



## Call for Papers/ Country Reports

### International workshop on

# “Adaptation to Water Scarcity and Basin-connected Cities”

10-12 December 2018, Mashhad-Iran

*On the occasion of the 8<sup>th</sup> Asian G-WADI and 2<sup>nd</sup> IDI Meetings*

#### **Background**

Water scarcity is the lack of sufficient available water resources to meet demands of water usage within a region. This condition arises as consequence of a high rate of accumulated demand from all water-using sectors including agriculture, domestic, industry and environment compared with available supply, under the prevailing institutional arrangements and infrastructural conditions.

The international workshop on “Adaptation to Water Scarcity and Basin- Connected Cities” is designed to bring together researchers and practitioners alike including governmental officials, private and public sectors, water managers, urban planners as well as decision and policy makers engaged in various aspects of water scarcity adaptation and the new concept basin- connected cities. The workshop provide contribution the implementation of the Eighth Phase of IHP (2014-2021) “Water Security: Addressing Local, Regional and Global Challenges” and in particular, within the activities of the two-flagship programme of IHP IDI and G-WADI. This international workshop provides a unique opportunity for various specialists to exchange ideas and experiences.

#### **International Organizers**

The workshop will be held on the occasion of the 8<sup>th</sup> Asian G-WADI and 2nd International Drought Initiative (IDI) meetings in Mashhad, Iran, 10-12 December 2018, organized by:

- UNESCO-IHP
- UNESCO Offices in Jakarta, New Delhi and Tehran
- International Drought Initiative (IDI)
- Asian G-WADI
- Regional Centre on Urban Water Management (RCUWM-Tehran)

#### **Objectives**

- Charting practical solutions for water scarcity adaptation in different sectors;
- Providing best practices on demand management;
- Discussing basin-connected cities concept;
- Sharing advances in water security in human settlements;
- Providing information on Asian G-WADI and IDI activities

## Workshop Themes

- Water scarcity adaptation strategies and practical solutions;
- Citizen sciences for water management;
- Data tools and methodology for water management;
- Water loss reduction and demand/consumption management;
- Inter/intra sectoral coordination;
- Multi/inter-disciplinary approaches;
- Basin-connected cities (why and how);
- Socio-economic considerations;
- Best practices and lesson learned

## Abstract Submission

Workshop topic areas are formed based on water scarcity adaptation as well as basin-connected cities. All those interested to contribute by submitting a paper or country report including results of practical experiences and case studies on the workshops themes are requested to submit their abstracts in English by **October 26, 2018** to [idi.gwadi@gmail.com](mailto:idi.gwadi@gmail.com) as well as RCUWM- Tehran secretariat at: [info@rcuwm.org.ir](mailto:info@rcuwm.org.ir). Abstracts should be on one A4 page with 500 to 800 words, using the abstract template available at: <http://rcuwm.ir/idi-gwadi-workshop/>

All abstracts will be reviewed by the International Scientific Committee, and an acceptance notification will be sent to the authors of the accepted abstracts no later than 31 October, 2018. Authors of selected abstracts will be invited to submit their full manuscripts to be published in a post workshop publication.

## Financial Support for Authors of Selected Papers/Country Reports

The international organizers will cover partial/full expenses of the authors whose papers will be selected to be presented in the workshop. Further information will be provided accordingly.

## Important Dates

### **Abstract Submission Deadline:**

**26 October 2018**

Acceptance Notification:

31 October 2018

Full Paper/Country Reports Submission:

30 November 2018

## International Scientific Committee (ISC)

- Shakeel Ahmed (Asian G-WADI Secretariat, India)
- Abou Amani (UNESCO-IHP)
- Amit Chanan (City of Sydney, Australia)
- Ali Chavoshian (RCUWM/IDI Secretariat, Iran)
- Kamran Davari (Ferdowsi University Mashhad, Iran)
- Ebrahim Hajiani (Center for Strategic Studies, Presidential Office)
- Toshio Koike (ICHARM, Japan)
- Anil Mishra (UNESCO-IHP)
- Behshad Mohajer (UNESCO Tehran Cluster Office)
- Bruno Nguyen (W-Smart, France)
- Hans Thulstrup (UNESCO Jakarta Office)
- Banafsheh Zahraei (Ministry of Energy, Iran)

