



**Prince Sultan Bin Abdulaziz
International Prize for Water**

5th Award 2012



HRH Prince Sultan Bin Abdulaziz

The Prize is an undertaking that reflects brightly on Saudi Arabia's continued efforts and constructive work on behalf of humanity. There can be no doubt that the Prize, by honoring creative scientists, gives recognition to the contributions they are making to protect one of our most precious resources. Whether it is for their work in water conservation, quality-control, minimizing pollution, or some other worthy endeavor, honoring these researchers is an inspiration for scientists to give their utmost in developing ever-better research methods and capabilities.

A stylized, handwritten signature in black ink, likely belonging to HRH Prince Sultan Bin Abdulaziz. The signature is written in Arabic calligraphy and is positioned in the bottom right corner of the page.

Introduction

On 21 October 2002, His Royal Highness Prince Sultan Bin Abdulaziz – Crown Prince, Deputy Prime Minister, Minister of Defense and Aviation and Inspector General – announced in Riyadh that nominations were being accepted for a new global Prize: the "Prince Sultan Bin Abdulaziz International Prize for Water".

The Prize Council, headed by His Royal Highness Prince Khalid Bin Sultan Bin Abdulaziz, includes leading scholars from around the world. The General Secretariat of the Prize is headquartered in the Prince Sultan Research Center for Environment, Water and Desert, at King Saud University in Riyadh, Saudi Arabia.

This internationally acclaimed scientific prize has proven to be one of Saudi Arabia's key contributions to water-related issues on a global scale, issues which represent some of the world's most pressing humanitarian, economic and political concerns. The Prize reflects the true image of a nation committed to the environment. It represents a call to the people of the world – a call for international responsibility.

Dr. Abdulmalek A. Al Alshaikh
PSIPW General Secretary

Activities of the Prize

(4th Award 2008 – 2010)



PSIPW

During the 4th Award (2008-2010), PSIPW promoted a wide range of innovative water-related activities:

1. Through the direct involvement of its experts, the Prize has continued to support **King Fahd's Project for Rain and Floodwater Harvesting and Storage in the Kingdom**.
2. The Prize has also been supporting research into rain and floodwater harvesting through its **Prince Sultan Bin Abdulaziz International Prize's Chair for Water Research**, which is located at King Saud University.
3. PSIPW organized the **4th International Conference on Water Resources and Arid Environments (ICWRAE 4)** in conjunction with King Saud University and the Saudi Ministry of Water and Electricity. The conference was held last December, concurrently with the Prize's awards ceremony.
4. During this 2-year period, the Prize was **the primary sponsor for 8 International conferences and exhibitions** around the world. In addition, the Prize held a "**Water Prize Day**" event in Delft in 2009 with the participation of HRH the Prince of Orange, and another in 2010 at Imperial College in London. Most recently, we held a Prize Day event in Amman Jordan, attended by His Majesty King Abdullah II. At these events, fruitful discussions were held between participating scholars to foster the exchange of ideas.

5. As a **member of the Arab Water Council's Board of Governors**, the Prize provided support for a number of the Arab Water Council's activities.

6. The Prize, in conjunction with the United Nations, the Argentine Space Agency, and the European Space Agency, organized the **2nd International Conference on the Use of Space Technology for Water Management**, which was held in Buenos Aires in March 2011.

At the conference, PSIPW hosted a special session with the participation of Prize representatives, high-ranking Saudi government officials, and the current Water Management & Protection Prizewinner: Dr. Soroosh Sorooshian.

7. The Prize, in conjunction with the UN and UNESCO, is in the final stages of developing the **World Water Portal**, which aims to become the world's largest international database for water research, and which will provide an interactive forum for experts and organizations working in the field.

Prizewinners for the 4th Award (2008-2010)

Creativity Prize

The Creativity Prize is being shared by two teams of researchers:

1. The team of Dr. Marek Zreda (University of Arizona) and Dr. Darin Desilets (Sandia National Laboratory, USA).



Dr. Marek Zreda



Dr. Darin Desilets

They are being awarded for their groundbreaking work with the **Cosmic Ray Neutron Probe**, a technology which measures soil moisture content and snow pack thickness over an area of tens of hectares.

Until now, measurements could only be taken at the point scale (*e.g.* invasive probes inserted into soil or snow) or at the kilometer scale (*e.g.* satellite and airborne remote sensing images). However, many important hydrologic processes operate at a scale of tens to hundreds of meters, and it is this critical “blind spot” that the Cosmic Ray Probe reveals — passively, non-invasively and economically.

This new technology can be employed in water supply forecasting, irrigation management, and predictive climate models, since soil water content is currently a major source of uncertainty in weather and climate forecasts, due largely to a lack of suitable observations.

2. The team of Dr. Ignacio Rodríguez-Iturbe (Princeton University, USA) and Dr. Andrea Rinaldo (École Polytechnique Fédérale de Lausan, Switzerland).



