegates will have the opportunity to tour the soon-to-be commissioned Carlsbad desalination plant, the largest in North America, and the Orange County Groundwater Replenishment System, the world's largest water purification system for direct potable reuse.

The IDA World Congress 2015 theme of "Renewable Water Resources to Meet Global Needs" is particularly relevant, with California's

record-breaking drought generating an extraordinary interest in reuse and desalination. We invite you to share in the excitement of our return to North America and the city of San Diego after 16 years. At the World Congress, you will be a part of the vital discussions taking place surrounding the growing demand for a sustainable source of fresh water in response to population growth, economic expansion, degradation of existing resources, and the effects of climate change.

The San Diego Convention Center has produced a microsite about San Diego for World Congress 2015 attendees who want to learn more about the destination. [Click here to learn more about San Diego](#). View the destination video, connect to the hotels of the Congress, explore landmarks and activities and download coupons for use during your stay in San Diego.

We hope that you will also take the time between or after meetings to enjoy everything San Diego has to offer. Whether you want to learn how to surf in La Jolla, taste the local flavors at a five-star restaurant in the Gaslamp Quarter, stroll the peaceful beaches of Coronado, explore the museums of Balboa Park or take a cruise on the bay, San Diego has something for everyone.

Countdown to the World Congress

Registration Rates

AMTA Workshop, Sunday, August 30, 2015		
	Through July 1	July 2-August 10
AMTA Members and AMTA Affiliates	200 USD	250 USD
IDA Members	200 USD	250 USD
Non-Members	300 USD	350 USD
Full-Time Student/Retired	75 USD	100 USD
CEUs	25 USD	25 USD
ACADEMY Courses, Sunday, August 30, 2015 and Friday, September 4, 2015		
	Through August 10	Onsite
8/30/15: David H. Paul – full day	550 USD	600 USD
9/4/15: Dr. Graeme K. Pearce – ½ day (AM)	275 USD	300 USD
CONGRESS DAYS: Monday-Thursday, August 31-September 3, 2015		
Early Discounted Registration Fees		Through July 1, 2015
IDA Members & IDA Affiliates		1250 USD
Non-Members		1450 USD
Full-time Professors/Students who are IDA members		550 USD
Local Utilities		500 USD
Late Registration Fees		July 2-August 10, 2015
IDA Members, IDA Affiliates, and Full Time Professors/Students who are IDA members		1375 USD
Non-Members, Students and Professors		1575 USD
Local Utilities		500 USD
On-Site Registration Fees		
All Categories		2000 USD

Countdown to the World Congress

World Congress 2015 Second Announcement Now Available

The 2015 IDA World Congress is almost here. To be held at the award-winning San Diego Convention Center located in the Marina district of downtown San Diego, this year's Congress offers its most robust Technical Program ever and an Exhibition showcasing the latest products and services. In addition, the Congress week is packed with opportunities to learn, network and establish new connections.

The Technical Program covers timely topics regarding global water issues in a location that is currently experiencing a serious drought. The Congress also features commercial presentation opportunities in our Innovation Theater, an Education Day designed for future generations and their participation in the water reuse and desalination industry, and 9 open forum panel discussions hosted by highly respected moderators and panelists.

The Second Announcement provides an overview of all the activities that will be taking place as well as registration information and the first glimpse at the technical papers for presentation.

To view the Second Announcement online, please visit <http://wc.idadesal.org/> To register for the World Congress, [click here](#).



The graphic features a teal background with a globe icon in the upper left, surrounded by blue and orange swooshes. The text 'SECOND ANNOUNCEMENT' is at the top in orange. Below it, 'IDA WORLD CONGRESS 2015' is written in white and orange, with '2015' in a large orange font. Underneath, 'DESALINATION & WATER REUSE' is in white, followed by the tagline 'Renewable Water Resources to Meet Global Needs'. The background image shows a cityscape with a marina and a convention center. At the bottom, the dates 'AUGUST 30 - SEPTEMBER 4, 2015' are in orange, and the location 'SAN DIEGO CONVENTION CENTER SAN DIEGO, CALIFORNIA, USA' is in white.