**Local Organization Committee (LOC)**

- Mohammad Alae (Khorasan Ravazi Regional Water Authority)
- Ali Chavoshian (RCUWM/IDI Secretariat)
- Ahmad Ghandehari (Khorasan Ravazi Regional Water Authority)
- Mohammadhadi Mahdinia (Mashhad City Council)
- Alireza Salamat (RCUWM/IDI Secretariat)
- Alireza Tabatabaee (Khorasan Ravazi Water and Wastewater Company)

**Workshop Secretariat**

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## Concept Note

# 8<sup>th</sup> Asian G-WADI & 2<sup>nd</sup> IDI Expert Group Meetings

Together with the International Workshop on  
 “Adaptation to Water Scarcity and Basin-connected Cities”

10-12 December 2018, Mashhad-Iran



© G-WADI: The Way Forward

## **G-WADI as a Flagship Programme of UNESCO-IHP since 2003**

UNESCO's programme for Water and Development Information for Arid Lands – a Global Network (G-WADI) was established in 2003 by Intergovernmental Council of International Hydrological Programme (IHP) to address the urgent need for increased regional and international cooperation on sustainable development of water resources in arid and semi-arid regions. Over the last decade G-WADI has grown into a worldwide network coordinated by a global secretariat and 5 regional networks, providing a catalyst to leverage relevant scientific knowledge for decision-making and practice. Centred around its website [www.gwadi.org](http://www.gwadi.org) and its strong programme of regional activities, the network has focused mainly on the provision of interactive, data-based tools and methods to support evidence-based decision-making, such as the PERSIANN satellite-based gridded precipitation products, drought monitors for Africa and Latin America, and regional frequency analysis.

G-WADI's overall strategic objective is “to strengthen the global capacity to manage water resources in arid and semi-arid areas. Its primary aim is to build an effective global community through integration of selected existing materials from networks, centres, organizations, and individuals who become members of G-WADI. The network promotes international and regional cooperation in arid and semi-arid areas.”

GWADI continues to be of high importance within the framework of the Eighth Phase of IHP (2014-2021) “Water Security: Addressing Local, Regional and Global Challenges”. In particular, G-WADI plays a key role in the focus areas on “Addressing Water Scarcity and Quality” and “Water Related Disasters and Hydrological Changes”.

As far as water is concerned, arid and semi-arid countries face the most challenges in managing this resource. Thus such network was created to learn from each other's experiences and adopt best practices through this network for a successful water management.

G-WADI's track record shows its strengths as a global network supporting the science-policy interface, and catalyzing high-level research to address water management issues with direct relevance at the local level of management, planning, and policy. The PERSIANN system is a clear example of state-of-the-art research that is translated into a set of policy-relevant tools. The accompanying workshops and educational material are essential to foster uptake and catalyze lasting local impact. Based on this and similar success stories, this section reflects on a potential programmatic vision for G-WADI to maintain and increase further the impact and value of the programme.

It is clear that the regional networks play a crucial role in the success of G-WADI. Through their network and connections to local policy, they are best placed to identify specific bottlenecks for a sustainable development of arid and semi-arid regions. As such, they should set the agenda and ensure that the scientific process is optimally demand-driven, and is turned into tools and products that address those local demands, such as maps, datasets, simulation tools and

predictions. The regional centres are also ideally placed to identify training opportunities that address specific needs in relevant policy fields.

Under this program, a few representative areas have been selected for detailed study so that findings could be shared, discussed, improved and implemented in the best possible way. A series of meetings are therefore, held in the member countries to discuss the progress in the study as well as advances in the field of water sciences. Now 13 countries have joined the Asian GWADI network and many others are likely to join.

