

المجلس العربي للمياه



Arab Water Council



**WORLD BANK GROUP**



# The S-S Knowledge Exchange Study Tour and Training Workshop in China

## *MENA Regional Coordination on Improved Agriculture Water Management Project*

*Financed by the China-World Bank Group Partnership Facility (CWPF)  
January 15 - February 5, 2018, Beijing*

# The S-S Knowledge Exchange Study Tour

Jan 29 - Feb 5, 2018

**Background and Objective:** the CWPf S-S cooperation events, included the Remote Sensing Technology Training Workshop in Beijing, China (Jan 15 - Feb 5) and the S-S Knowledge Exchange Study Tour in China (Jan 29 - Feb 5), arranged under the MENA Regional Coordination on Improved Agriculture Water Management Project, financed by the China-World Bank Group Partnership Facility. The participants included high-ranking officials and experts from the project countries, including Egypt, Jordan, Tunisia, Lebanon and Arab Water Council (AWC) in the MENA Region.

The objective of the CWPf MENA Regional Project is to establish the national and regional Evapotranspiration measurement, monitoring, and management system, by transferring the advanced Chinese remote sensing technologies to the beneficiary countries, to better manage local and regional agriculture water resources and reduce the threat of climate change to vulnerable agricultural production within and across countries. The project will focus mainly on the improvement of the agriculture water productivity and strengthen the adaptation to climate change (CC) and agriculture risk resilience under the constraint of agriculture water consumption caps at the country and regional levels, by applying quantitative and spatial-based decision-making tools, in order to reduce the inefficient agriculture water consumption and minimize the negative CC impacts on national water and food securities.

The main objective of the study tour and training workshop was to share the advanced Chinese Remote Sensing technical tools and knowledge, and the practices and experiences of its application on China's agriculture and water management and also foster technical and professional cooperation between China and MENA countries and support technical and institutional capacity building on improved agriculture water resources management in the respective project countries in MENA region.

## Highlights on the Study Tour

Addressing Water scarcity requires a concerted effort in several areas. For starters, new and emerging technologies should be leveraged to design more cost-effective solutions at scale and deliver mobile-based solutions.

In January 2018, high-ranking officials and experts from the MENA countries, including Egypt, Jordan, Tunisia, Lebanon and Arab Water Council (AWC) in MENA Region participated in a South-South Learning study tour in China arranged under the MENA Regional Coordination on Improved Agriculture Water Management Project, and funded by the China-World Bank Group Partnership Facility.

The study tour, enabled practitioners from the four countries to exchange best practices and lessons learned with regards to enhancing of agriculture water productivity and strengthening the adaptation to climate change (CC) and agriculture risk resilience under constraint of agriculture water consumption caps at the country and regional levels, by applying quantitative and spatial-based decision-making tools, in order to reduce the inefficient agriculture water consumption and minimize the negative CC impacts on national water and food securities.

Field visits were organized to allow the delegation to learn from successful technologies currently being carried out in China. The visit to Cheng'an County, Hebei Province, gave participants the opportunity to speak directly to beneficiaries whose work revealed the success of both ET and Crop Watch systems.

Following their visit to Cheng'an County, the delegation continued the tour with the party secretary, vice mayors, and other leaders and officials from Yucheng County CPC (Communist Party of China) Committee and Government who accompanied the delegation on the visits to an irrigation district to learn about their management systems of both surface water and groundwater under the county water resources bureau.

These field visits along with several technical meetings were eye-opening for the MENA delegation. At the conclusion of the study tour, participants walked away inspired by the technologies and innovative ideas gathered during the tour.

## The following are statements from S-S Knowledge Exchange Study Tour:



"We were really amazed by the unlimited support and technical assistance that were generously offered by the Chinese experts in all sectors and how they were really capable of utilizing science to improve the lives of millions of peoples."

Eng. Heba AL-HARIRY,  
Business Development Manager,  
Arab Water Council (AWC), Egypt



"We would like to thank the World Bank for the excellent preparation and organization of such an important study tour. We would like also to extend our thanks and appreciation to His Excellency the Vice Minister of Water Resources and His Excellency the Vice Minister of Agriculture and also the Head of the Chinese Academy for Science and the Head of the Chinese Academy for Agricultural Science, as well as the International Centre for Poverty Reduction and all other officials whom we've met for their good reception and hospitality."

"We are looking forward to putting on action the already signed MoU with Ministry of Water Resources and sign a similar MoU with the Ministry of Agriculture. We are also looking forward to cooperating in many fields including the exchange of experience and the experts under the auspice of the World Bank for the welfare of our populations in Egypt and the North African countries as well as the Middle East."