SECOND ANNOUNCEMENT

IDA WORLD CONGRESS 2015

DESALINATION & WATER REUSE
Renewable Water Resources to Meet Global Needs

AUGUST 30 - SEPTEMBER 4, 2015

SAN DIEGO CONVENTION CENTER
SAN DIEGO, CALIFORNIA, USA

Countdown to the World Congress

World Congress Features Panel Discussions with World Renowned Leaders

Among the exciting new additions to this year's IDA World Congress is the inclusion into the program of 9 panel discussions featuring world-renowned moderators and panelists. These sessions explore key industry issues surrounding reuse and desalination and are designed to create fruitful discussion and interaction between the panel members and the audience.

The panels and moderators are:

Current Challenges and Future Needs for Desalination and Water Reuse in Industrial Applications moderated by Christopher Gasson, Publisher, Global Water Intelligence

This panel brings together experts from oil & gas, mining, microelectronics and other industries using desalination technologies for process water, brine concentration and water reuse applications to discuss current challenges and future needs.

Public Private Partnerships: Successful Desal's Common Denominator moderated by Usha Rao Monari, CEO, Global Water Development Partners, Blackstone Portfolio Company

This panel will consider the relevance of the P3 model in delivering desalinated water at an affordable cost to a thirsty world.

Global Seawater Desal and Reuse Success Stories moderated by Thomas Pankratz, Editor/Consultant, Water Desalination Report

This panel will bring together proponents of some of the most interesting initiatives to discuss the commercial issues and technical challenges that they had to overcome in the development of those projects.

Energy: Desal's Critical Partner; Is Net Carbon Neutrality a Reasonable Goal? moderated by Paddy Padmanathan, President & CEO, ACWA Power International

This panel will focus on the successful application of large-scale renewable energy resources and the latest advancements in small-scale technologies to help define the role of renewable energy in the future.

Environmental and Regulatory Challenges for Desalination and Reuse moderated by Jeff Mosher, Executive Director, National Water Research Institute

This panel will discuss current solutions to such issues as entrainment and impingement and inland and coastal concentrate management as well as several case studies where additional knowledge is needed and being developed.

Innovation and Collaboration and How it Works moderated by Dr. In S. Kim, Professor & Director, Gwanqui Institute of Science and Technology (GIST)

This panel will discuss the most recent developments in industry/university/government collaboration as well as several case studies where this collaboration has led to advancements in the reuse and desalination industry.

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Countdown to the World Congress

IDA Announces Featured Speakers at Opening Ceremony

IDA announces that Ivonne A-Baki and Benjamin Cook will be among the featured speakers at the Opening Ceremony of the 2015 World Congress.



Ivonne A-Baki, artist, painter, diplomat, peace negotiator, humanist, and politician, is a multifaceted woman who has always been driven by her ideals.

Born in Guayaquil, Ecuador, she moved to the United States in 1990, becoming Artist-in-Residence at Harvard University and creating the Harvard Arts for Peace Foundation. At the same time, she founded the Beyond Boundaries Foundation to improve the health of the poor people in Ecuador through prevention and education; this foundation has worked on the eradication of river blindness among other initiatives. She also established the Galapagos Conservancy Foundation following the tragic spill from an oil tanker in the Galapagos Islands.

Her obsession for peace and social justice has also taken her into the realm of diplomacy, peace negotiations and politics. In 1998, she was instrumental in reaching a peace agreement between Ecuador and Peru and subsequently became ambassador of Ecuador to the U.S. In 2003, a year after becoming a candidate for the presidency of Ecuador, she became

Ecuador's Minister of Foreign Trade, Industry, Regional Integration, Fisheries and Competitiveness. Three years later, she won in the elections for the Andean Parliament, and in 2007 was elected President of the Andean Parliament with the unanimous vote of the five member countries: Bolivia, Chile, Colombia, Ecuador, and Peru.

Currently, she is the Chief Negotiator for the Yasuni-ITT initiative, which aims to keep 846 million barrels of oil from being exploited to preserve the Yasuni National Park in Ecuador, the most biodiverse place on the planet.



