

Newsletter

April 2018

Chair's Message

Thank you to everyone who attended this year's AGM on 21 February in Wellington. Here is a summary of activities of the past year, as well as the plans for this current year.

Over the past year, the committee has maintained our focus on improved communications with members (website, newsletters), encouraging our Young Professionals group (3 YPs are now on our Management Committee), technical symposia and workshops, NZ legislative environment, as well as maintaining our local and international links.

The committee's work over the year has included:

- Holding Management Committee elections, March 2017
- Hosting a Risk Informed Decision Making workshop in Christchurch, April 2017
- Representing NZSOLD at the annual IPENZ (now Engineering NZ) forum, April 2017
- Representing NZSOLD at the General Assembly, Asia Pacific Group meeting and on 4 ICOLD committees at ICOLD 2017 in Prague, July 2017:
 - Committee B: Seismic Aspects of Dam Design
 - Committee G: Environment
 - Committee I: Public Safety Around Dams
 - Committee N: Public Awareness and Education
- and attending the initial gathering for a New ICOLD Technical Committee on Levees
- Hosting the 2 day NZSOLD Symposium and Workshop – “Performance of structures and organisational systems during emergency events” in Wellington, September 2017
- Continuing work on the NZSOLD website, including a move to a new platform with the creation of Engineering NZ on 1 October 2017 and establishing our own domain name www.nzsold.org.nz
- Continuing to support the Young Professionals Group and to raise their profile at our events
- Preparing 3 newsletters
- Representing NZSOLD on the ministerial Technical Working Group on the proposed National Environmental Standard for Dam Safety
- Providing a dam industry perspective on an update to the Engineering NZ Practice Note 2 Peer Review
- Representing NZSOLD at the combined ANCOLD/NZSOLD conference in Hobart, October 2017

In the current year, the committee's plans include:

- Additional enhancements to the new website platform
- Delivery of quarterly newsletters
- Recruitment of a new Chair for the Young Professionals Group and continued encouragement of our young professionals to engage with the Society, through the Young Professionals group and their inclusion in wider NZSOLD events
- Where opportunity arises, organise technical workshops and facilitate presentations (planning is underway for a Failure Modes workshop -Wed 8th August in Auckland)

- Representing NZSOLD at the 2018 ICOLD Congress and Annual Meeting ICOLD in Vienna, including on
- four ICOLD Committees.
- Liaison with the River Managers Forum regarding representation of NZ perspectives and issues on the
- ICOLD Levees Committee
- Liaison with Engineering NZ on matters arising
- Commencing planning for the 2019 Combined NZSOLD/ANCOLD event, to be hosted by NZSOLD (location
- Auckland)
- Continue to work with ministers and officials to advance good dam safety management within the New
- Zealand regulatory environment.
- Continue to monitor the need (and track suggestions) for any updates to the 2015 Guidelines.
- Develop a mechanism for providing access to members to a “back catalogue” of NZSOLD documentation
- via the website
- Review of the NZSOLD Rules to ensure they fit with the needs of the Society today (limited number of
- large Corporate reps, no mention of Young Professionals, outdated terminology, flexibility etc)

The committee are keen to receive your input, suggestions and feedback on any matters, so please contact us - our details are available on www.nzsold.org.nz or you can email nzsoldcommittee@gmail.com

Kind regards

Rebecca Knott - Chair

Young Professionals Group - Welcome to new leaders

We are very pleased to announce the new appointment of Franceska Strano and Cameron Paintin as Young Professionals Group Co-Chairs. After 3 years as the YPG Chair, growing the group to over 60 members, Dan Forster is stepping aside to allow new energy and enthusiasm to lead the group through the next stage of growth. Dan will work closely with Franceska and Cameron as they transition into the role, and will continue to provide the link between YP Group and Management Committee (in his role as Chair of the Symposia and Education Sub-Committee).

Please join us in congratulating Franceska and Cameron on their new roles. If you would like to join, or find out more about the Young Professionals Group, please contact Franceska.Strano@damsafety.co.nz or cpaintin@riley.co.nz.

