

## Report

Water Sharing seminar

Joint GWP Technical Committee and  
GWP China

January 31 – February 1, 2018

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## Purpose of the seminar

GWP Technical Committee (TEC) seeks more interaction with regional and country GWPs. The knowledge sharing and learning is best done with face to face interactions with technical experts in regional GWPs, to listen to challenges in the regions, to pick up topics for the future knowledge products. Hosted by GWP China, the Technical Committee organized the seminar on Water Sharing. The second day was devoted to the Global TEC – GWP China TEC exchange meeting (the summary of the second expert sharing day is in a separate minutesreport from GWP Technical Committee meeting).

The seminar (January 31, 2018) and a joint global TEC and GWP China (February 1) were tailored to address the following issues:

- Water Sharing: Principles and experience in implementation
- Enhancing the value to China of envisaged GWP knowledge products in 2018
- Planned activities of GWP China in 2018.

## Target group

The selection of participants was made by GWP China targeting decision makers from large river basins, and, academia and research specialists. Global Technical Committee members and 30 Chinese experts attended the meetings. The list of participants and their affiliation is at Annex A.



Figure 1: Collective photo

## Program

*“The water is a determinant of economic and social development”*, Madam Cai Qihua, Chair of GWP China emphasised in her welcome opening speech.

In China, work is now underway to enable the roll out of water allocation systems in 95 river basins. Thus, sharing and allocation of water is deeply embedded in the governmental policy and being coordinated centrally. There is a strong intention to ensure that there is only one policy for each river system.

Madam Oyun Sanjaasuren, Chair of GWP opened the seminar with the acknowledgement of China becoming a leader of climate change adaptation and mitigation. She introduced the theme of the seminar in a question: *“Given the reality of changing water supply and demand conditions, how should*

*one think about the design of a regime that determines who is entitled to access water and, in times of scarcity, how access is to be rationed?"* She welcomed an opportunity to share and exchange knowledge and experience in GWP, a network and knowledge holder on IWRM. GWP is about to develop the next GWP Strategy (2020 – 2026) and this seminar is one of the building blocks for the future evolution and agenda of the GWP.



Mr. Li Ge, Deputy Director General of the Department of International Cooperation, Science and Technology of the Chinese Ministry of Water Resources, stated that the needs for water must be aligned with efficient water use. In his opening speech, he said that water sharing to be regulated requires a strong governance and appropriate management.

Jerry Delli Priscoli, GWP Technical Committee Chair introduced the meeting agenda and the expectations.

The seminar consisted of two parts:

- Keynote speeches about the theory of water allocation as applied in China and principles of water sharing
- Case studies from Yellow River and Heihe River.

The seminar began with a brain-storming question “What do you consider are the critical principles for water sharing procedures?” This helped the participants to set up the framework for the seminar. At the end of the seminar, the participants validated answers and summarized the lessons learned.

Presentation of Prof. Wang Hao:

- Uneven distribution of water resources in time and space are critical factors that condition the economic and social development of China. The hydrological and climate conditions coupled with over-abstraction has resulted in regional water shortages, overdevelopment of groundwater and ecological deterioration in some parts of China.
- Traditional water problems (flood vulnerability, soil erosion and sediments deposition) require the adoption of regulations to control natural water circulation. On-going problems include inefficient water use, competition in water use by different sectors and degradation of water-dependent ecosystems.
- Water resources allocation requires the development of systems that continuously match of water supply and water demand with a respect to the following principles: equity and justice, coordination, and efficient use.
- Procedural steps involve: assessment of water resources, development of water supply and demand balancing mechanisms, water resources allocation and ongoing evaluation of the effectiveness of the systems in use.
- Tools applied in the water allocation scheme include planning, investment in storage and flow control infrastructure, optimized dispatching, quality monitoring and evaluation.

Presentation of Prof. Mike Young:

- In the face of scarcity, time can be bought by building more dams and reducing losses. Whenever water is scarce and if water security is a goal, ultimately, a robust water sharing system is needed.
- Robust water sharing systems have very strict allocation rules and are designed to accommodate ever-changing conditions. Robust systems can be expected to endure and without change to their fundamental structure be expected to last for centuries.

