



SANCOLD

## SANCOLD NEWS 2013.08.06

### 81<sup>ST</sup> ICOLD Annual Meeting, Seattle, August 2013

The registration is open for this meeting. See [www.icold2013.org](http://www.icold2013.org). We have 19 persons from South Africa who will be attending. SANCOLD has submitted several items to the General Assembly for discussion. The highlight will be our bid to host the ICOLD Annual Meeting in Johannesburg in 2016. The African Regional Club will meet in Seattle under the Chairmanship of Prof Gerrit Basson, Vice-President of ICOLD. I will be giving feedback of the meeting in the next SANCOLD News.

### SANCOLD Conference 2013

Details of the SANCOLD 2013 Conference have been circulated to SANCOLD Members and are on the SANCOLD website. We even have a mention of this Conference on the homepage of the ICOLD website [www.icold-cigb.net](http://www.icold-cigb.net) and we hope to attract several participants from the international community and particularly from Africa. The SANCOLD Conference will be held at the Black Mountain Hotel in Thaba 'Nchu, Maria Moroka Nature Reserve between Tuesday 5 and Thursday 7 November 2013. SANCOLD invites all from Africa and the wider family of ICOLD to participate in the Conference which will include technical presentations, a technical visit and an exhibition. This is an ECSA Continuing Professional Development (CPD) accredited event. This Conference is a Category 1 activity and offers 3.0 credits. The theme of the Conference is *Advances in Dam Technology for Water and Energy in Southern Africa*. We have just over 50 papers on a variety of topics. The SANCOLD AGM will be held on Tuesday 5 November 2013 in the afternoon. So far we have 63 registrants who will be attending the Conference and hope for many more!

The Conference will include a one-day study tour to the Metolong Dam in Lesotho. Construction began in early 2011. The project entails the construction of a 73-m high roller compacted concrete dam with a 210-m crest length on the south of Phuthiatsana River, about 35 km from Maseru, and a multi-stage raw water intake and pump station



***Metolong Dam under construction***

## SANCOLD Publications

Mention was made in the previous edition of SANCOLD News of the publications that SANCOLD is preparing. The SANCOLD Management Committee considered that we should provide the membership with regular progress reports and indications of where members can be involved. For convenience, a table has been given below of the various guidelines and publications which SANCOLD is preparing. The Convenor and members of the Working Group are indicated. If you would like to participate please contact the SANCOLD Secretary.

## SANCOLD Working Groups for SANCOLD Guidelines and Publications

| Guideline/Publication       | Convenor         | SANCOLD Working Group   |
|-----------------------------|------------------|---|
| Guideline on Floods         | Vacant position  | Andre' Gorgens<br>Danie van der Spuy  |
| Guideline on Risk Analysis  | Louis Hattingh   | Ivor Segers<br>Chris Oosthuizen<br>Andre' Bester<br>Pilate Moyo<br>Moses Motaung<br>Gerald de Jager |
| Geofabrics for Dams         | Kelvin Legge     | Prof Fannin<br>Eduard Vorster<br>+Local experts   |
| <i>Your Dam</i> Publication | Kelvin Legge     | Leo van den Berg<br>Jan Nortje  |
| SA Dams for ICOLD 2016      | Michelle Blaeser | Authors to be identified  |

### Flood Studies

The WRC research project undertaken by Prof Fanie van Vuuren and his team from the University of Pretoria to review the status and to determine the requirements for overhauling the Flood determination Methods in South Africa has been reviewed by SANCOLD and will then be released by the WRC. A workshop with potential and interested researchers was held on 16 May 2013 to determine the road map for the programme.

### **ICOLD Publications and Website**

ICOLD took a decision in 2009 regarding easier (and cheaper) dissemination of its publications. This will be done via the revamped ICOLD website ([www.icold-cigb.net](http://www.icold-cigb.net)). A password has been issued to each National Committee which allows access to the Members' Section on the website and also for free downloading of ICOLD Bulletins (reports). Any SANCOLD member who requires this access must apply to the SANCOLD Secretary for the password.

ICOLD has just published the following three Bulletins and members can download these free of charge from the ICOLD website. The printed versions cost 60 to 80 €.

- **Historical Review of Ancient Dams**

Bulletin 143 (by the Ad Hoc Committee on Small Dams)

Most of the ancient dams built by the Romans were small dams with 3 to 10 meters high. An earthfill completed in Ceylon in 504 B.C. was 17.7 km long, 21 m high, and contained about 13 000 000 m<sup>3</sup> of embankment. Today, as in the past, the earthfill dam continues to be the most common type of dam, mainly because its construction involves using material in their natural state with little processing. We dedicated special effort in the elaboration of the "History of the Ancient Dams", because of their historical interest and to better understand how the construction of dams has developed and improved along the time. It was very interesting to know that the aborigines, in Australia, and the Indians, in North America, constructed some small dams for their water need during the dry periods. Probably, some of those dams were built before 3000 BC, when the oldest ruins of dams made by the modern civilization are dated of, according to official data.

- **Guidelines for use of numerical models in dam engineering**

Bulletin 155 (by the Committee on Computational Aspects of Analysis and Design of Dams)

Numerical simulation models of dam-foundation-reservoir system have been developed and used for different purposes such as:

- Prediction of the structural stability and simulation of any possible failure mechanisms under all types and the whole range of loading scenarios (typically normal operation, flood and earthquake),
- Pre-design and optimization of new dams at different project stages,
- Interpretation of the behaviour of dams under operation by comparison of results of the monitoring system with theoretical computed values, and assessment of their safety,
- Design and optimization of remedial works, corrective measures, and most efficient rehabilitation methods of existing dams,
- Learning from real cases and back analysis of different problems.