Benjamin Cook is a research scientist at the NASA Goddard Institute for Space Studies in New York City. He received his Ph.D. from the University of Virginia in 2007, moving to New York the same year to take a

position as a NOAA Global Change Postdoctoral Scholar at Columbia University before moving permanently to GISS in 2009.

His research spans a variety of topics, including drought and climate change in the western US, ecosystem responses to global warming, and how human alterations to the landscape can affect regional and global climate. He is the lead author of a recent [NASA study](#) linking carbon emissions with dramatically increased risk of megadroughts in the USA.

Benjamin also teaches at Columbia University and is involved in a variety of public outreach activities.

Countdown to the World Congress

Official Hotels of the World Congress

Group rates have been established with three hotels within walking distance to the San Diego Convention Center. To view hotel details, prices and make reservations go to <http://wc.idadesal.org/accommodations/>.



Marriott Marquis San Diego Marina

The Marriott Marquis San Diego Marina waterfront hotel rests at the center of the San Diego Bay. Adjacent to the San Diego Convention Center and steps from the Gaslamp Quarter, the downtown San Diego Bay hotel is located at the center of many popular attractions.

Room rates are \$245 US plus tax per night for single/double occupancy.



Marriott Residence Inn San Diego

The new Marriott Residence Inn San Diego combines the comforts of home with a great location. Ideally situated near SeaWorld San Diego, San Diego Airport, the Convention Center and the marina, the Marriott Residence Inn is a great choice if you want to relax and explore.

Room rates are \$181 US plus tax per night for a studio suite and \$241 US plus tax per night for one bedroom suite.



Manchester Grand Hyatt San Diego

Boasting a spectacular waterfront location and lavish amenities, Manchester Grand Hyatt San Diego offers a retreat in the heart of San Diego. The luxury hotel in downtown San Diego is ideally placed to let you explore all the area offers.

Room rates are \$239 US plus tax per night for single/double occupancy.

Countdown to the World Congress

IDA World Congress 2015 Features Two Academy Courses

The IDA Academy of Desalination and Water Reuse will present two courses at the World Congress.

Water & Wastewater Minimization Using Current & Emerging Membrane Technologies

**Mr. David H. Paul, David H. Paul, Inc.
Sunday, August 30, 2015 – 8:30 am - 4:30 pm**

Based on feedback received from our previous World Congress, we have scheduled the David H. Paul course prior to the World Congress to provide attendees with a thorough understanding of most of the technologies for which papers will be presented in the following days.

The multimedia presentation will provide information on how each of the following technologies works and can be used for water and wastewater minimization, including BWRO, SWRO, FO, ED, EDR, CCD™, HERO™, MCDI, MD and Membrane Filtration (both polymeric and ceramic).

A Comparison of Manufacturers' Technology for Membrane Filtration used in Water & Wastewater Treatment

**Dr. Graeme K. Pearce, Director of Membrane
Consultancy Associates (MCA)
Friday, September 4, 2015 – 8:30 am -12:00 pm**

This academy course is designed for students with a range of experience in membranes and water and is suitable both for those who are relatively new to the field and to those who are experienced membrane technologists.

The workshop will draw a comparison of commercial membrane filtration technology for water and wastewater treatment and offers an evaluation of commercially available technology, reviewing current status, recent developments and the outlook for UF and MF technologies. The comparison will look at pros and cons of the technologies in a range of applications including surface water, desalination pre-treatment and wastewater reuse.

To register for the courses, [click here](#).



IDA Lifetime Achievement Award – Call for Nominations

The IDA Lifetime Achievement Award is presented to one or more individuals who have dedicated their lives to desalination and water reuse, sharing their deep knowledge and exemplary leadership with our industry.

IDA invites nominations for this prestigious award that recognizes an individual for his or her outstanding contributions in the field of desalination and water reuse – whether they are technical, organizational, humanitarian or visionary in nature.

The next Lifetime Achievement Award will be announced at the 2015 World Congress in San Diego. If you have someone in mind, please

forward his or her name and a 250 word explanation on why you believe such a prestigious recognition is deserved to awards@idadesal.org. Nominations close July 15, 2015.



Dr. Masaru Kurihara (left) received the IDA Lifetime Achievement Award at the 2011 IDA World Congress, presented by Imad Makhzoumi (right), then President of IDA.