- Most robust sharing systems begin by allocating shares to groups of water users and using a coordinated planning system to work out how much water to allocate to each user.
- Once a sharing system has been formalized, the only way someone can gain access to a larger share is to persuade someone else to accept a smaller share. When this done, all water users are forced to think about saving and trading water. As allocations are made to shareholders on a regular basis, it is possible for anyone to quickly obtain access to more water by organising to have some allocations transferred to them. The alternative approach is to secure more shares and wait for the next allocation to be made.
- The state of the art systems are “unbundled.” Plans are used to set the allocation rules and define the decision-making processes, shares to define each users long-term interest and allocations to define how much water they may use on a daily basis. Each user is given a water account.
- In an attempt to help participants assess the robustness of the allocation systems they are familiar with, Prof Young offered the following check-list
  - 1 Can the allocation system cope with a sudden change in expected supplies?
  - 2 Does the accounting system robustly account for reductions in return flows?
  - 3 Are the arrangements used to determine how much water can be used in any river or aquifer separated from those used to determine who gets to use this water and how it is used?
  - 4 Can you find out how many shares have been issued in River Reach X? Are formal share registers in place?
  - 5 Can any water user reach for their phone to see how much water they have left and how much is left in the system?
  - 6 When one person/or region wants more, does some-one else have to agree to and take less!
  - 7 Does the share system contain sufficient sharing pools?
  - 8 Are allocations always made to the environment?
  - 9 Can a water reallocation be made within 24 hours? a) Within a district? b) Between connected systems?
  - 10 Is there a simple, convincing public narrative that can be used to support the case for transitioning to a “new” sharing system?
  - 11 Does the mix of entitlement, investment security and allocation arrangements encourage self-enforcement?

Two case studies were presented by Mr. Zhang Guofang from Yellow River Basin and Mr. Chen Zhihui from the Heihe River Basin.

***In Yellow River Basin: the allocation***

The large amount of sediment transport, high sediment content and the incongruity water and sediment relation of the Yellow River causes silting and parts of the river to continuously shift. The waters of Yellow River Basin are also used to supply the population outside of the basin.

In recent times, management of the Yellow River has moved from a focus on the need to manage flood risk to a need also to manage increasing water scarcity.

In 1987, the State Council approved the Yellow River water availability allocation scheme, which is valid until the south-to-north water transfer project takes effect. In 1994, the Yellow River Conservancy Commission (YRCC) implemented a water licensing system and put in place an arrangement that requires all significant projects to be licensed. This includes a requirement of all projects above a certain amount of water diversion from the mainstream and all major inter-province tributaries to be licensed.

In 2003, the Yellow River water right transfer demonstration projects were established in both the Inner Mongolia and Ningxia Hui autonomous regions. In response, the owners of newly built industrial

facilities invested in water saving projects. In total, around 14 water saving projects were developed in the basin at a cost of 0.69 billion RMB and 0.13 billion m<sup>3</sup> of water was transferred.

In order to alleviate the conflict on water supply and demand of the Yellow River, a unified water regulation was implemented by the YRCC in 1999. These regulations focused on water allocation, unified regulation, the water use and water distribution to and between Provinces. The rules are established in annual plans with monthly and ten-day allocation decisions coupled with real-time adjustment as necessary. Water use rules take into account water use between upstream and downstream, the right and left banks and socio-economic needs. In addition, water transfer projects have been successfully organized including transfers to Tianjin city, to Hebei Province and to Qingdao city. Transfers have also been used to mitigate dry up of the Yellow River's main stream.

***In Heihe River Basin:***

With the increasing of water use along the Heihe River, some tributaries gradually lost their flow connection with the mainstream. As a result, three independent sub-water networks have been developed (the east, the middle and the west sub networks) and the Chinese State Council agreed to a set of actions to revitalize the basin in 2000. In addition, water quantity dispatch management has realized the continuous deepening. Emergency dispatch, routine dispatch and ecological dispatch are now all part of the management system.

**Discussion summary:**

The second part of the meeting focused on opportunities for GWP Technical Committee and GWP China to work in ways that would better serve their global and regional agendas. The purpose was to validate the knowledge products that are under development in the Technical Committee and to review GWP China activities.

The following issues were presented:

- the presentation on publication proposal of the perspectives paper on Corporate Water Stewardship
- the presentation on Collaborative Modelling
- presentations on practical experience and activities under GWP China (GWP China in Action, water education campaigns conducted by GWP China partners, IWRM experience in China)

It was concluded that follow up discussions between GWP TEC and GWP China would be beneficial. For the full agenda, see the Annex B.

## Lessons learned

Water policy reform involves a mix of top-down and bottom-up processes. It is important to understand that the optimal mix of these approaches will vary.

Chinese experience suggests that it is important, also, to ensure that there is only one set of core policy approaches within any group of connected water-resource systems. As the south-north project demonstrates it is possible to connect water resources that are distant from one another. Hence, whenever it is politically feasible, it makes sense to begin by establishing a core set of water allocation concepts and principles that apply nationwide.