Dr. Ignacio Rodríguez-Iturbe



Dr. Andrea Rinaldo

They are being awarded for developing an entirely new field of research: **Ecohydrology**, which bridges the gap between the physical and life sciences.

This multi-disciplinary field aims to provide a unified picture of water-supported biological dispersion through a comprehensive blend of theory (mathematical modeling), interpretation of past and present biological records, and field experimentation.

Some of the prizewinners' work shows how river networks act as ecological corridors, and how they influence the spread of a water-borne disease like Cholera that still plague society today.

Their work opens up avenues of research into many areas of vital importance for society, especially where the ecological impact of human water use is at issue. Ecohydrology has a wide range of practical applications, including water resources management, the development of strategies to minimize the loss of freshwater biodiversity, and the effective prevention of water-borne diseases.

Alternative Water Resources Prize

Dr. Bart Van der Bruggen of the Katholieke Universiteit, Leuven (Belgium)



Dr. Bart Van der Bruggen

Dr. Van der Bruggen is being awarded for his work in the use of **nanofiltration membrane technology for industrial water recycling**.

Dr. Van der Bruggen has conducted important work in applying various membrane technologies for wastewater regeneration, and he made new contributions to the knowledge and practice of water recycling.

Dr. Van der Bruggen's research explores a wide range of industrial situations as diverse as the textile industry, breweries, and car washes. He also takes up "the challenge of zero discharge" where he explores methods for the re-use of remaining wastewater in an overall process scheme aiming at the ambitious goal of zero wastewater discharge.

Water Resources Management and Protection Prize

Dr. Soroosh Sorooshian of the University of California, Irvine (USA)



Dr. Soroosh Sorooshian

Dr. Sorooshian is being awarded for his development and refinement of **the PERSIANN model to estimate precipitation from satellite remotely-sensed data.**

PERSIANN is a method that uses artificial neural networks – a form of artificial intelligence – and infrared (GOES IR) and TRMM satellite data to estimate global precipitation.

Dr. Sorooshian not only led the development of a very important precipitation estimation model – PERSIANN – but with his team, he has continued to improve its predictive ability by applying different methods drawn from artificial intelligence, using new sources to compare and calibrate its estimates (e.g., TRMM and the TOGA experiment), and in simulating data anticipated sensors (e.g., ABL). He shows not only insight and innovation but also dedication to a mission that is of vital importance to hydrologists and water managers the world over.

The Prizes

(5th Award – 2012)

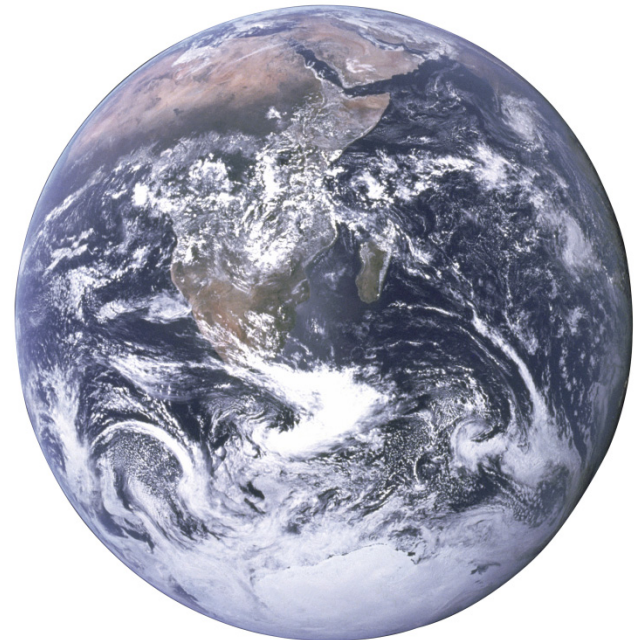


PSIPW

Introduction

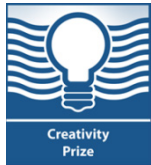
For the 5th Award, PSIPW aims to give recognition to the efforts that scientists, inventors and research organizations around the world are making in all water related fields. PSIPW wishes to acknowledge exceptional and innovative work which contributes to the sustainable availability of potable water and the alleviation of the escalating global problem of water scarcity.

For this reason, PSIPW is offering a suite of five prizes, covering the entire water research landscape.



The Prizes – Description & Value

First, there is the **Creativity Prize**



Worth US\$ 266,000, the Creativity Prize is awarded to an innovator or pioneer for work that can rightly be considered a breakthrough in any water-related field. This might be research, an invention, or a new patented technology.

Then there are four **Specialized Branch Prizes**, each worth US\$ 133,000:



[1] The Surface Water Prize - covering every aspect of the study and development of surface water resources.



[2] The Groundwater Prize – - covering every aspect of the study and development of groundwater resources.