Message From the Secretary General

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has a diversified portfolio that utilizes surface reservoirs, groundwater, storm water, seawater desalination, potable water recycling and conservation to meet water needs.

The irony in attitudes towards desalination in the USA is that the country ranks #2 in terms of global capacity in all types of desalination. The vast majority of this water is brackish water, with around 2,000 plants in operation – but it's desalination, nevertheless.

It is our hope that the 2015 IDA World Congress will shine a bright light on the roles of both desalination and water reuse in helping to solve the world's water problems, and that our Water Reuse Conference in Nice, France in September 2016 will also extend knowledge about advancements in reuse strategies around the world. We hope to see you in San Diego this August 30-September 4 and also in Nice, September 26-27, 2016.

Proposed Bylaw Changes

IDA proposes the following two bylaw changes that have come out of discussions surrounding the 2014-2019 Strategic Plan.

Membership Categories and Fees

The sub-committee on Membership has reviewed the fees and structure of other organizations in our field and determined that our fees are much lower and offer more benefits. As a result, the committee recommends an increase in fees along with a revision of the categories that allow for more members to be included in the various tiers. These increases would not take effect until the 2016/2017 membership year.

Proposed Membership Type	Proposed Fee (in USD)
Large Companies (more than 200 employees)	\$3000 (allows 20 members)
Medium companies (11-199 employees)	\$1500 (allows 7 members)
Small companies (10 or less employees)	\$1000 (allows 3 members)
Additional Members	\$100
Individual Members	\$150
Student	\$25
LDCs Country	\$25
Retirees	\$50

Board Structure and Size

This sub-committee as previously advised has recommended a bylaw change to increase the

affiliate crossover numbers for Regional Affiliates to 100 and the crossover number for Association Affiliates to 25.

The proposed change follows (changes in red).

Article IV – Affiliate Membership, Section 2. – Affiliate Memberships

A. Regional Affiliates

2. Must have a minimum of **one hundred (100)** Class I and/or Class II Association members or their Designated Representatives enrolled and must have a total membership of at least two hundred (200)

B. Association Affiliates

Must have a minimum of **twenty-five (25)** Class I and /or Class II Association members or their Designated Representatives enrolled and must have a total membership of at least one-hundred fifty (150)

Changes to the bylaws can be made only by going through the following process as outlined below. Please note that this publication of the proposed change fulfills the requirement of Section 3. Also please note that Section 4 indicates that voting may take place 50 days after publication, and that all comments received up that time from the General and Affiliated Members will be read or distributed to all Directors before they vote.

ARTICLE XIV. BYLAWS

Section 1. General

The Board of Directors may from time to time enact Bylaws which act to clarify and carry out

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the directives of the Constitution. These Bylaws may cover topics such as dues, regions, and the general conduct of business. At no time can the Bylaws be inconsistent with the spirit of the Constitution.

Section 2. Proposal

A Bylaw may be proposed by any Director at a meeting of the Board of directors or by a General Member or their Designated Representative, by means of a letter to the board.

Section 3. Publications

If the Bylaw obtains approval by a majority of the Directors present at the board Meeting then the Bylaw will be published in the next scheduled publication of the Association along with a request for comments from the membership.

Section 4. Voting

The Bylaw may be voted upon 50 days after the publication of the Bylaw in the Association publication. All comments received up to that point from the General and Affiliated Members will be read or distributed to all Directors before they vote.

Section 5. Approval

The Bylaw will be considered approved when voted on favorably by a majority of all Constitution and Bylaws – International Desalination Association Page 21 Directors. Unless stated otherwise in the Bylaw the Bylaw will go into effect 30 days following approval.

IDA Board of Directors Election Is Now Open

IDA is pleased to announce that the voting for the 2015-2017 IDA Board of Directors Election opened on June 17.

You are encouraged to participate in the election and vote for up to the allotted number of Directors in all regions. Your vote counts! By taking the time to vote for your candidate, you have the opportunity to elect someone who shares your viewpoint for the future of the Association. Show your support of the organization by determining the leaders of the International Desalination Association for the next two years.