Eng. Khaled MADYEN,  
Vice Minister,  
The Ministry of Water Resources and Irrigation, Egypt.



"We would like to thank the World Bank Group for the excellent organization of the study tour. We have to extend our gratitude and thanks to His Excellency the Vice Minister of Water Resources and His Excellency the Vice Minister of Agriculture and all the Chinese officials that we met for their hospitality and the very valuable information that was presented to us. We are also serious to execute and activate the already signed MoU between the Egyptian and Chinese Ministries of Water Resources."

Eng. Khaled BEKHEIT,  
Director-General,  
Ministry of Water Resources and Irrigation, Egypt

"It was a useful visit to learn about China's experience in managing water and agriculture together. What I liked best was how studies and research were applied on the ground through models and, when successful, were disseminated nationwide, efficiently and with commitment."

Eng. Adel y. ALOBEIAAT,  
Director of planning Sector,  
Ministry of Water and Irrigation, Jordan



"The study tour has given us a very unique opportunity to take a closer look at the great leaps that China has made to reduce poverty over the last three decades. China and Arab countries are facing the same challenges, same concerns about water scarcity. Arab countries can draw important lessons from the ways in which China achieved this steady trajectory of agriculture growth."

Eng. Ghaleb FAOUR,  
Director,  
Lebanese National Center for Remote Sensing, Lebanon

"Our trip to China has been very beneficial. We were able to gain knowledge of Chinese experiences in the application of new technologies to ensure food security. These experiences could be beneficial for our countries, for example, the use of new technologies for supplementary irrigation."

Prof. Hamadi HABAIEB,  
Directeur Général de la Planification et des Équilibres Hydrauliques (BPEH),  
Ministère de l'Agriculture, des Ressources en Eau et de la Pêche, Tunisie.



“I was pleasantly surprised by the scientific and technological level that has been achieved by China in the sectors of agriculture, water resources management and poverty reduction. Remote sensing is used operationally in the field for monitoring crop status. A lot of progress in such a short time. An example to follow in the MENA region.”

Eng. Sinan BACHA,  
Director,  
Regional Centre for Remote Sensing of North African States (CRTEAN), Tunisia



“For us as developing countries, it was great experience to learn about the extraordinary achievements of China in the agricultural sector, food security, livelihood improvement and scientific advancements. I gathered knowledge about the different cultural practices, scientific studies for agriculture development, smart agriculture experience, ecological farming and socioeconomic enhancements.”

Eng. Ihab JOMAA,  
Head Department of Irrigation & AgroMeteorology,  
LARI, Lebanon

# Proposed Areas of Cooperation

## **Lebanon - CNRS**

The study tour has given us a very unique opportunity to take a closer look at the great leaps that China has made to reduce poverty over the last three decades. China has focused on agriculture development to increase farmer income and has undertaken several actions to reach this target through innovative institutional reform, innovative technology, market reform, agriculture industrialization, investment in agriculture and others.

China and Arab countries are facing the same challenges, same concerns about water scarcity. Arab countries can draw important lessons from the ways in which China achieved this steady trajectory of agriculture growth.

The cooperation between China and Arab countries must follow long-term approaches to ensure sustainability and development:

### **1. Launching Long-term Research Programs (memorandum of understanding)**

- a. Between Institute of Remote Sensing and Digital Earth (RADI), Chinese Academy of Sciences & Center for Remote Sensing in the Arab countries
  - Research activities
  - Fellowships
  - Data and innovative tools sharing
- b. Between Chinese Academy of Agriculture Sciences CAAS and Agriculture research Institutes in the Arab countries
  - Research activities
  - Fellowships
  - Data and innovative tools sharing

### **2. Establishing Technical Assistance Program**

- a. Capacity building (Long-term training in China for concerned stakeholders in the Arab countries)
- b. Hosting Chinese Technical experts to assist Arab countries to design and elaborate their strategies on facing water scarcity

### **3. Transfer of Chinese innovative Technology**

- a. Participation in the regional workshops organized by the Arab Water Council.
- b. Encouraging and facilitating economic investment to spread Chinese innovative technology in Arab countries.

## **Egypt - MWRI**

Possible cooperation between Egypt and the Chinese Authorities, based on what we have seen, will be appreciated through the preparation of a new project targeting the following:

1. The application and use of modern irrigation methods and techniques, including and most importantly Capacity Building and Transfer of knowledge to our Engineers in the areas of design, preparation of specs, and installation supervision, testing ...etc.
2. The application and use of remote sensing technology in water management; actual use of water for the production of crops; identifying types & location of different crops; and monitoring of ground water extraction.
3. Development and introduction of new crop varieties that have less water-demand and can withstand salt environment; and
4. Establishment of a Water Accounting Unit in Egypt that can serve North Africa and the Middle East region.