### **G-WADI Contacts**

#### UNESCO-IHP Contact:

Dr. Anil Mishra, Programme Specialist, Section on Hydrological Systems and Water Scarcity (HSS)

Email: [a.mishra@unesco.org](mailto:a.mishra@unesco.org)



Photo: 7<sup>th</sup> Asian G-WADI, 2017, India

## IDI as a Flagship Programme of UNESCO-IHP since 2010

Droughts have several economic, social and environmental impacts, depending on their intensity and duration. Occurrence of droughts is a natural event and it is not specific to a region or climatic regime, and it can occur in different climatic and geographic situations. Unlike floods that have limited coverage areas, droughts usually affect vast regions, and this causes a more widespread and extensive range of impacts which last for a long time. Therefore, droughts affect a large number of populations in comparison with other natural disasters. The experiences in developed and developing countries on drought management has proved that besides the level of development, the impacts and consequences of this phenomenon is deep and considerable, even with different characteristics and nature. With no doubt, the occurrence of this phenomenon is one of the important obstacles in the development process of the countries. As the impacts of this event lasts for a long period, the countries and people who have been affected by this phenomenon are forced to spend extensive financial resources to encounter it during and after the event.

The impact of drought on water and food security cannot be ignored. There is a need for an enhanced and coordinated global movement to face and encounter the challenges of natural water-related disasters, especially droughts. The International Drought Initiative (IDI) as a UNESCO-IHP flagship programme has been approved at the 19th Session of the Intergovernmental Council in Paris, July 2010. The Regional Centre on Urban Water Management (RCUWM- Tehran) under the auspices of UNESCO, hosts the Secretariat of IDI (<http://rcuwm.ir/idi/>).

IDI aims at providing a platform for networking and dissemination of knowledge and information between international entities that are active working on droughts. IDI continues to be of high importance within the framework of the Eighth Phase of IHP (2014-2021) “Water Security: Addressing Local, Regional and Global Challenges”. In particular, G-WADI plays a key role in the focus areas on “Addressing Water Scarcity and Quality” and “Water Related Disasters and Hydrological Changes”. IDI intends to bring together concerted efforts of the governmental and non-governmental organizations for drought management. The initiative is open to other related entities interested in joining.

### **IDI main Objectives:**

- To develop the methodology to prepare and compile policies and strategies related to drought adaptation, mitigation and management and encourage their inclusion in National action
- To facilitate research and compile practical strategies to minimize impacts of drought for addressing emergency situations
- To define the roles of stakeholders within the context of drought
- To create an inclusive mechanism for the Governments, UN agencies, and NGO's that promotes drought management synergies
- To facilitate creation of global drought warning systems and global drought watch, and
- To develop methodologies to assess damages and long-term impacts of drought, including environmental conflicts

## **IDI Contacts**

### UNESCO-IHP Contact:

Dr. Abou Amani, UNESCO, Chair, Section on Hydrological Systems and Water Scarcity (HSS)

Email: [a.amani@unesco.org](mailto:a.amani@unesco.org)

### IDI Secretariat at RCUWM:

Dr. Ali Chavoshian, Director, Regional Centre on Urban Water Management (RCUWM-Tehran) under the auspices of UNESCO

Email: [chavoshian@gmail.com](mailto:chavoshian@gmail.com)



## Asian G-WADI since 2005

Asian G-WADI (<http://asian-gwadi.westgis.ac.cn>) was formed during 2005 with its first secretariat in India at National Institute of Hydrology, Roorkee. Asian G-WADI was established to confront the urgent need for increased regional cooperation for sustainable development of arid and semi-arid zones. The 1<sup>st</sup> meeting of Asian G-WADI was held in Roorkee, India on March 2005 and since then subsequent meetings were held in China, India and Iran where annual or bi-annual progress have been discussed. The last meeting was held in Hyderabad at CSIR-National Geophysical Research Institute, November 2017. Asian G-WADI includes the following members:

1. Afghanistan
2. China
3. India
4. Iran
5. Kazakhstan
6. Kyrgyzstan
7. Mongolia
8. Pakistan
9. Thailand
10. Tajikistan
11. Turkmenistan
12. Uzbekistan
13. Vietnam

The Asian G-WADI has formulated guidelines for proposing one or more basins as G-WADI pilot basins in a country, which can contribute to the knowledge base for the region. An evaluation, a standard peer review process by the Asian G-WADI Advisory Committee, of proposed G-WADI pilot basins would then be followed. The objective of a peer-review process is to encourage those committed to the cause of G-WADI program in their country and willing to share information, knowledge, and experience globally. Asian G-WADI has selected seven (7) pilot basins in Asian for further research activities and implementation of Asian G-WADI projects as follows:

1. Heihe River Basin (HRB), China
2. Jaisamand Lake Catchment (Gomti River Basin), India
3. Grantie Watershed in Krishna-Godavari basin, India
4. Kashafrud Basin/Mashhad, Iran
5. Taleghhan-Hashtgerd Basin, Iran
6. Chu River Basin, Kyrgyz Republic
7. Vakhsh River Basin (VRB), Tajikistan

### Asian G-WADI Advisory Committee:

The Advisory Committee for Asian G-WADI for the years 2018-2020 is as follows:

China: Prof. Xin Li, Ex-officio Member, [lixin@lzb.ac.cn](mailto:lixin@lzb.ac.cn)

India: Dr. S.K. Jain, Director, NIH, Roorkee, India, [s\\_k\\_jain@yahoo.com](mailto:s_k_jain@yahoo.com)

Iran: Dr. Ali Chavoshian, Director, RCUWM, Tehran, [chavoshian@gmail.com](mailto:chavoshian@gmail.com)

Asian G-WADI Secretariat: Dr. Shakeel Ahmed, [shakeelifcgr@gmail.com](mailto:shakeelifcgr@gmail.com)

### Asian G-WADI Secretariat Contact:

Dr. Shakeel Ahmed, M.K. Gandhi Chair Professor, Jamia Millia Islamia, New Delhi-110025, India

Email: [shakeelifcgr@gmail.com](mailto:shakeelifcgr@gmail.com)

## Past Event: 7th Asian G-WADI, 2017, India

The 7th Asian GWADI workshop was held by CSIR-National Geophysical Research Institute, Hyderabad, India with the support of National Institute of Hydrology & IHP Indian National Committee (Ministry of Water Resources, RD-GR, Govt. of India), Roorkee, India, November 26-30, 2017, Hyderabad, India

The Number of participants was around 45 (with 19 member countries from abroad , experts and UNESCO officials).

### **Outcomes / Achievements:**

The outcome of this meeting was a document including guidelines to improve and test the methodologies to estimate various fluxes of the groundwater system for an Integrated Water Resources Management.

## 8th Asian G-WADI and 2<sup>nd</sup> IDI Expert Group Meetings, December 2018- Iran

The experience of arid and semi-arid countries dealing with water scarcity and drought related challenges will be shared and discussed among the Asian G-WADI countries during the 8<sup>th</sup> Asian G-WADI meeting.

The 8<sup>th</sup> Asian G-WADI and 2<sup>nd</sup> IDI expert group meeting is planned to be held in Khorasan Razavi Province (Holy City of Mashhad), 10-12 December 2018. These events will be hosted and co-organized by Khorasan Razavi Regional Water Authority in close cooperation with UNESCO Regional Centre on Urban Water Management and with the support of UNESCO HQs, UNESCO Field Offices in Tehran, Jakarta and New Delhi, the Ministry of Energy of I.R Iran, Iran Water Resources Management Company and the University of Ferdowsi, Mashhad.

### **8<sup>th</sup> GWADI Workshop Objectives**

- Increase regional cooperation for sustainable development of arid and semi-arid zones
- Sharing national/regional experiences in water management and finding solutions for sustainable water harvest/extraction;
- Providing information on current UNESCO-IHP programmes in relation to water management in arid zones (G-WADI);
- Networking among the water institutions and specialists with regional water policy making authorities;
- Sharing knowledge on adaptation to water scarcity; strategies and approaches

### **2<sup>nd</sup> IDI Expert Group Meeting Objectives**

- To develop synergies between the two programmes of UNESCO, namely International Drought Initiative (IDI) and UNESCO IHP Programme on Water and Development Information for Arid Lands–A Global Network (G-WADI);
- To further involve international organizations including FAO, WMO, etc in IDI projects and work plan;
- Establish IDI Advisory and Management Committee;
- Investigating potential projects and joint research activities;

- Sharing international/regional and national experience on drought issues to come up with proposals for future work in the region;
- Compiling a work plan determining the roles of the members

**Language**

The working language of both events (8<sup>th</sup> GWADI Workshop & 2<sup>nd</sup> IDI EGM) will be English. Workshop participants are encouraged to have a good command of the English language in order to benefit from discussions to the most.

