

## OVERSEAS WORK

### Yangtze River Protection Law, China

The purpose of this small-scale knowledge and support Technical Assistance (TA) Project was to provide policy advice to support the preparation of the draft Yangtze River Protection Law (YRPL). The TA was provided by a team of Chinese and international experts, which included Partner Ben Piper of Water Resource Associates. The project was funded by the Asian Development Bank, and undertaken in collaboration with two institutions: ClientEarth-China and the Chinese Academy of Environmental Planning.



Course of the main Yangtze River channel

The purpose of the YRPL is to strengthen the protection and restoration of the ecological environment in the Yangtze River basin, promote the rational and efficient use of resources, ensure ecological security, achieve harmonious coexistence between man and nature, and achieve the sustainable development of the Chinese nation.



Effects of urban development on the Yangtze River

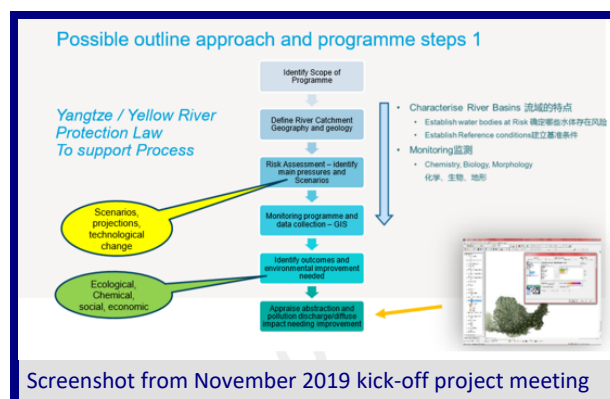
The international expert team drew on its European and US experience of river basin environmental protection and management policy to review the draft YRPL. Due to COVID restrictions the team only met together in person at the kick-off meeting in November 2019, the remaining discussions were conducted over the internet.

Key recommendations by the international experts included:

- Cyclical regulatory process that allows progress to be measured and reported, and any corrective

measures to be identified and implemented during the following cycle;

- Clear definitions and acceptance of the roles and responsibilities of the various institutions involved in overseeing and delivering the law together with the links between them;
- Development and application of a common set of scientific/technical methodologies on which appropriate standards and targets are identified;
- Performance monitoring, using common methodologies for data collection, analysis, interpretation and monitoring; and
- Stakeholder engagement.



Screenshot from November 2019 kick-off project meeting

There were 83 comments and recommendations for amendments to the December 2019 draft YRPL made by the TA project teams, informed by review of current practices in China and internationally. Of these recommendations, 22 were fully adopted and 6 partially adopted in the October 2020 draft YRPL. Of the 17 recommendations made by the team on the October 2020 draft, 7 were fully adopted and 1 partially adopted. The final law was enacted on 1<sup>st</sup> March 2021, less than 2 months ago. You first heard about it here!



Restoring the ecological environment: the ultimate aim of the new Yangtze River Protection Law

This was China's first legislation on a specific river basin. The preparation of the Yangtze River Protection Law will serve as a template for similar future laws protecting the other major basin in China, that of the Yellow River.

### Salinity in the Awash River System, Ethiopia

As part of the ongoing Oxford – WRA projects in Bangladesh and Ethiopia, WRA has evaluated the sources and sinks of salinity along the Awash River System, as well as the likely impacts of future climate change

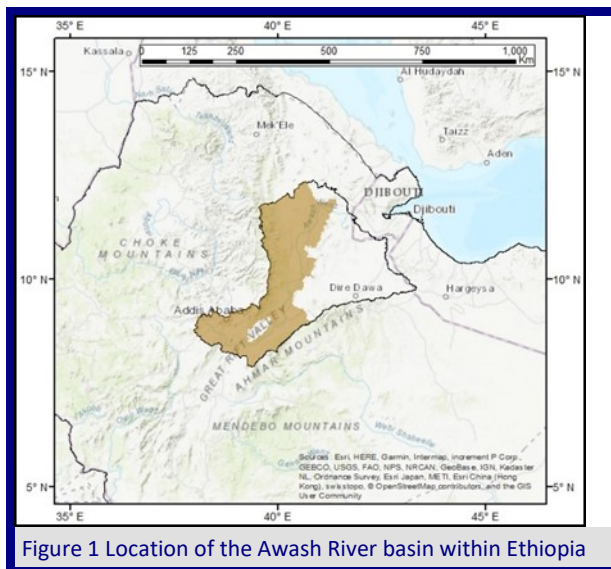


Figure 1 Location of the Awash River basin within Ethiopia

The Awash is a major water supply and agricultural irrigation catchment draining the city of Addis Ababa and flowing down to the Djibouti border (Figure 1). Located in the Great Rift Valley, the Awash River water has unique hydrochemistry that is characterized as wide spatial variations in total dissolved solids and salinity levels due to differences in water-rock interactions.