In the meantime, a word from your new Co-Chairs:

Hi everyone, I am Franceska Strano. I am stoked to be in the role of NZSOLD Young Professionals Group co-chair with Cameron. Together we will facilitate the sharing of industry knowledge and provide useful benefits to our young professionals. I know that supporting and promoting our young professionals is an important investment in our future. I enjoy bringing together like-minded people that thrive on working with dams because we truly love what we do. I have 7 years of experience in dam safety, construction and asset management across Australia and New Zealand, starting with Snowy Hydro Ltd in Australia before moving to New Zealand and working in consulting.



Hi everyone, my name is Cameron Paintin. I am looking forward to working alongside Franceska to keep the Young Professional Group engaged with what's going on in the industry. I have already met a lot of you at various NZSOLD conferences and field trips, and am keen to meet the rest of you at future events. I have been working in the dam industry for four years in the Christchurch office of Riley Consultants. I have been involved in dam designs, dam break models, and a two-year dam construction monitoring programme. My main areas of interest are dam break hydraulic models and hazard assessment.



Dan Forster

Young Professionals Group outgoing Chair
dan.forster@damsafety.co.nz

Congratulations to NZSOLD Members newly appointed as Fellows of Engineering New Zealand

David Leong

A former director of the Tonkin + Taylor Group, David Leong is currently the Group's principal water resources engineer and a leading expert on hydrology, hydraulic structures and dam-break hazard. He has presented expert evidence many times and has also led design teams on large infrastructure projects. He is particularly recognised for his ground-breaking work on a risk-cost approach for optimising Auckland's bulk water supply system.

Joe Pott

Joachim (Joe) Pott specialises in hydraulic turbines, plant performance and dam safety. He is a partner in Hydropower Engineering, and has been involved in a wide variety of projects in New Zealand, Australia, Canada, Chile, Fiji, Laos, Nepal and the United Kingdom. He is a regular presenter on hydropower technology and dam safety, and a mentor to younger engineers.

Shayne Cunis

Shayne Cunis is a recognised leader in the water services sector in the Auckland region. Currently General Manager – Service Delivery at Watercare, he has improved the quality and resilience of service, and developed a significant number of young engineers into the future leaders. He has been on the Board of Water New Zealand and is currently an international representative on the Board of the Water Research Foundation.

Upcoming Events

UNITED STATES SOCIETY ON DAMS, 2018 CONFERENCE AND EXHIBITION

April 30 - May 4 2018, Miami, USA <https://ussdams.wildapricot.org/event-2471270>

ICOLD 26TH CONGRESS & 86TH ANNUAL MEETING

1-7 July 2018, Vienna (Austria) <http://www.icold-cigb.net/article/GB/news/events/26th-congress--86th-annual-meeting-1-7-july-2018-vienna-austria>

Invitation from the organising committee:

On behalf of the Austrian national Committee on Large Dams, it is my great honor to invite you to the **26th ICOLD World Congress** in combination with the **86th ICOLD Annual Meeting** and the **ATCOLD Symposium Hydro Engineering**, to be held in Vienna, Austria, in 2018.

The conference program will include interesting study tours to high-head pumped storage plants, run-of-river plants and excellent examples of Austrian dams at high elevation in the Alps.

The cultural program for participants and accompanying persons will comprise musical performances and excursions to some of Austria's most impressive sites.

Participants in 2018's ICOLD Congress can take advantage of the event's special location and enjoy Austria's renowned hospitality, cultural heritage and landscape. Vienna is a pleasant and safe city with outstanding conference facilities as well as comfortable international travel connections and a well-developed local transportation network.

A great number of national institutions, the dam owners and the members of ATCOLD are eager to contribute to ICOLD, supporting the Congress in Vienna. Together our aim is a productive coming together for our community based on hospitality and friendship.

We look forward to welcoming you in Vienna.



Gerald Zenz, President

Austrian National Committee on Large Dams

NZSOLD TECHNICAL WORKSHOP – DAM POTENTIAL FAILURE MODES -8 AUGUST 2018, SUDIMA AUCKLAND AIRPORT HOTEL.

Register: [Book your place today!](#)



Keynote Presenter – we are thrilled to confirm Terry Oswell from BC Hydro in Canada as our keynote presenter. Terry is the Dam Safety Program Engineer responsible for hazard and failure modes assessments, and incorporating failure modes into Dam Safety Reviews, Operation Maintenance & Surveillance Manuals and dam safety management. Terry is on the Canadian Dam Association (CDA) Board of Directors and chairs the CDA working group on Dam Safety Reviews.