## Tentative Programme: 8<sup>th</sup> GWADI and 2<sup>nd</sup> IDI Expert Group Meetings:

### 8<sup>th</sup> Asian G-WADI Meeting, 10<sup>th</sup> Dec. 2018

Time	Item
9:30 – 10:00	Registration
10:00-10:30	Welcoming Speech <ul style="list-style-type: none"> <li>• Rep., Ministry of Energy, I.R. Iran/ IWRM Co./Khorasan Razavi Regional Water Authority</li> <li>• Rep. UNESCO Headquarters</li> <li>• Rep., UNESCO Cluster Office in Tehran/ RCUWM-Tehran</li> </ul>
10:30-11:00	Report from Secretariat, Asian GWADI – revisit the decision of the 7 <sup>th</sup> meeting
11:00-11:30	Keynote: Kashafroud River Restoration as a GWADI Project
11:30-12:00	Country Reports of Asian G-WADI Members and G-WADI Pilot Projects (2 items, each of them 15 Min)
12:00 -13:00	Lunch Break
13:00-14:30	Country Reports of Asian G-WADI Members and G-WADI Pilot Projects (6 items, each of them 15 Min)
14:30-14:45	Break
14:45-15:45	Round Table discussion to establish the network of the Asian GWADI study areas and the exchange mechanism as well as formation of the Expert Group(s) Identify priorities action for the Asian GWADI network
15:45-16:00	Wrap up and closing

### 2<sup>nd</sup> IDI Expert Group Meeting (EGM), 10<sup>th</sup> Dec. 2018

Time	Item
16:30-16:40	Start up <ul style="list-style-type: none"> <li>• Rep., UNESCO IHP for IDI</li> <li>• Rep., IDI Secretariat</li> </ul>
16:40-17:00	Lunch of Satellite-based Precipitation data Monitoring by IDI Secretariat at RCUWM
17:00-17:20	Report from UNESCO Secretariat on IDI
17:20-18:20	Discussions on: <ul style="list-style-type: none"> <li>• Further involving international organizations including FAO, WMO, etc in IDI</li> <li>• Establish the Advisory and Management Committee</li> <li>• Potential projects and joint research activities</li> <li>• Next IDI Expert Group Meeting, date and venue</li> </ul>
18:20 -18:30	Wrap up and closing
19:30 -21:30	Dinner reception

# International Workshop on “Adaptation to Water Scarcity and Basin-connected Cities”

11 December 2018, Mashhad-Iran

## **Background:**

Water scarcity is the lack of sufficient available water resources to meet demands of water usage within a region. This condition arises as consequence of a high rate of accumulated demand from all water-using sectors including agriculture, domestic, industry and environment compared with available supply, under the prevailing institutional arrangements and infrastructural conditions.

The international workshop on “Adaptation to Water Scarcity and Basin-connected Cities” is designed to bring together researchers and practitioners alike including governmental officials, private and public sectors, water managers, urban planners as well as decision and policy makers engaged in various aspects of water scarcity adaptation and the new concept on basin-connected cities.

## **Objectives:**

- Charting practical solutions for water scarcity adaptation in different sectors;
- Providing best practices on demand management;
- Discussing basin-connected cities concept;
- Sharing advances in water security in human settlements;
- Providing information on Asian G-WADI and IDI activities

## **Workshop Themes:**

- Water scarcity adaptation strategies and practical solutions
- Citizen sciences for water management
- Data tools and methodology for water Management
- Water loss reduction and demand/consumption management
- Inter/intra sectoral coordination
- Multi/inter-disciplinary approaches
- Basin-connected cities (why and how)
- Socio-economic considerations
- Best practices and lesson learned

## **Language:**

The official language of the workshop will be English with simultaneous translation.

## **Participants:**

The participants of this international workshop will be members of the Asian G-WADI network as well as IDI network and managers and experts from the Ministry of Energy, Iran, Regional Water Authorities, Water and Wastewater Companies as well as Khorasan Razavi Municipality.