The core or foundational principles relate to the ways that water is set aside to provide for base flow, etc and, also, the ways that shares are defined and allocations are made. Process that enable the reallocation of shares and negotiation between provinces also need to be consistent.

Similarly, it is critical to ensure consistency in the way that priorities are specified and, in times of water scarcity how competition for access will be resolved.

A core set of foundational water-policy building blocks needs to be partitioned into the arrangements associated with

- Planning
- Defining and issuing shares
- Making seasonal, weekly and daily allocations
- Monitoring use and enforcing compliance with regulations
- Facilitating adjustment.

The core foundational principles and administrative building blocks need to be simple to understand and easy to adapt. In China's case, there are around 320,000 Water Chiefs who make local water management decisions at the river-reach level on a daily basis.

Experience with recent trials in China suggest that it is critical to ensure that

- Governance arrangements are trusted and respected
- The allocation system has hydrological integrity and accounts for both return flows and connections between rivers and aquifers
- Allocations are made in proportion to the holding of shares
- Use limits have to be defined in a rigorous manner and complied with – as has been the case with China's three red lines
- Entitlement allocation and sharing systems have to be seen to be being implemented in a manner that does not disadvantage the poor but also recognises the status quo
- The system design recognises that "change begets change."
- During the reform process, the social narrative is kept simple and uses the education system in schools to increase water literacy and understanding of the contribution that water makes to society, the environment and economic progress.

## Follow up after seminar

It was agreed that

- GWP TEC will send a working draft of its Water Sharing Initiative paper to GWP China for comment.
- GWP TEC and GWP China will seek opportunities to establish a water sharing case study in China and use this as platform to help developing countries to understand how to go about improving the robustness of the systems they use to manage access to water.
- GWP China and GWP TEC should explore opportunities to collaborate in the development of global awareness of the need to increase the robustness of the sharing systems that are used to allocate water in regions where water scarcity is or can soon be expected to be the norm.

## Annex A – List of participants

NO.	Name		Organization	Position /Academic Title
1	Oyun Sanjaasuren	F	GWP	Chairman
2	Jerome Delli Priscoli	M	Technical Committee	Chairman
3	Adrian Cashman	M	Technical Committee	Committee Member
4	Anthony Dan Tarlock	M	Technical Committee	Committee Member
5	Winston HonAnn Yu	M	Technical Committee	Committee Member
6	Barbara Janusz-Pawleta	F	Technical Committee	Committee Member
7	Nicola Fohrer	F	Technical Committee	Committee Member
8	Michael Young	M	Technical Committee	Committee Member
9	Danka Thalmeinerova	F	Technical Committee	Committee Member
10	Yumiko Yasuda	F	GWPO	Senior Network Officer
11	Sarnai Ganzorigt	F	GWP	Secretary of GWP Chair
12	Cai Qihua	F	GWP China; Ministry of Water Resources (MWR)	Chair, Former Vice Minister
13	Wang Hao	M	GWP TEC China Chinese Academy of Engineering	Executive Vice Chairman Academician
14	Li Ge	M	Dept of Intl Cooperation, Science and Technology, MWR	Deputy Director General
15	Hao Zhao	M	Dept of Intl Cooperation, Science and Technology, MWR	Division Director
16	Shi Qiuchi	F	GWP Steering Committee Dept of Water Resources, MWR	Committee Member Deputy Director General
17	Jin Hai	M	Center for Intl Economic Cooperation Exchanges, MWR	Director
18	Shang Hongqi	M	GWP China Yellow River GWP Nomination Committee Intl Cooperation Bureau, Yellow River Conservation Commission, MWR	Secretary General Committee Member Director General
19	Zhang Guofang	M	GWP China Yellow River Yellow River Conservation Commission, MWR	Vice Secretary General Division Director
20	Xi Huihua	M	GWP China Yellow River Yellow River Conservation Commission, MWR	Secretary Senior Engineer
21	Chen Zihui	M	Heihe River Bureau	Deputy Division Director
22	Liu Longtao	M	Heihe River Bureau	Principal Staff Member
23	Wang Zhongjing	M	Tsinghua University	Professor
24	Dong Yanfei	M	Lancang-Mekong Water Resources Cooperation Center	Vice Director
25	Gao Lihong	M	Lancang-Mekong Water Resources Cooperation Center	Deputy Division Director
26	Wang Jianhua	M	China Institute of Water Resources and Hydropower Research	Division Director
27	Wang Yanwei	F	China Institute of Water Resources and Hydropower Research	Deputy Division Director