Workshop Aim – to provide education on Potential Failure Modes (PFM) that builds on the guidance in the NZ Dam Safety Guidelines. Focus areas:

- a) Why are Potential Failure Modes important? What practice do our NZ Dam Safety Guidelines promote?
- b) Where did Failure Modes and Effects Analysis (FMEA) come from and how did the process develop/evolve?
- c) How are Potential Failure Modes used?
- d) How do they benefit the dam owner?

Programme – the draft programme for the day is available [here](#)

Registration – register for the event [here](#) (prices exclude GST)

- Non- NZSOLD Member - \$600 (or become a Member and pay discounted registration for Dam Potential Failure Modes Workshop in one payment)
- NZSOLD Member - \$500
- Young Professionals (Under 40) - \$400

Sponsorship – we have excellent sponsorship options available. Please contact Matt.Shore@stantec.com if your organisation is interested in sponsoring this event.

For any other event queries please contact Dan Forster at dan.forster@damsafety.co.nz.



ANCOLD 2018 - DAMS: EVOLVING WITH MODERN TECHNOLOGY

ANCOLD 2018

A large graphic for the ANCOLD 2018 Conference. It features a central abstract shape composed of various colored triangles (purple, blue, red, pink) that resembles a stylized dam or a map of Australia. To the left of this shape, the text reads: "ANCOLD 2018 CONFERENCE" in large purple letters, followed by "SOFITEL MELBOURNE ON COLLINS" and "11 & 12 OCTOBER" in smaller purple letters. Below the text is a small purple map of Australia with a white square indicating Melbourne. To the right of the central shape, the text reads: "DAMS: EVOLVING WITH MODERN TECHNOLOGY" in purple letters, with "DAMS:" in a larger, bold font.

**ANCOLD
2018
CONFERENCE**

SOFITEL MELBOURNE
ON COLLINS
11 & 12 OCTOBER

**DAMS:
EVOLVING
WITH MODERN
TECHNOLOGY**

<http://www.ancoldconference.com.au/>

Photo Competition 2018



Prizes:

1st prize of \$300; 2nd Prize of \$200 or 3rd Prize of \$100 and a complimentary copy of the book “Walls for Water”. All photographs will also be published on the NZSOLD website.

As part of the ongoing development of our website, NZSOLD are looking for photographs that illustrate New Zealand dams and dam engineering. So we are running a photographic competition to collect photographs that showcase our dams here in New Zealand or work that our engineers are doing overseas. The photographs can be of any type of engineered dam or appurtenant structure and we are looking for a wide range of photographs to demonstrate the benefits of dams and reservoirs.

For details including competition rules [see details on our website](#).

Event Report - ANCOLD Hobart October 2017

The ANCOLD 2017 Conference was held in Hobart 26th-27th October 2017 with a West Coast tour on 28th. The ANCOLD theme was “Great Expectations for New and Existing Dams” and was a typical gathering of owners, suppliers, contractors, consultants and others. Some 220+ delegates attended from over Australia, NZ, USA, Canada, UK and Asian participants. There were two parallel sessions and a workshop prior to the main conference on 25th; and in the Technical Exhibition organizations showcased innovations in the dam engineering and water resources sectors.

The two-day conference included parallel sessions covering a wide range of sub-themes. The main sessions included opening and keynote addresses; new dams; Dam Operation and Maintenance Innovation; Tailings dams; Building the case for dam upgrades (2 sessions); older dams – their management and legacy; and the closing plenary session. The papers included:

- Good papers on civil engineering of new dam projects (eg Kidston Pumped storage project in Qld; Panama Canal expansion dam; Ridge Park Dam – a flood detention dam with issues similar to those faced by NZ Councils.
- Good session on tailings dams and the major issues being faced and to be faced ongoing
- Lively keynote addresses by Chris Rodd on The Duty of Care and on Ontario Power Generation’s Dam safety Programme
- Interesting sessions on dam upgrades and management of older dams.

The conference included retarding basin (flood detention dam) presentations which are becoming very topical and high profile at these conferences.