**Call for papers/ Country Reports:**

Workshop topic areas are formed based on water scarcity adaptation as well as basin-connected cities. All those interested to contribute by submitting a paper or country report including results of practical experiences and case studies on the workshops themes are requested to submit their abstracts in English by October 26, 2018 using below online submission form. In case of offline submission, please send your abstract to [idi.gwadi@gmail.com](mailto:idi.gwadi@gmail.com) with cc to the RCUWM-Tehran Secretariat at [info@rcuwm.org.ir](mailto:info@rcuwm.org.ir).

Abstracts should be on one A4 page with 500 to 800 words, using the abstract template. All abstracts will be reviewed by the International Scientific Committee, and an acceptance notification will be sent to the authors of the accepted abstracts no later than 31 October, 2018. Authors of selected abstracts will be invited to submit their full manuscripts to be published in a post workshop publication.

**Financial Support for Authors of Selected Papers/Country Reports**

The international organizers will cover partial/full expenses of the authors whose papers will be selected to be presented in the workshop. Further information will be provided accordingly.

**Online Abstract Submission:**

URL: <http://rcuwm.ir/idi-gwadi-workshop/>

## Technical Tour: Kashafrud River Basin, 12<sup>th</sup> Dec. 2018

Kashafrud River with the length of 374 kilometers is a seasonal river that flows from the Hezar Masjed Mountains in Khorasan Razavi Province. After passing from the vicinity of the cities of Radkan and Chenaran in Khorasan Razavi Province and then passing north and east of the city of Mashhad, Kashafrud joins Harirud River at the frontier of Iran and Turkmenistan.

However, it was full of water during last decades and was working as a main drain of catchment area and the most important source of agriculture needs. Unfortunately, in recent years due to very vast reasons, such as, booming of population, developing of factories and industries in suburbs, decline of groundwater, illegal housing in river banks, lack of clear and distinct laws, absence of a strong supervision, outspread studies by each part of liable, lack of integrated water management program, and many other reasons it moves to a natural sewage and flood channel.

One of the main reasons of Kashafrud River water pollution is discharge of sewage from villages nearby Kashafrud River. Flowing industrial sewage into the river is another reason for water pollution. Industrial sewage includes heavy metals that produced by mining activities without taking into account environmental impacts and as a result increasing suspended materials like minerals will result in water quality decline. Besides, agriculture sewage: poisons, dung and fertilizers are other harmful substances in water pollution.

In this respect an important project as “Kashafrud River Restoration” was carried out by evacuating domestic, industrial and agricultural areas around the river buffer zone.

<b>Day 3, 12 Dec. 2018 (Wednesday), Field Visit and Technical Tour</b>	
8:30	Departure to Kashafrud River Basin
09:30~	Arrival at Kashafrud River Basin
09:30- 13:00	Visiting Kashafrud River Basin
13:30-14:30	Lunch
15:00- 17:00	Resting at the hotel
17:00- 19:30	Visiting the City and the holy shrine
20:00- 22:00	<b>Dinner Reception</b>

The participants will have the chance to visit this magnificent project carried out by Khorasan Razavi Regional Water Authority fully supported by the Judiciary, Legislature and Executive systems all committing themselves to implement this project by all means.

## Annex I

### Scientific Committee (SC):

Shakeel Ahmed (Asian G-WADI Secretariat, India)  
Abou Amani (UNESCO-IHP)  
Amit Chanan (City of Sydney, Australia)  
Ali Chavoshian (RCUWM/IDI Secretariat, Iran)  
Kamran Davari (Ferdowsi University Mashhad, Iran)  
Ebrahim Hajiani (The Centre for Strategic Studies, Iran)  
Toshio Koike (ICHARM, Japan)  
Anil Mishra (UNESCO-IHP)  
Behshad Mohajer (UNESCO Tehran Cluster Office)  
Bruno Nguyen (W-SMART, France)  
Hans Thulstrup (UNESCO Jakarta Office)  
Banafsheh Zahraei (Ministry of Energy, Iran)

### Local Organizing Committee (LOC):

Mohammad Alaei (Khorasan Ravazi Regional Water Authority)  
Ali Chavoshian (RCUWM/IDI Secretariat)  
Ahmad Ghandehari (Khorasan Ravazi Regional Water Authority)  
Mohammadhadi Mahdinia (Mashhad City Council)  
Alireza Salamat (RCUWM/IDI Secretariat)  
Alireza Tabatabaee (Khorasan Ravazi Water and Wastewater Company)