These can be done using the already signed MoU with the Egyptian and Chinese Ministries of Water Resources under the WB umbrella for facilitating the cooperation between the two countries, as mentioned in our meetings and discussion.

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## **Tunisia - CRTEAN**

Possible cooperation between China and Tunisia can focus on the following areas based on what we have seen:

1. Irrigation management: mainly application and use of modern Irrigation techniques, capacity building, transfer of knowledge, etc.
2. Water management: actual use of water for production of crops and monitoring of ground water extraction.
3. With Institute of Remote Sensing and Digital Earth (RADI), Chinese Academy of Sciences (CAS) & National Centre for Cartography and Remote Sensing (CNCT), Regional Centre for Remote Sensing of North African States (CRTEAN): Research activities, joint projects, training, etc.
4. Between Chinese Academy of Agriculture Sciences (CAAS) and Tunisian Agriculture Research Institutes, National Centre for Cartography and Remote Sensing (CNCT), Regional Centre for Remote Sensing of North African States (CRTEAN) : water saving, water harvesting, Agriculture Monitoring with Remote Sensing.

## **Jordan - MWI**

Areas for cooperation taking into account the Chinese experiences and Jordanian contexts are:

1. Groundwater management and governance methods for reducing groundwater over exploitation.
2. Using crop selection as a tool to reduce risks of droughts.
3. Drought monitoring using tools like crop watch (agricultural droughts).
4. Estimation of crop requirements based on satellite data and models (crop watch maybe).
5. Raising capacities of water users associations and providing them with technology-based solutions.
6. Training and transfer of the remote sensing based models ( ET-Watch, Crop Watch).
7. Providing equipment's needed to calibrate remote sensing models (devices for monitoring wind speed and temperatures on different elevations, soil moistures, ..etc.)

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## **The Arab Water Council (AWC)**

Within the context of the Arab Water Council mission as Regional Coordinator in the water sector and the think tank on the Arab scale, positively contributing to mapping the road for a new water culture, it is hence believed that a framework of cooperation between the Chinese Government and the Arab region will be an added value to disseminate knowledge, enhance sharing of experience, success stories and lessons learned on a broader scale. One way to do this is by developing a mutual Memorandum of Understanding that could be jointly worked out between both our organizations, which will include the principal focus areas of interest and their interrelation to the global sustainable development goals.

The main aim of this MoU will be to enhance the co-operation between both parties to transfer Chinese regional and local knowledge, experience and skills with regard to integrated water resources management and promote dialogue and share of knowledge and experiences between both regions to develop and enhance management of water resources. Under this MoU collaborative activities in joint regional and research projects in the water sector will be undertaken, in addition to participation in regional research programs and projects after mutual agreement of the parties, set forth in an Activity Agreement, subject to the Parties' respective policies and procedures.

Signing of this MoU could take part during the opening ceremony of **AWC General Assembly** Meeting proposed in December 2018 or, January 2019 where regional and national stakeholders, institutions, governmental & non-governmental and civil society groups in the Arab and Mediterranean countries dealing with water-related will be present.

## **Areas of Interest:**

The customization and transfer of the Chinese technologies based on the MENA region conditions in the following aspects:

1. Water quality management and monitoring.
2. Use of non-conventional water resources and low-cost treatment technologies.
3. Use of advanced technology in water resources and agricultural management (GIS, remote sensing...)
4. Environmental Migration and Forced Displacement.
5. Climate change (adaptation and mitigation measures)
6. Poverty reduction and enhancement of social and economic resilience for affected communities.
7. Ground Water management (Artificial Enrichment, protection.....)
8. Research Development, joint research initiatives and projects (Water saving innovations, efficient use of water, water productivity...etc.)
9. Development of partnerships for training and capacity development.
10. Capacity building, knowledge dissemination, awareness raising and expertise exchange, visits and meetings for water use associations, farmers and parliamentarians.
11. Shared water, water diplomacy and negotiation skills.
12. Water, Energy and Food Nexus.
13. Water demand management.
14. Achieving SDGs: Policies, strategies and indicators.
15. Organizing Water conferences and workshops to exchange experience.
16. Facilitating AWC efforts in the operationalization of the AGIR (Arab Geographical Information Room).