To vote you must be a current IDA member (Class II). [Click here to renew your membership now.](#) To access the online voting page go to <https://ida.enoah.com/Membership/BOD-Election>. You must log in with your user name and password to see the ballot and bios and cast your vote. To view the candidate bios, simply click on a candidate's name.

Voting closes August 8, 2015.

To access online voting, please ensure you have activated your account as your old log in information (your email address and password prior to February 2015) will not work.

Should you need any assistance, please contact the IDA's Membership Manager, Ms. Nanc Pagels, at npagels@idadesal.org.

IDA Conference Explores New Horizons for Desalination



On May 17-19, IDA presented an international conference in Santa Margherita, Portofino, Italy focused on social responsibility and innovations needed to provide future generations with a sustainable, environmentally responsible source of water. Held in cooperation with Rotary Club La Spezia, the conference featured more than 30 technical papers, was attended by approximately 100 delegates from around the world and raised funds that will support a water-related humanitarian project. IDA Director and Past President Dr. Corrado Sommariva reports on the conference.

It was an emotional experience for all of us on IDA's Humanitarian Outreach Committee to gather again, four years after the inception of the program, in the beautiful venue of the Grand Hotel Miramare in Santa Margherita for the conference "New Horizons for Desalination."

This event was once again in collaboration with the Rotary Club of La Spezia. There is a long and successful history of cooperation between IDA and Rotary Club – a cooperation that, in only four years, has resulted in the donation

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of over a half million dollars to support water-related charitable projects.

The generous sponsor participation and large attendance at the event were the result of a novel and extremely interesting technical program. They also demonstrated the renewed commitment of all the desalination community towards the goal of social commitment.

“New Horizons for Desalination” – the theme of the conference – symbolizes the momentum of the desalination industry and the constant aim of enhancing developments towards an environmentally friendly, economic and sustainable business, and as such, to serve beyond the traditional market into new segments of the water business.

The selection of papers provided an outstanding example of new horizons that we all hope will provide the foundation of a better future for generations to come.



Miriam Balaban spoke after receiving a special plaque for her 50 year anniversary in the industry.

I do not have enough words to thank all the sponsors, speakers, session chairmen and participants who supported this event. In particular, let me once again thank the conference Platinum Sponsor, Prince Sultan Prize for Water, for their support.

I also would like to acknowledge the help of many friends and colleagues who spared no efforts to make this event happen, resulting in great sessions and several interesting networking initiatives.

For the first time and in line with the objective of educating future generations on the importance of water, IDA held a children’s drawing competition on the theme “Water – an Essential Resource.” There are no better images than drawings like this one to show the importance of our “little drop in the ocean” that we were able to collect in Santa Margherita.



IDA to Produce Conversations with the Pioneers Video Series



Gordon Leitner

In memory of her father Gordon Leitner, a pioneer in the desalination industry, Faith Leitner has donated \$5,000 US in seed money to fund a new IDA initiative called "Conversations with Pioneers," a series of video interviews with many innovators in desalination and water reuse. These interviews are intended to inform and perhaps more importantly, preserve a valuable part of desalination industry's history, which was so important to Mr. Leitner.

Tom Pankratz, editor of WDR and a former Director of IDA, will conduct the first set of interviews at the IDA World Congress in San Diego. These conversations will focus on

distinguished veteran desalters who will discuss the development and commercialization of the desalination industry from 1960 through 1980, with an emphasis on thermal desal technologies. The series will continue with interviews that explore development of other desalination technologies through the years.

Ms. Leitner will attend the awards ceremony in San Diego to present the IDA with a check for the project's expenses. When completed, the videos will be posted on the IDA website. Eleven interviewees were confirmed as we went to press: Leon Awerbuch, Bob Bailie, Miriam Balaban, Jim Birkett, Adil Bushnak, Kurt Kiefer, Sherman May, OJ Morin, Nabil Nada, Wil Pergande and Bill Querns.