The objective of the present bulletin is to help the engineer in establishing a sound computation strategy based on a careful analysis of the problem to be solved, selecting the adequate software options needed, then carrying out the analysis in a progressive way with frequent checks, and finally using adequate outputs to make rational interpretation of the results achieved, so as to translate them into engineering decisions. This will be done through recommendations, and also examples in different contexts.

- **Sustainable design and post-closure performance of tailings dams**

Bulletin 153 (by the Committee on Tailings Dams)

This document provides guidance for the designers, owners, operators and regulators of tailing dams on closure considerations for design at all stages of the tailings dam. The bulletin contains three main sections with a discussion on the following topics:

- Sustainable Closure Principles, covering current international practice, regulations, objectives, design life and phases, financial and risk management practices as they relate to closure.
- Sustainable Design Considerations, covering the main aspects of physical, chemical, ecological and social stability associated with tailing dam closure.
- Monitoring, covering post closure and long term monitoring requirements.

### **SANCOLD Management Committee Elections**

The election process for the filling of vacant positions will commence with the call for nominations in October.

### **ECSA: Dams Committee**

Below the members elected for the committee for the following four years. Alan and Willie have been elected Chair and Vice Chair. We extend our congratulations to our SANCOLD Colleagues.

- Alan Chemaly
- Willie Croucamp
- Danie Badenhorst
- David Cameron-Ellis
- Leon Furstenburg
- Andrew Griffiths
- Jaap Kroon
- Chris Oosthuizen
- Bob Pullen
- Ronnie Scheurenberg
- Quentin Shaw

## Progress report from the SANCOLD scholarship holder: Guy Robertson



I hope this email finds you well, I have realised that it has been a while since we last spoke and expect that you would like an update of my current progress and plans going forward. I am currently still busy with the computational fluid dynamics (CFD) side of my thesis, struggling to find a solution that converges. Once I have managed to do this I will be able to compare the pressures generated by the computer model against those of the physical model which was tested at the end of last year. The earlier parts of my thesis have been typed up, inclusive of literature review, design methods and process, physical modelling (including set up, process and results) and CFD (inclusive of the process and a number of preliminary conclusions).

Last week Stellenbosch hosted a short course on dam hydraulics at which I presented what I have done to date. It was interesting to speak to a couple of the engineers present, some of them having had success with CFD and others who had faced similar problems to those I am currently facing.

Going forward I will be speaking to the CFD programme support staff and developers to seek some assistance with the challenges of mapping two-phase three dimensional flow. My deadline for a draft thesis is the 20th of August which I am confident I will meet.

I also look forward to finding results and drawing conclusions which could be useful to the field and interesting to those at the SANCOLD conference in November.

### **ASCE Publication**

It's been just over a year since the joint book **Toward a Sustainable Water Future: Visions for 2050** was published by ASCE. They report that sales have been good and that they are now in their second printing. However, most exciting is that ASCE has just announced that the book is available for free as an e-book either for download for the whole book or by chapter. This should provide the opportunity to reach thousands of people who can take advantage of this opportunity to acquire the book at no cost. To download the book or individual chapters go to the following URL:

<http://ascelibrary.org/doi/book/10.1061/9780784412077>

I hope that you will all take advantage of this to make downloads, circulate the access information to your colleagues, or use it as part of your courses. I have had the opportunity to go back and re-read the book and I believe that it is an important contribution to the field and one that can help to guide the future directions in the environmental and water resources area.

### **Hydropower 2013 and the 3<sup>rd</sup> International Symposium on Rockfill Dams- November 1-3, 2013 in Kunming, China.**

The Conference is jointly sponsored by CHINCOLD, China Society for Hydropower Engineering (CSHE) and Brazilian Committee on Large Dams (CBDB). China Huaneng Corporation, Hydrochina Kunming Engineering Corporation (KHIDI), China Institute of Water Resources and Hydropower Research (IWHR) will be responsible for organizing this event. H.E. Mr. Wang Shucheng, former Minister of water resources of China, H.E. Dr. Jiao Yong, Vice Minister of Water Resources of China, Head of National Energy Administration and local government of Yunnan Province will take

part in the conference. They are expecting a high participation, with over 500 delegates from around the world. Up to now, 130 papers have been received.

Moreover, large hydropower development enterprises, international contractors, consulting companies and equipment manufacturers in China will come to join in, including China Three Gorges Cooperation, Sinohydro, HydroChina, Dongfang Electric Corporation, and etc. Professionals involved in design, construction, operation and management of large hydro projects such as Xiaowan arch dam (H=294.5m), Nuozhadu Rockfill dam (H=261.5m) and Houziyan CFRD (H=221m) and small hydro will deliver presentations to share their experience. Also, several special sessions such as Round Table Meeting on sustainable development of dams and hydropower in Africa, Forum on environmental protection in hydropower development, and Workshop on rehabilitation and reinforcement for dams will be held during the Conference. International Milestone Project will be awarded in the Conference to highlight development of rockfill dam technologies.

Refer to: [http://www.chincold.org.cn/dams/special/A2022index\\_1.htm](http://www.chincold.org.cn/dams/special/A2022index_1.htm) for more detail.

With kind regards and I look forward to comments on this SANCOLD News and SANCOLD's activities.



*Paul Roberts Pr Eng*

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