

# President's Perspective

We can say that the forests, the rivers, the mountains and plains constitute wealth,

## African pre-eminence

Last month the Ethiopian government completed construction of Africa's largest (6.45 gigawatt) hydropower scheme - the Grand Ethiopian Renaissance Dam. The filling phase has now begun, for what will become the seventh largest reservoir in the world and fourth largest in Africa after Lake Nasser. This is a triumph for the Ethiopian government's ambition to provide a more sustainable electricity supply for its people. Water users downstream in Sudan and Egypt naturally have concerns and are pressing for maintenance of flows along the Blue Nile by limiting the rate of filling.

Ethiopia has a strong community of research hydrologists. In recent months, Dr Seifu Tilahun (Bahir Dar University) published an excellent research paper on the potential of groundwater for crop irrigation <sup>[2]</sup>, while early career scientist Tilashwork Alemie published an equally valuable contribution predicting water tables in the

*HIM Haile Selassie, 28 Aug 1959* <sup>[1]</sup>

Ethiopian highlands <sup>[3]</sup>.

Groundwater has also featured strongly in recent publications from elsewhere in Africa. Nigerian hydrogeologist Dr Solomon Temidayo Owolabi (University of Fort Hare, S Africa) published work on groundwater contributions to streamflow using recession analyses <sup>[4]</sup>, while early career scientist Retang Mokua (University of the Western Cape) reported on the use of natural tracers for studying water sources elsewhere in South Africa <sup>[5]</sup>.

Also shared internationally are leading recent contributions on modelling African catchments. For example, Dr Stephen Oppong Kwakye (Kumasi Technical University, Ghana) published his findings for the Black Volta catchment <sup>[6]</sup> and two fascinating simulations of land-cover change impacts on hydrology were produced by Dr Ewane Basil Ewane (University of Buea, Cameroon) for Nyong River basin <sup>[7]</sup> and Dr Tena Tewodros

(Copperbelt University, Zambia) for a tributary of the Zambezi River basin <sup>[8]</sup>. African hydro-climatology also featured, with Prof Jonathan Matondo (University of Swaziland) publishing an excellent synthesis of research on Climate variability and change in Africa: Perspectives, experiences and



The Grand Ethiopian Renaissance Dam under construction in Nov 2017 (Alamy licenced use for BHS newsletter)

sustainability<sup>[9]</sup>.

Even if your own research or practice does not involve Africa, I encourage you to consider broadening your perspectives by reading some of this significant new hydrological research from the world's second largest continent.

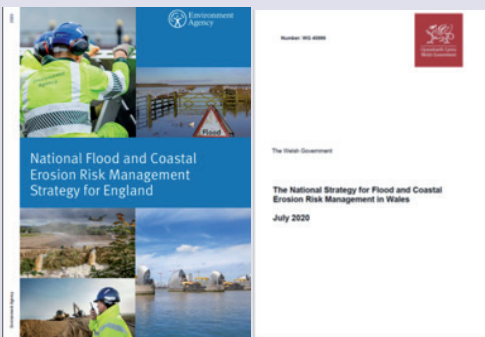
### Innovation in UK water sector

On 11 May 2020, the UK's Water Minister Rebecca Pow MP formally thanked key workers in the UK water sector for maintaining our water services through these difficult times.

Not only have people in our water sector kept our vital services running, on 10 July, they launched a bold strategy of innovation and cooperation across the water industry. In the spirit of cooperation, they invite you to contribute your ideas to the draft Water 2050 Innovation Strategy over the next month<sup>[10]</sup>. Attention on water resources seems particularly timely with drought conditions persisting in areas of SE England<sup>[11]</sup>, and the National Audit Office warning that parts of England are at "serious risk of running out of water within 20 years" (25 March<sup>[12]</sup>). Innovation is already happening in the sector - the recent introduction of 7.5 million hollow fibre ultrafiltration membranes at Anglian Water's Heigham Water Treatment Works makes it the largest such system in Europe<sup>[13]</sup>. Two water companies have started new initiatives to reduce

water loss from the distribution system and consumer pipes.

Yorkshire Water is creating the UK's largest smart water network pilot, installing almost 4000 acoustic, flow, pressure and water quality monitors<sup>[14]</sup>; while Southern Water has begun widespread



installation of a new leak detection technology based on the so-called Internet-of-Things<sup>[15]</sup>.

### Smart thinking for UK flood mitigation

This year, England and Wales experienced the wettest February on record (169.5mm). It was also the wettest February in Northern Ireland and second wettest in Scotland<sup>[16]</sup>. Several rain-events, including storms Ciara and Dennis, resulted in flooding in the East Midlands, SE England, Wales (e.g., Pontypridd), West Midlands (e.g. Tenbury) and Yorkshire. The doubling of funding for flood mitigation announced in the budget of 11 March (for 2021–27 period compared to 2015–21) was therefore welcome. Equally important was the publication on 14 July of the 30-year Flood & Coastal Risk Management (FCRM) Strategy for England<sup>[17]</sup>. Associated with this strategy are some Defra policy changes<sup>[18]</sup>, including:

- Incorporating nature-based solutions, such as natural flood management (NFM) measures, within new flood mitigation schemes, and ensuring new environmental schemes (e.g., funded by ELMs) deliver protection against flood risks;
- Directing new development away from areas at risk of flooding, reviewing mitigation required where such construction does take place, and ensuring all new developments have a net environmental gain; also making the existing built environment more resilient to the effects of climate change; and
- Considering changes to the 'Flood Re' scheme to allow post-flood insurance payments to include flood resilience measures.

