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## **A glimpse of water resources management in Ethiopia**

HydroLink

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# 35<sup>th</sup> IAHR WORLD CONGRESS

The Wise find Pleasure in Water

September 8 to 13, 2013 Chengdu China

成都



## A GLIMPSE OF WATER RESOUR

BY KIT MING LAM

A delegation of representatives from IAHR China Chapter and IAHR Hong Kong Chapter made a five-day visit to Addis Ababa University, Ethiopia during July 30 to August 3, 2012. The visit was initiated by the Local Organizing Committee (LOC) of the 35th IAHR Congress to be held in Chengdu in September 2013. The purpose of the visit was to: (i) promote the forthcoming IAHR World Congress; (ii) to initiate a dialogue between IAHR and water researchers and professionals in Ethiopia; (iii) to develop long term academic and professional exchanges between IAHR members and Africa; and (iv) to present opportunities for young researchers to connect to the global community of hydro-environment experts for scientific capacity building and research collaboration.

The team was led by Prof. Joseph Lee, immediate past IAHR Vice-President and Executive Chair of the LOC of the Chengdu Congress, and Prof. L.X. Wang, Secretary General of IAHR APD. The delegation consisted of key members of the LOC of the Chengdu Congress: Prof. P.Z. Lin (Sichuan University), Prof. Y.C. Chen (Tsinghua University) and Prof K.M. Lam (University of Hong Kong) – as well as

### Special Seminar on Challenges and Issues in Water Resources Management in Africa



hydraulic experts from academia and industry – Prof Z.W. Liu (Tsinghua), Dr. Ander Chow of Arup and Dr. Feleke Arega of Tetra Tech. The delegation was received by the Ethiopian Institute of Water Resources (EIWR) and the Institute of Technology (AAiT) – of Addis Ababa University – the premier University of Ethiopia.

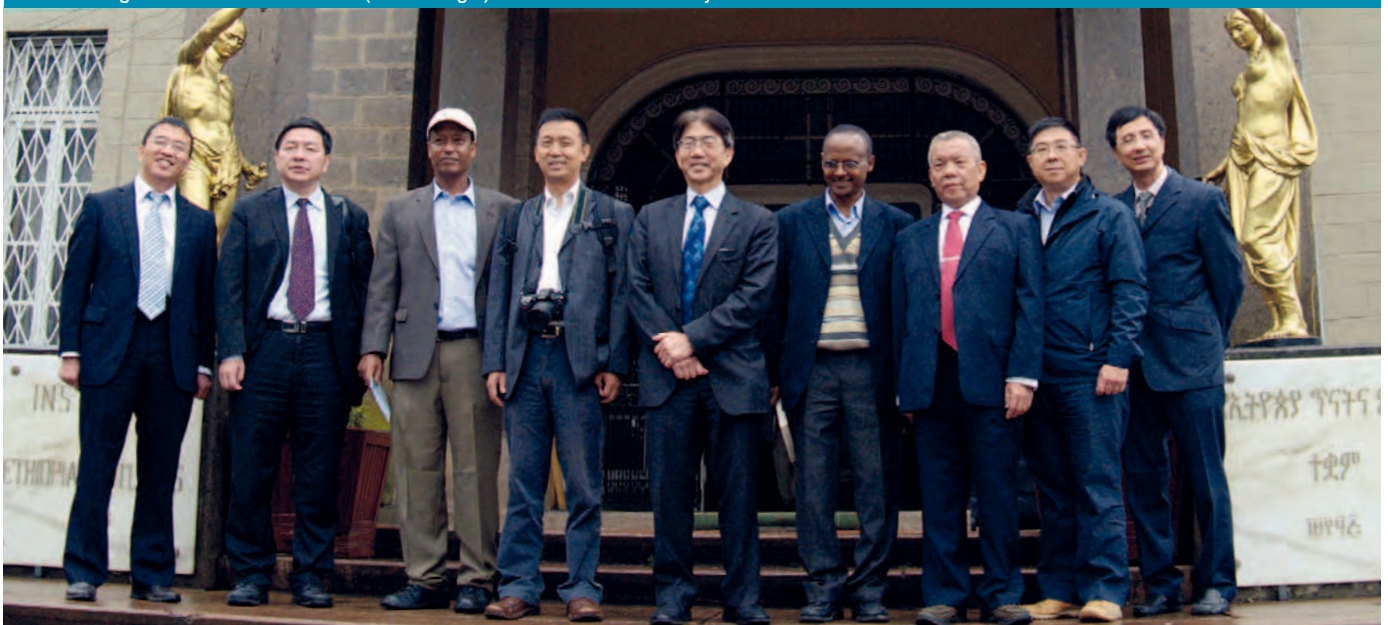
During the discussion meetings, Dr. Tena Alamirew, Director of EIWR described the need for sustainable water resources in Ethiopia and the mission of his Institute. Dr. Yilma Seleshi,