IDA Presents in the 7th World Water Forum

By Miguel Angel Sanz IDA 2nd Vice President and Technical Program Committee Co-chairman

From April 12 – 17, Korea held the 7th World Water Forum in two cities, Daegu and Gyeongbuk. Entitled “Water for our Future,” the 7th edition was the world’s largest event on water issues, attended by more than 40,000 visitors from 168 countries including nine heads of State, 80 government ministers and 100 official national governments delegations.

The International Desalination Association was present in the Science and Technology Process track, one of the four Processes of this Forum. IDA had an important role in the Main Focus 2: “Resource Recovery from Water and Waste Water,” coordinated by the International Hydrological Program from UNESCO.

IDA led with SUEZ Environnement the session 2.2 “Desalination and Wastewater Reuse for Municipal Uses as a Necessity to Preserve Natural Resources” that was coordinated by Miguel Angel Sanz and Leon Awerbuch. In addition, several Directors were included in the session 2.4 “Advanced Technologies and Innovation in Water Reuse and Resource Recovery” coordinated by UNESCO, the Korean Society of Environmental Engineers (KSEE), and the R&D Center for Advanced Technology of Wastewater Treatment and Reuse.

Session 2.2 was focused on desalination and wastewater reuse for municipal uses such as drinking water, and explored the conditions associated with the applications for municipal purposes such as the main factors to take into account, different technologies, applied

solutions, and even the interaction with industry requirement and needs. In addition, the session included several presentations on practical cases of desalination and wastewater reuse from different parts of the world.

The two-hour Desalination and Reuse session was held Tuesday April 14 in Daegu EXCO, introduced and moderated by Miguel Angel Sanz. A high level roster of speakers covered all targets proposed by the organizers. Speakers came from a large variety of regions of the world, showing good examples to follow in the best practices in the application of desalination and water reuse. Speakers included:

- Dr. Sarantuyaa Zandaryaa, UNESCO: “Desalination and Wastewater reuse for municipal purposes: How science and technology advancements can make a difference”
- Dr. Emilio Gabrielli, IDA 1st Vice President and Director, Overseas Business Development – Global Sales of Water Treatment for Toray Industries, Brazil: “The desalination & water reuse challenges in South America. Membranes helping the region growing”
- Mr. Aik Num, PUB, Singapore: “The key role of seawater desalination and water reuse in Singapore Water supply”
- Mr. Greig Mercer, Watersure, Australia: “Desalination and environment: the Australian experiences. Technology supports the sustainability”
- Mr. Francisco J. Bernaola on behalf of Carlos Cosin, Abengoa Water & IDA Director, Spain: “Experiences in seawater desalination projects in MENA region and India”

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IDA Presents in the 7th World Water Forum

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- Ms. Lucina Equihua, SE Latin America, Mexico: "Case studies of municipal wastewater reuse in Mexico and North America"

The panelist presentations were followed by an interesting debate and questions from the attendees.

On April 15, the session 2.4, which was moderated by S. Zandaryaa from UNESCO, also featured some IDA Directors who covered advanced technologies and innovation in desalination and water reuse. Speakers included:

- Prof. In S. Kim, GIST and IDA Director, Korea: "Technology trends in wastewater reuse and desalination"
- Prof. Enrico Drioli, CNR, Italy: "Membrane technology for water treatment and desalination"
- Dr. Masaru Kurihara, Toray Industries and IDA Director, Japan: "The future desalination plants: innovation of Mega-ton water system with low energy and low environmental impact"

These presentations were followed by the introduction of six new technologies or applications. The three speakers joined by Mr. Dae Hwan Rhu, from BKT of Korea, were also included as panelists in the final debate.

On April 16, the summary and conclusions from the five sessions of the Main Focus 2 were presented. The goals were to present the key findings and outcomes of specific sessions, highlighting recommendations and lessons learned, and also to discuss the issues for the future with a forward outlook on resource recovery

to ensure water sustainability. The reporters of the sessions were Miguel Angel Sanz for Session 2.2 and Prof. In S. Kim for Session 2.4. Following these conclusions and remarks, the program featured a panel discussion moderated by the MF2 coordinator, Ms. S. Zandaryaa, during which part of the previous subjects were discussed. The panelists were:

- Dr. Nobuya Fujiwara, Deputy Director of TOYOBO Co. and IDA Director, Japan
- Dr. Glen Digger, past President of IWA, USA
- Mr. Miguel Angel Ródenas, Chairman of Segura River Basin Authority, Spain

During the final session, the attendees acknowledged the excellent level of speakers, the subjects, and the quality of the debates in all sessions.