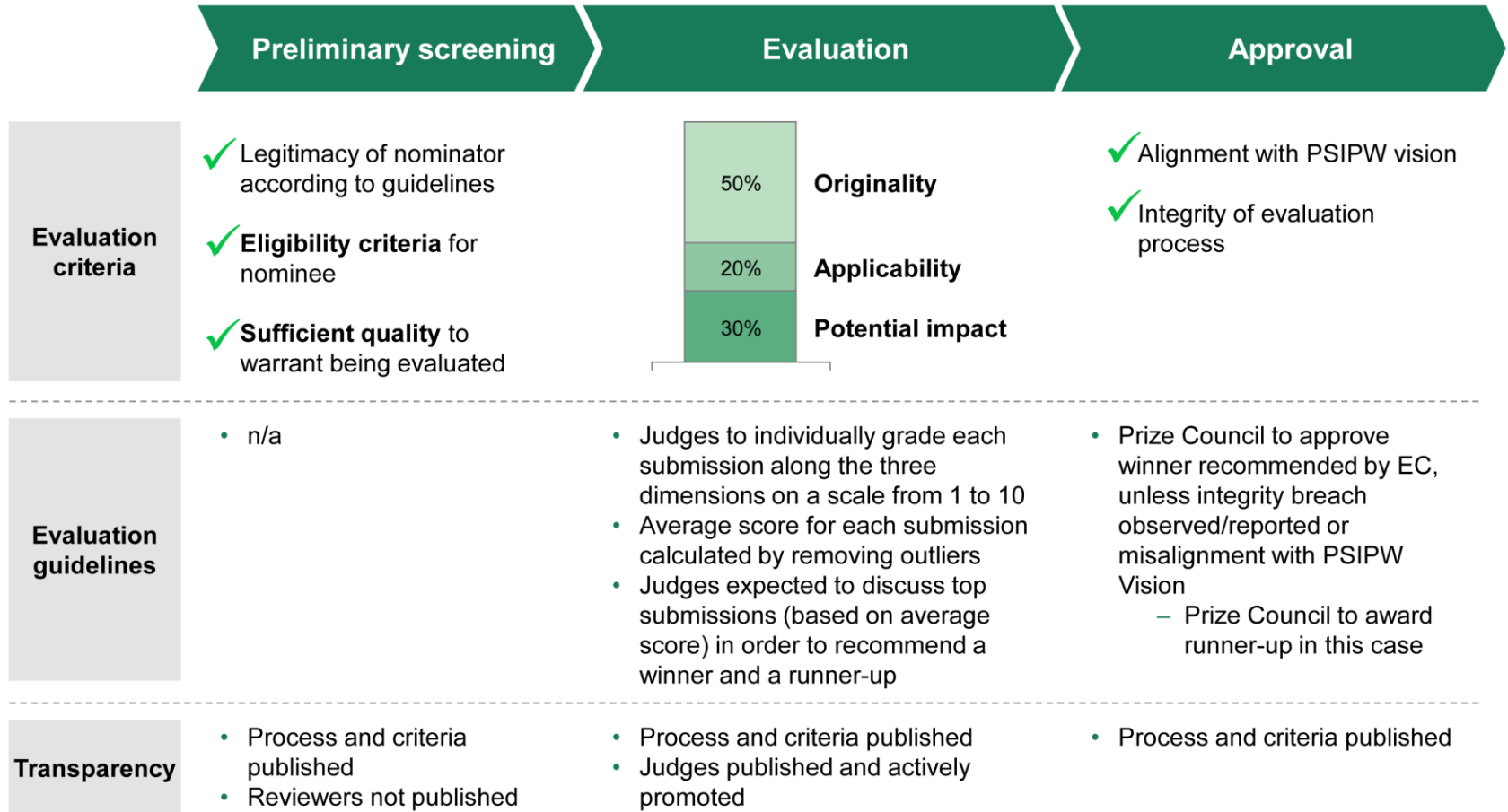


[3] The Alternative Water Resources Prize – covering desalination, wastewater treatment, and other non-traditional sources of water.



[4] The Water Management & Protection Prize – covering the use, management, and protection of water resources.

Evaluation Criteria



Nominations Are Open

Nominations for all five of our Prizes are now open. We cordially invite scientists, researchers, inventors, and organizations having innovative water-related published research or registered patents within the past five years to apply.

Nominations are made online at our PSIPW website. All works and documentation can be uploaded as part of the application process.



The deadline for submitting applications and all nominated works is **31 January 2012**.

www.psipw.org

5th Award Prize Calendar

- 1 May 2011: Call for nominations to the Prize and opening of online application form for the new award
- 31 January 2012: Deadline for receiving nominations
- February-September 2012: The evaluation process
- October 2012: The Prize Council announces the winners of the 5th Award
- December 2012: The Awards ceremony for the 5th Award



For More Information

Please visit the Prize website: www.psipw.org

For inquiries, you may contact the General Secretariat of the Prize at the following address:

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Water is life



PSIPW

Thank You