A one day post conference tour focused on visits to the West Coast of Tasmania to Crotty dam and a tailings dam

under development. Crotty CFRD was built early 1990's and its downstream toe used as a coffer dam with mesh reinforcing and a central overflow spillway.



Crotty Dam spillway, and post conference tour participants. Photo by John Grimston

ICOLD News

In addition to Rebecca Knott representing NZSOLD as our chair, we have the following representatives on ICOLD Technical Committees:

1. **Committee B: Seismic Aspects of Dam Design - Trevor Matuschka**
2. **Committee G: Environment - Peter Amos**
3. **Committee I: Public Safety Around Dams - Peter Lilley**
4. **Committee N: Public Awareness and Education - Peter Mulvihill**
5. **Committee LE: Levees** - ICOLD are in the process of forming a new Technical Committee to consider Levees and Flood Control Structures. The convener of this committee (Remy Tourment from France) has invited NZSOLD to appoint a member to this committee. Given that in NZ, our flood control structures are managed by Regional Councils, and are exempt from the Building Act definition of dams, NZSOLD has consulted with the New Zealand River Managers Forum who have confirmed that they would like to have an NZ representative on this committee. At the December 2017 NZSOLD Committee meeting, it was decided to appoint David Bouma as NZSOLD's representative for the first year. David also works with the River Manager's Forum and will represent the interests of both organisations on this committee.

For further news, see ICOLD newsletter <http://www.icold-cigb.org/GB/news/newsletters.asp>

Articles:

Oroville Dam Spillway Incident

The Independent Forensic Team has prepared a comprehensive report on the failure of the Oroville Dam Spillways in February 2017. The main report is some 500 pages long and is critical of the design and the dam safety procedures. We understand that it is already shaking up dam safety practice in the US. An extract from the executive summary of their report follows:

In addition to lessons which are specific to the California Department of Water Resources (DWR), as described in this report, the following are some of the general lessons to be learned by the broader dam safety community:

- *In order to ensure the safe management of water retention and conveyance structures, dam owners must develop and maintain mature dam safety management programs which are based on a strong “top-down” dam safety culture. There should be one executive specifically charged with overall responsibility for dam safety, and this executive should be fully aware of dam safety concerns and prioritizations through direct and regular reporting from a designated dam safety professional, to ensure that “the balance is right” in terms of the organization’s priorities.*
- *More frequent physical inspections are not always sufficient to identify risks and manage safety.*
- *Periodic comprehensive reviews of original design and construction and subsequent performance are imperative. These reviews should be based on complete records and need to be more in-depth than periodic general reviews, such as the current FERC-mandated five-year reviews.*
- *Appurtenant structures associated with dams, such as spillways, outlet works, power plants, etc., must be given attention by qualified individuals. This attention should be commensurate with the risks that the facilities pose to the public, the environment, and dam owners, including risks associated with events which may not result in uncontrolled release of reservoirs, but are still highly consequential.*
- *Shortcomings of the current Potential Failure Mode Analysis (PFMA) processes in dealing with complex systems must be recognized and addressed. A critical review of these processes in dam safety practice is warranted, comparing their strengths and weaknesses with risk assessment processes used in other industries worldwide and by other federal agencies. Evolution of “best practice” must continue by supplementing current practice with new approaches, as appropriate.*
- *Compliance with regulatory requirements is not sufficient to manage risk and meet dam owners’ legal and ethical responsibilities.*

*Some of these general lessons are self-evident, and have been noted by others previous to the IFT’s investigation of this incident. **The question is whether dam owners, regulators, and other dam safety professionals will recognize that many of these lessons are actually still to be learned. Although the practice of dam safety has certainly improved since the 1970s, the fact that this incident happened to the owner of the tallest dam in the United States, under regulation of a federal agency, with repeated evaluation by reputable outside consultants, in a state with a leading dam safety regulatory program, is a wake-up call for everyone involved in dam safety. Challenging current assumptions on what constitutes “best practice” in our industry is overdue.***