The incorporation of nature-based solutions also featured strongly in the new FCRM Strategy for Wales, also published in July<sup>[19]</sup>. Current flood management policies for Scotland<sup>[20]</sup> and Northern Ireland<sup>[21]</sup> are also available. You may be interested to listen to Emma Howard Boyd, Sir James Bevan and John Curtin of the Environment Agency respond to questions by the Flooding Select Committee on the new strategy<sup>[22]</sup>. The draft strategy for England is open for your comments until 30 Sep 2020<sup>[23]</sup> - do consider responding.

### Active BHS membership

Travel and meeting restrictions over the past four months have meant that we have needed to embrace engagement opportunities offered by live webinars. It was encouraging that so many of you joined the captivating webinars by Prof Reed Maxwell (Colorado School of Mines) and by Richard Maxted

(Environment Agency) in July. Thank you to the Hydrogeological Group of the Geological Society of London, and BHS Pennines Section for inviting the UK-wide membership to join these two informative presentations with Q&A.

Over the last few weeks, our Hon Secretary Mike Cranston has been working with other committee members to deliver the first ever BHS Webinar series to support our membership and wider society (see page 5). The first webinar later this month (24 Aug 2020), promises to be both timely and stimulating - Hydrometry for a Climate Emergency is delivered by Nick Everard, who shortly moves from the Agency to UKCEH. For those who cannot join the webinars live, we aim to post them on a new BHS YouTube channel.

Two other opportunities for engagement are on the horizon. Firstly, the BHS Working Group on the Future of Hydrology, ably led by Prof Keith Beven FRS, will soon be asking for your comments on a Working Paper 'Improved observational methods for transformational change in hydrology' (see page 14). Observations are also the focus for a new scoping study exploring what Floods and Droughts Research Infrastructure (FDRI) is needed by UK hydrologists. The study's NERC-funded team, led by UKCEH, will be offering BHS members and other relevant stakeholders the opportunity to input ideas over the next few months. The objective is to develop a strong case for a substantial UK investment in monitoring infrastructure (see page .

A huge thank you to members and their colleagues in the

university sector for submitting 15 first rate undergraduate dissertations to our annual competition for three prizes. It is good to see such high-quality submissions, reflecting very positively on our university members, who often partner with practitioners in the water sector on these projects. We will announce the prize-winners at our AGM, planned for 30 Sept 2020 (via our new Zoom account or MS-Teams).

Thank you also to our early career members for preparing and submitting applications for our annual competition for BHS MSc/ MRes Studentships – we received an unprecedented 27 applications this year, which are currently being assessed.

We are very grateful to the JBA Trust and Environment Agency for co-funding these studentships with us. Successful candidates will be announced later in the year.

Despite the on-going health emergency, it is clear that many BHS members have continued to be very active professionally – I hope that you all continue to cope with the sometimes severe organisational and personal challenges that currently face us. My final thought is for those people in southern and eastern China experiencing alarming levels of flooding only half way through their rainy season.

**Nick Chappell**  
**President BHS**

[1] Page 155 in Speeches delivered by His Imperial Majesty Haile Selassie first emperor of Ethiopia on various occasions May 1957 – December 1959. [https://issuu.com/jahrastrafari89/docs/speeches\\_delivered\\_by\\_his\\_imperial\\_Highness](https://issuu.com/jahrastrafari89/docs/speeches_delivered_by_his_imperial_Highness)<sup>[2]</sup> <https://doi.org/10.1002/hyp.13659>

[3] <https://doi.org/10.1029/2019WR025050>

[4] <https://doi.org/10.1007/s12665-020-08925-4>

[5] <https://doi.org/10.1080/10256016.2020.1760861>

[6] <https://doi.org/10.1007/s42452-020-2454-4>

[7] <https://doi.org/10.1007/s11629-019-5611-8>

[8] <https://doi.org/10.3390/su11226415>

[9] <https://www.springer.com/gp/book/9783030315429>

[10] <https://waterinnovation2050.org.uk>

[11] <https://eip.ceh.ac.uk/hydrology/water-resources>

[12] <https://www.nao.org.uk/report/water-supply-and-demand-management>

[13] <https://wwtonline.co.uk/news/largest-water-filtration-system-in-europe-installed-in-norwich>

[14] <https://www.yorkshirewater.com/news-media/smart-water-network-pilot/>

[15] <https://www.southernwater.co.uk/the-news-room/the-media-centre/2020/june/world-first-as-southern-water-starts-roll-out-of-new-leak-detection-technology>  
<https://www.metoffice.gov.uk/hadobs/hadukp>

[16] <https://www.metoffice.gov.uk/hadobs/hadukp>

[17] [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/899498/National\\_FCERM\\_strategy\\_for\\_England.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/899498/National_FCERM_strategy_for_England.pdf)

[18] <https://www.gov.uk/government/publications/flood-and-coastal-erosion-risk-management-policy-statement>

[19] <https://senedd.wales/laid%20documents/gen-ld13343/gen-ld13343-e.pdf>

[20] <https://www.gov.scot/policies/water/managing-flood-risk/>

[21] <https://www.infrastructure-ni.gov.uk/articles/2nd-cycle-flood-risk-management-plan-2021-2027>

[22] <https://www.bbc.co.uk/iplayer/episode/m00019pm/select-committees-flooding-committee>

[23] <https://consult.environment-agency.gov.uk/fcrm/fcrm-national-strategy-info>



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