In addition to the Official Processes, Emilio Gabbrielli and Miguel Angel Sanz also participated in some Pavilion Events talking about desalination and reuse and the International Desalination Association.

We were invited to speak at the Spanish Pavilion in an event where presentations included the Spanish Desalination Plan, the role of the Spanish desalination and reuse industry, the role of the local affiliate AEDyR, and IDA in the last decades. Two IDA World Congresses were held in Spain during this period – Madrid in 1997 and Mas Palomas (Canary Islands) in 2007.

Another important item of note was the Brazilian Pavilion where the Latin American experience in desalination and reuse was presented and the success of our last IDA event in Rio de Janeiro a few weeks before of WWF7 was

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IDA Presents in the 7th World Water Forum

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highlighted. We had the opportunity to promote and celebrate the selection of São Paulo to hold the 2017 IDA World Congress, the first in Latin America.

The next World Water Forum will be in Brasilia in 2018 and organizers propose including São Paulo 2017 in the roadmap of the next WWF8.

On behalf of the International Desalination Association, we like to thank all speakers in the sessions and IDA Directors who participated in this huge water event for the work done and the quality of the interventions and presentations. We would give special thanks and congratulate Dr. Sarantuyaa Zandaryaa as MF coordinator and for supporting IDA in the World Water Forum.

IDA Conducts Media Tour in Southern California

IDA Directors Doug Eisberg and Randy Truby conducted a series of interviews with prominent media in San Diego and Los Angeles in April and May. The goals were to serve as an informed, ongoing resource for reporters who are covering the ongoing California water crisis, discuss how desalination and water reuse play a critical role in helping the region meet water needs, and promote the upcoming IDA World Congress.

“This kind of outreach is essential in educating all stakeholders about the importance of desalination and reuse in an integrated water resources management strategy,” said IDA Secretary General Patricia A. Burke.

“Media coverage of desalination and reuse is expected to continue unabated while the state deals with the effects of a historic drought, not only in California but in media outlets around

the world. IDA has an important duty to be part of that discussion,” she added.

To listen to the interview on the Central Valley Business Times, [click here](#). To watch the interview on San Diego News 6 television, [click here](#).

Other highlights of IDA’s media coverage can be viewed at www.idadesal.org



Desal Prize Awarded

The U.S. Agency for International Development (USAID) and the Bureau of Reclamation, in partnership with the Swedish International Development Cooperation Agency, and the Ministry of Foreign Affairs of the Kingdom of The Netherlands, announced the winners of the Desal Prize, the second call for “Securing Water for Food: A Grand Challenge for Development.”

First Place was awarded to MIT and Jain Irrigations Systems for their design of a photovoltaic-powered electro dialysis reversal (EDR) system that desalinates water using electricity to pull charged particles out of the water and further disinfects using ultraviolet rays. The system was designed for low energy consumption, limiting costs especially in off-grid areas.

The University of Texas at El Paso (UTEP) Center for Inland Desalination Systems was awarded Second Place for the design of a Zero Discharge Desalination (ZDD) technology that reduces water waste in the desalination of groundwater by conventional processes.

Honorable Mention was awarded to Green Desal, a team comprised of the Asian Institute of Technology & Management, National Center for Agricultural Research and Extension, State University of Ponta Grossa, Technion-Israel University of Technology, and University of North Texas, for developing a high-percent recovery system that integrates proven technologies in reverse osmosis, ion exchange, nanofiltration, remineralization and disinfection.

“By 2050, global water demand is expected to increase by 55 percent, and 70 percent of global water use occurs in food production,” said Christian Holmes, USAID Global Water Coordinator. “The Desal Prize was developed to supply catalytic funding to capture and support the innovative ideas and new technologies that could have a significant impact.”

The Desal Prize challenged innovators throughout the world to create cost-effective, energy efficient and environmentally sustainable desalination technologies that can provide potable water for humans as well as water that can be used for crops in developing countries.

