



Editorial: The British Dam Society Prize

The British Dam Society holds a competition – known as the BDS Prize – for young authors every alternate year. The competition is open to BDS members aged 35 or under, who are required to write a paper and then to present that paper at a BDS evening meeting and answer questions on it. The 2021 competition papers were completed last year, but the presentations had to be held over until January 2022 due to the pandemic.

Five papers were prepared and presented for that BDS Prize, and I am pleased to say that all five are included in this special ‘In-Focus’ issue of *Dams and Reservoirs*.

The paper by Amy Carter, the winner of the competition, covers a multi-disciplinary approach to assessing the feasibility of discontinuing reservoirs. With increased costs of managing reservoirs, and the potential future inclusion of smaller reservoirs within the regulatory framework in England and Scotland, discontinuance of reservoirs is a growth area. This paper provides some useful reminders of what needs to be considered.

India Hutchinson’s paper shows how an unstable earth embankment dam was stabilised, which also involved the diversion of a watercourse away from the embankment toe, where it was contributing to the slope instability. As with many such schemes, there were a number of environmental constraints, which are explained in the paper, with suggestions as to how such constraints may be recognised at an early stage in a project.

The lessons learnt in the design and construction of a flood storage area is the subject of Ciara Gill’s paper. It covers how and why the programme slipped, including assumptions made at the design stage that turned out not to be valid when work started on site. The paper includes a useful table detailing the lessons learnt with erosion protection matting in both the design/specification phase and the installation phase.

Michael Jack’s paper concerns works that enabled a hydro-electric reservoir to be returned to full operating level, and as such increase the renewable energy output from the power station, hence contributing to the nation’s target of Net Zero. The works included the construction of a replacement spillweir, the details of which are described, to enable the allowable top water level to be raised by 0.40 m – which on the large

reservoir (a loch) provides a very significant increase in available storage volume.

The reduction in the threshold volume for reservoir regulation in Wales has meant an increase in the number of reservoirs that fall within the Reservoirs Act. Natural Resources Wales wished to provide inundation maps so that risk designation could be carried out on all statutory reservoirs. Emma Bullen’s paper explains how a dam breach modelling project was set up to provide this mapping, and how significant management and coordination between disciplines was adopted to provide quality-assured outputs.

M&E ‘...abilities’

Although not a BDS Prize paper, this issue of *Dams and Reservoirs* includes an interesting paper by James Smith on sustainability, maintainability, and reliability of mechanical and electrical systems associated with dams. The paper includes two examples, one from the UK and the other from Africa, to illustrate the points, and ends with a number of questions that need to be asked when considering the sustainability of M&E components at dam sites.

Contributions

It is pleasing that in this issue we have been able to include the review of a book authored by one of BDS’s Honorary Members, as well as two discussion notes on papers published in previous issues of *Dams and Reservoirs*.

Please do continue to send in discussions on the published papers – this might be asking the author for clarification on a point in the paper, or providing additional information, or comments/views to complement the paper. Please send your discussion to the Editor at editor@britishdams.org as soon as possible after receiving your copy of *Dams and Reservoirs*, and we will do our best to publish it in the next issue.

New World Bank guidelines on dam safety

Contributed by Alan Brown

In 2020/21 the World Bank published a new ‘Good Practice Note on Dam Safety’ with some useful appendices containing sample frameworks for common dam safety activities:

- Appendix 1 – Construction Supervision and Quality Assurance Sample Framework
- Appendix 2 – Instrumentation Plan Sample Framework

- Appendix 3 – Operation and Maintenance Sample Framework
- Appendix 4 – Emergency Preparedness Plan Sample Framework
- Appendix 5 – Sample Terms of Reference: Panel of Experts (PoE) for New Dam Safety Review
- Appendix 5 – Sample Terms of Reference: Independent Safety Assessment for Existing Dams

These are available at <https://openknowledge.worldbank.org/handle/10986/35484>. There are also separate reports on

- Hydrological risk
- Geotechnical risk

- Seismic risk
- Small dam safety
- Failure modes analysis
- Portfolio risk assessment using Risk Index
- Tailing's storage facilities

These were presented at a special session on 31st May 2022 at ICOLD in Marseilles. Although some aspects may be of limited relevance to the UK, other elements are useful and represent current good practice (and training for young engineers). The advisory panel carrying out the reviews comprised Alessandro Palmieri (formerly World Bank Dam Safety Lead Specialist), Andy Zielinski (formerly chair of ICOLD Dam Safety committee) and Peter Amos (NZCOLD).