NO.	Name		Organization	Position /Academic Title
28	Shao Ziping	F	Water information and Education Center, MWR	Division Director
29	Zhang Tan	M	China Water & Power Press	Full Senior Editor
30	Shen Dajun	M	GWP China Renmin University of China	Council Member Professor
31	Li Min	F	Dalian University of Technology	Professor
32	Guan Yiqing	M	GWP TEC China, Hohai University	Committee Member Professor
33	Zheng Weijian	M	GWP China Fujian Water Resources Center, Fujian	Secretary General Director
34	Xu Zhenci	M	GWP TEC China GWP China Heibei	Committee Member Secretary General
35	Sheng Dong	M	GWP China Hunan	Secretary General
36	You Jinjun	M	GWP TEC China; China Institute of Water Resources and Hydropower Research	Committee Member Prof. of Engineering
37	Jiang Yunzhong	M	GWP China	Secretary General
38	Wu Juan	F	GWP China	Executive Officer
39	Zhang Daidi	F	GWP China	Financial Officer
40	Ma Yilin	F	GWP China	Communication Officer
41	Zhang Jingyi	F	GWP China	Interpreter
42	Liu Yin	F	China Institute of Water Resources and Hydropower Research	PHD Candidate

## Annex B – Agenda

### PART 1: Sharing Water seminar

- 0900-0945     Session 1 Opening
- Madam **Cai Qihua**, Regional Chair, GWP China
  - Madam **Oyun Sanjaasuren**, GWP Chair
  - Mr. **Liu Zhiguang**, Director General, Department of International Cooperation, Science and Technology, Ministry of Water Resources (MWR), China
  - Mr. **Jerry Delli Priscoli**, Technical Committee Chair, GWP
- Hosted by Shi Qiuchi, Dep Director General, Department of Water Resources, MWR*
- 0945-1015     Session 2 Brainstorming (activating question)  
 “What do you consider are the critical principles for water sharing procedures?”  
*Facilitated by Jerry D. Priscoli*
- 1030-1200     Session 3 Lecture:  
 Mr. **Wang Hao**, Chair GWP TEC China, Theory of water allocation applied in China  
 Mr. **Mike Young**, TEC Member, GWP TEC, Principles of water sharing
- 1400-1530     Session 4 Presentations: Water sharing in China
- Mr. **Zhang Guofang**, GWP China Yellow River
  - Mr. **Chen Zhihui**, Division Director of Administrative Bureau of Heihe River Basin
- Facilitated discussion by Danka Thalmeinerova, GWP TEC and Wang Zhongjing, regional TEC member GWP China*
- 1600–1700     Session 5 Summary: Lesson learned: commonalities and differences
- What has the day said about water sharing principles?

- Are there common principles across different cultures?
- Suggestion for GWP water sharing program?

*Facilitated by **Jin Hai**, Director, International Economic & Technical Cooperation and Exchange Center, Ministry of Water Resources, China, and **Mike Young***

1700-1730 Session 6 Closing  
*Hosted by GWP Global TEC Chair and GWP China Regional TEC Chair*

## **PART 2: GWP TEC and GWP China meeting**

0915-0945 Focus 1: Water Stewardship GWP TEC  
*Discussion on Publication proposal, Facilitated by Danka Thalmeinerova, TEC member*

0945-1015 Focus 2: Participation, Consensus Building and Collaborative Modeling  
*Discussion on instruments supporting decision making processes, Facilitated by Barbara Janusz Pawletta, TEC member*

1015-1030 Practical experience of water knowledge dissemination to the public  
 “Water Knowledge Sharing with Teenagers & What Children Value in the Water Community”,  
*Ziping Shao*, Division Chief of Water Education Center, MWR (5 min)  
 “The Public Demand on Water Knowledge Product”, *Tan Zhang*, Senior Editor of Department  
 of International Cooperation, China Water Power Press (5 min)

1045-1200 Focus 3: GWP China share with global TEC  
 Methodologies of Knowledge Development and Sharing at Global and Regional Levels

- Introduction of IWRM in China, *Qiuchi Shi*, GWP SC member and Deputy Director General, Department of Water Resources, MWR;
- Introduction of China’s foreign assistance about water, *Jinjun You*, GWP China;
- Introduction of Action of GWP China, *Jiang YunZhong*, Secretary General and Regional Coordinator, GWP China

*Discussion facilitated by Yumiko Yasuda, GWPO*

1200-1230 Summary: Hosted by **Jerry D. Priscoli**, TEC Chair, GWPO