Head of Department of Civil Engineering at AAiT, also introduced some water engineering projects undertaken by the University.

Ethiopia has abundant water resources – it claims to be the “Water Tower of Africa” with Lake Tana giving birth to the Blue Nile. Almost all major development problems in Ethiopia are water-related. There are nine river basins in Ethiopia with 122 billion cubic meters of surface water with huge irrigation capacity and hydropower generation potential. The government recognizes the need to develop water resources to enhance food security, energy production and environmental protection. And yet there is a significant shortage of water-related researchers and high-level engineering professionals.

EIWR aims to produce 25 PhD and 90 MSc within five years to serve the water sector and to further train the next generation of engineers and water-related professionals. Prof. Joseph Lee introduced IAHR as a leading global water organisation and platform for future collaboration with Ethiopia. Prof. Wang went on to promote the forthcoming IAHR Congress in

Team of delegates and Dr. Tena Alamirew (4th from right) at Addis Ababa University.





# CES MANAGEMENT IN ETHIOPIA

Chengdu and invited the participation of Ethiopian researchers in the Congress, especially in the Special Seminar devoted to African issues. During the visit the IAHR delegation also presented the following talks: "How to write a good paper in a top international journal" (Lee); "Water issues in China and their hydro-informatics solutions" (Lin); and "Super-saturation of total dissolved gas below the Three Gorges Dam" (Liu). There was active discussion and exchanges with EIWR and AAiT. During the wrap-up meeting on the last day of the visit, a number of solid proposals were agreed on by both sides towards future interactions and collaboration as well as the imminent participation in the Chengdu Congress. It was agreed that one person each from EIWR and AAiT will participate in the co-organisation of the African special seminar. The Ethiopian hosts also expressed interest to join IAHR activities – in particular EIWR is eager to enhance capacity building and short term attachments of PhD students in international research institutions.

On the third and fourth day of the visit, the team made site visits to two hydraulic projects in the Awash River Basin, about 200 km to the south-east of Addis Ababa. The first project is the construction of a 90-meter tall earth dam across the Kesseme River – which is a joint venture between Ethiopia and China. The reservoir to be impounded will provide irrigation to the sugar cane industry in the downstream areas. The delegation saw the bottom outlet, overflow spillway, as well as the water intake tower under construction. The construction of this dam has been plagued by many difficulties including lack of reliable hydro-geological data, serious dam foundation and grouting problems arising from the high ground water table, and a failure of the cofferdam during a flash flood. The delegation also noted the significant sediment content in the high-flow river discharge and appreciated potential issues with reservoir sedimentation problems in Ethiopia.

The delegation also travelled to visit a river diversion – the Fentale irrigation project – which is built to provide a maximum flow of 18 cubic

meters to irrigate 18,000 hectares - with the objective of developing the local agriculture economy. The water supply comes from the Awash River via a diversion structure upstream of the 10 km long irrigation channel. At the diversion, the water level and diversion flow are regulated by a 110 m wide weir and an 18-meter wide sluice gate section. The diversion project is entirely Ethiopian designed and built, and succeeded to achieve fertile agriculture yields in an area that used to be a desert. However, high sediment concentrations in the diverted water still presented problems at a pumping station which necessitated frequent manual desilting.

This short visit is the first step towards engineering more active collaboration between IAHR and African countries where there are many challenging water-related problems – IAHR expertise can definitely help, and it is timely for IAHR to be more pro-active in engaging Africa on global issues such as water and food security. Members are welcome to participate in the discussions in the forthcoming Special Seminar on "Challenges and issues of water resources management in Africa" in Chengdu.



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Diversion structure on Awash River for Fentale irrigation project (intake to the left of sluice gates).