However, in recent years, increasing anthropogenic activities including the discharge from Lake Beseka into the Awash River is causing considerable concern for water supply and irrigation. Also, increases in climatic extremes can cause huge economic damage that could deepen poverty and may trigger human displacement.

In this project Partner Paul Whitehead and Associates Li Jin and Gianbattista Bussi of WRA and colleagues from Oxford University used the Integrated Catchment Model (INCA) to simulate the salinity level (chloride concentration) in the Awash River basin (including Lake Beseka) taking into account both natural and anthropogenic sources of salinity (Figure 2).

The rising trends down the river system, as illustrated in Figure 3, shows the impacts of Lake Beseka and other saline waters entering the Awash. Figure 3 also shows future scenarios of climate change on salinity in the river system.

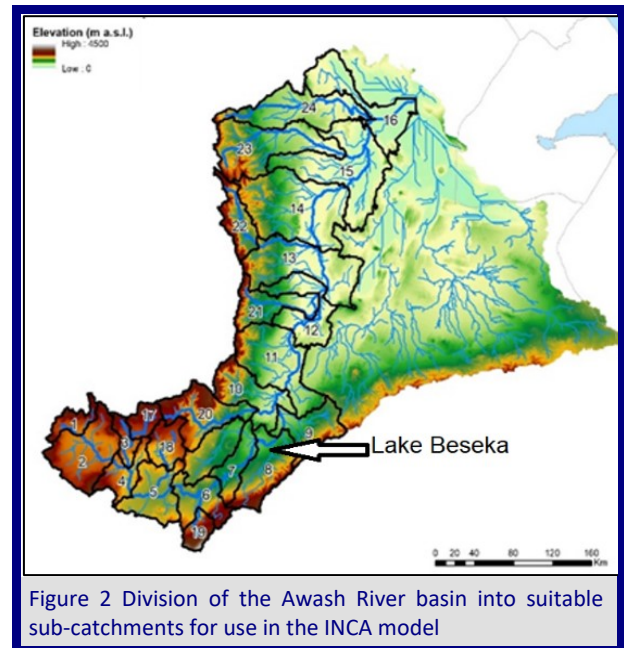


Figure 2 Division of the Awash River basin into suitable sub-catchments for use in the INCA model

Results show that the INCA model was able to reasonably reproduce flow and CI loading using monitoring data from several stations within the basin. Developing populations also affect salinity and could pose a threat to water quality in the Awash in the 2030s. However small climate induced increases in precipitation will reduce the 2030 levels and as increased flows will dilute the salinity into the future.

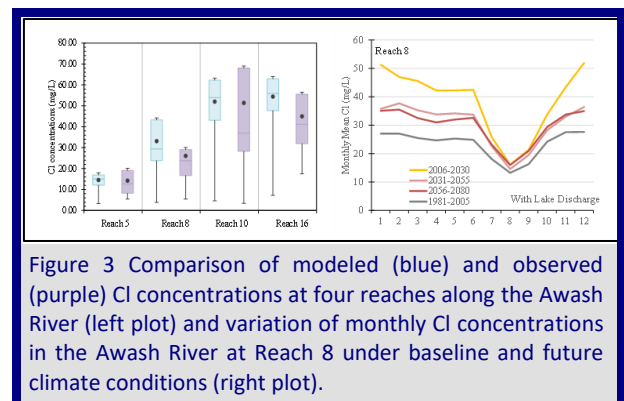


Figure 3 Comparison of modeled (blue) and observed (purple) CI concentrations at four reaches along the Awash River (left plot) and variation of monthly CI concentrations in the Awash River at Reach 8 under baseline and future climate conditions (right plot).

Paper (submitted for review)

*Natural and Anthropogenic Sources of Salinity in the Awash River and Lake Beseka (Ethiopia): Modelling Impacts of Climate Change and Lake-River Interactions* by Li Jin, Paul G. Whitehead, Gianbattista Bussi, Feyera Hirpa, Meron T. Taye, Yosef Abebe and Katrina Charles.

### Next WRA Board Meeting

Tuesday 13<sup>th</sup> July 2021, at 09.30 hrs at Benson.

The WRA Bulletin is a quarterly publication, and relies on contributions submitted by Partners, Associates and Consultants. The document is circulated by email, and published on the WRA web-site, aiming to keep the WRA network up-to-date with respect to current activities. Please email contributions for future issues to Nick Mandeville: [nick@watres.com](mailto:nick@watres.com)

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