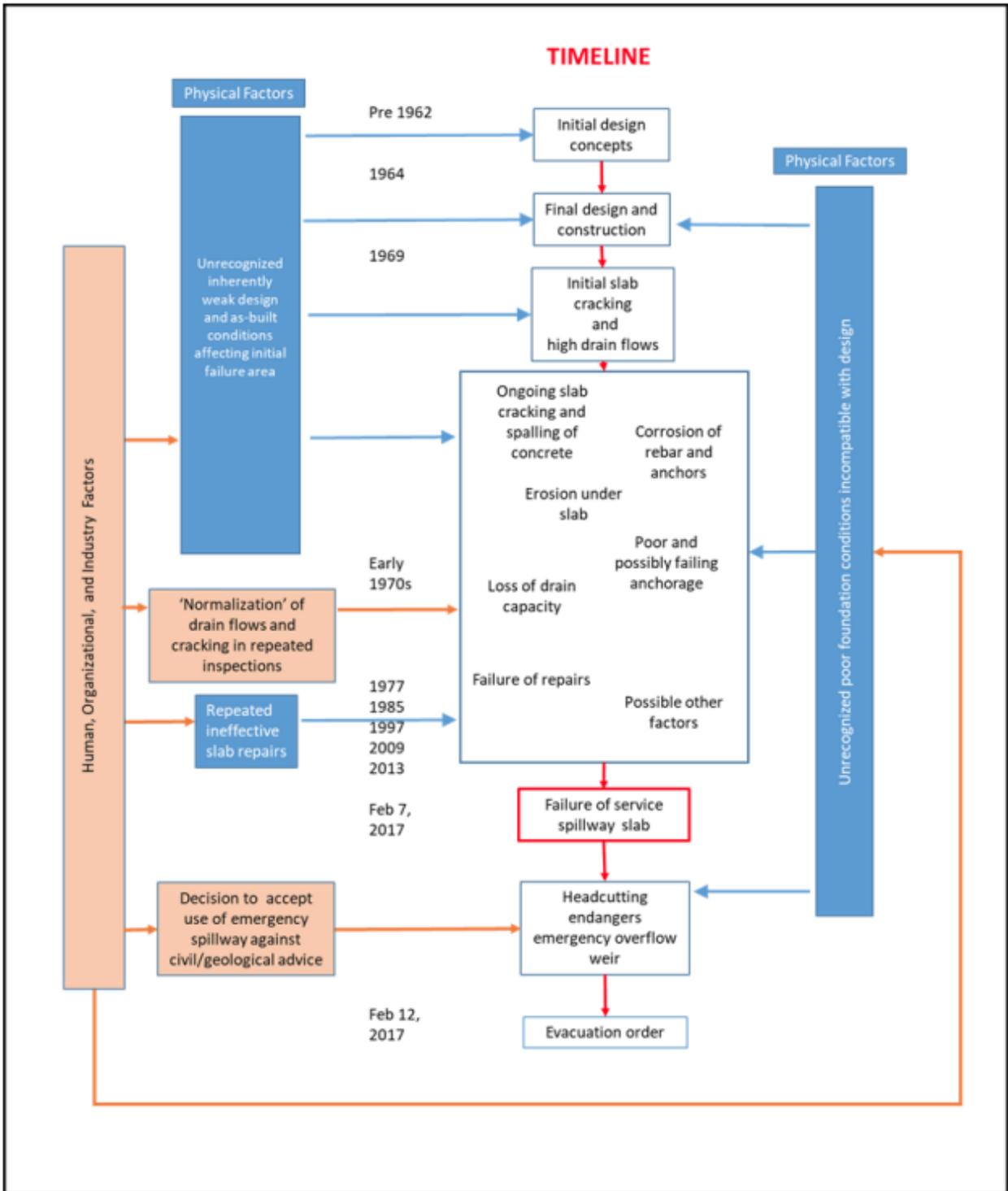


Figure S-1: Overview of interacting factors leading to the Oroville Dam spillway incident

A copy of this report can be found at this link: <https://nzsold.org.nz/2018/04/10/oroville-dam-spillway-incident/>

Interesting Links

The following links may be useful or interesting to members. We intend to add these to our website. Please let David Bouma know of any other links that you think may be useful to other members.

ICOLD	http://www.icold-cigb.net/GB/icold/icold.asp
British Dam Society	http://britishdams.org/default.asp
ANCOLD	https://www.ancold.org.au/
US Society on Dams	https://www.usdams.org/
Hydroreview	http://www.hydroworld.com/index.html
Waterpower Magazine	http://www.waterpowermagazine.com/