Young Leaders Program Committee Expands for 2015-2017

After review of the eligible YLP candidates for election, we are pleased to announce that IDA determined the 2015-2017 Young Leaders Program Committee would be best served by including all of the candidates. Consequently, there will be no need for an election, and a posting of all new committee members

will be available on the IDA (www.idadesal.org) and YLP (www.idaylp.org) websites in the near future.



TECH CORNER

Nuclear Desalination in Saudi Arabia – An Update

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plants and desalination technologies to optimize the design of nuclear desalination plants tailored for Saudi Arabia.

The nuclear desalination project, when realized, will be in line with the national policy of nuclear manpower human capacity building (HCB) for job creation in full cycle of technologies, in design, manufacturing, construction, and operation and maintenance technologies.

A feasibility study is proposed between K.A.CARE, along with other concerned Saudi stakeholders such as SWCC, and nuclear/desalination vendor countries together with the International Desalination Association (IDA) to study technical and economic issues related to commercial NPP for cogeneration in Saudi Arabia. The outcome of the study may provide guidelines for implementing large scale nuclear desalination to *demonstrate* techno-economic feasibility of cogeneration compared to the existing conventional desalination plants.

In addition, a previous study examines the possibility of introducing a small modular reactor SMR cogeneration plant (power+ desalination) to Saudi Arabia as a means of supplying electricity and/or water using innovative and well proven, economic technologies available. For this study, the target year of operation of the plant has been set as 2019, with the unit production capacity of about 100 MWe of electricity, and about 90 MWe of electricity plus 40,000 m³/d of fresh water each.

Maher A. Alodan, Ph.D., is Head of Research and Development and Innovation at King Abdullah City for Atomic and Renewable Energy (K•A•CARE) in Saudi Arabia. K•A•CARE was established by Royal order A/35 of H.M. King Abdullah bin Abdulaziz Al Saud on 17 April 2010 with the fundamental aim of building a sustainable future for Saudi Arabia by developing a substantial alternative energy capacity fully supported by world-class local industries. Dr. Alodan can be reached at m.odan@energy.gov.sa

Renew Your Membership Now

Your membership will expire on June 30, 2015. Renewal invoices have been being emailed out so watch for yours. Thanks to those who have already renewed!

To renew or join [click here](#).

Contact IDA's Membership Manager, Ms. Nancy Pagels at membership@idadesal.org if you have any questions.



World Congress Features Panel Discussions with World Renowned Leaders

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Seawater Intake: A Reality Focused Discussion moderated by Tim Hogan, Senior Fisheries Biologist, Alden Research Laboratory

This panel will bring together experts on surface and subsurface intakes to discuss the realities of identifying and implementing the best intakes for seawater desalination.

A Discussion of Innovative Water Reuse Projects around the World moderated by Melissa Meeker, Executive Director, WaterReuse Association and WaterReuse Research Foundation

This panel will discuss the current status and path forward regarding successful and

innovative reuse projects and policies in the US and around the world.

Integrating Seawater Desalination into Existing U.S. Water Supplies moderated by Ken Weinberg, Director, Water Resources - San Diego Water Authority

This panel discuss how seawater desalination is now being integrated into water supplies in the United States to complement other strategies such as conservation and water recycling.

Calendar of Events

July 1-4, 2015

2nd Int'l Workshop on Membrane Distillation
Ravello (SA), Italy

August 30 – September 4, 2015

IDA 2015 World Congress
San Diego, CA USA

November 18-21, 2015

IDW 2015
Jeju, Korea

February 1-4, 2016

AWWA/AMTA 2015 Membrane Technology Conference
& Exposition
San Antonio, Texas, USA

May 22-26, 2016

Desalination for the Environment, Clean Water and
Energy
Rome, Italy

May 31-June 3, 2016

CaribDA 2016 Biennial Conference & Exposition
Trinidad

September 26-27, 2016

IDA Water Reuse Conference
Nice, France

November 6-9, 2016

Membranes in Drinking and Industrial Water Production
Leeuwarden, The Netherlands

May 6-10, 2018

Desalination for the Environment, Clean Water and
Energy
Nantes, France



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