



SANCOLD

## SANCOLD NEWS 2013.03.09

### SANCOLD Conference 2013

Details of the SANCOLD 2013 Conference have been circulated to SANCOLD Members and will soon also be 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*. The Call for Papers has been made and Abstracts must be submitted by **30 April 2013**. The SANCOLD AGM will be held on Tuesday 5 November 2013 in the afternoon.

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***

### SA Young Engineers Forum (SAYEF)

The SAYEF has been registered with ICOLD with 33 members. To date Austria, Indonesia, Iran, South Africa and South Korea have registered National Committees of Young Engineers. If you are interested, contact Ivor on [sayoungengineers@sancold.org.za](mailto:sayoungengineers@sancold.org.za). It is the intention to hold elections during the SANCOLD 2013 Conference to elect office bearers for the SAYEF. The SA Young Engineers will feature prominently during the forthcoming SANCOLD Conference. The SANCOLD MC considers that the SAYEF Chairperson should have a reserved position on the SANCOLD MC and accordingly a Constitutional amendment will be needed and considered at the next AGM.

### SANCOLD Management Committee

The SANCOLD Management Committee met on 19 February 2013 and the Committee consists of the following persons. The Office-Bearers are also indicated. Exco members are indicated by \*.

D Badenhorst*	Chairperson 2013 to end 2015
I Segers*	Vice-Chairperson to end 2013
P Pyke*	Treasurer for 2013 Co-opted
CPR Roberts*	Secretary for 2013 Contracted
G Basson	ICOLD Vice President
A Bester*	Webmaster
Ms M Blaeser*	
D Cameron-Ellis*	
D Grant-Stuart	Co-opted for tailings dam expertise
K Legge	
B Mwaka	
Q Shaw	
D van Wyk	
W van der Westhuizen	
E Vorster	Alternate T Tente

### SA Representation on ICOLD Committees and SANCOLD Working Groups

SANCOLD participates in a number of ICOLD Committees as shown in the updated list given below. Some of the participation is as a corresponding member where inputs are made via correspondence. SANCOLD recently applied to the ICOLD Central Office for representation on the Committee on integrated operation of hydropower stations and reservoirs. The SANCOLD Management Committee considered that it is desirable to form SANCOLD Working Groups for those Committees where there is a need for such participation in order to support the South African representative. An invitation is extended to SANCOLD Members to volunteer for participation in these Working Groups. It is pleasing that we have had several volunteers recently. Please submit your name to the SANCOLD Secretary and the Working Group/s you would like to participate in.

### SA representatives on ICOLD Committees and SANCOLD Working Groups 2013

No	Committee Name	Term	SA Representative	SANCOLD Working Group
C	Committee on Hydraulics	2009-2013	Dawid van Wyk	Dr Andre' Bester
D	Committee on Concrete Dams	2012-2015	Q Shaw	J Kroon H-J Wright A Botha D Ochan
E	Committee on Embankment Dams	2010-2014	D Badenhorst	H Elges Johan Beukes K Legge (Geofabrics) Jan Brink
F	Committee on Engineering Activities Associated with the Planning Process for Water Resources Projects	2011-2014	S Mabuda	Menard Mugumo Jannie van der Mescht
New	Committee on Dam Surveillance	2012-2016	Dr C Oosthuizen	A Botha DJ Hagen L Hattingh
H	Committee on Dam Safety	2012-2016	I Segers	Dr C Oosthuizen L Hattingh L van den Berg Bongani Sibanda Alan Kockott Bandula Kendaragama
K	Committee on integrated operation of hydropower stations and reservoirs	2011-2015	L Furstenburg <sup>4</sup>	Janus Basson John Sawyer
L	Committee on Tailings Dams	2011-2014	Duncan Grant-Stuart	Working Group being formed on 21.11.2012
M	Committee on Operation, Maintenance and Rehabilitation of Dams	2012-2015 <sup>1</sup>	PD Pyke	L Moloi Rep of Umgeni Water

O	Committee on the Register of Dams & Documentation	2011-2014	Mr Bertrand Collet	Leo vd Berg from the Dam Safety Office (DSO).
Q	Committee on Dams for Hydroelectric Energy	2007-2012	L Furstenburg	Janus Basson John Sawyer
Z	Ad Hoc Committee on Capacity Building	2012-2015	[K Wall] <sup>2</sup>	

Representation cannot be changed in the case of an **ad hoc committee**. SANCOLD Working Group members make inputs into the ICOLD Committee via the SANCOLD Representative.

1. Reappointed Committee to complete the work of the previous Committee.
2. Corresponding Member
3. SANCOLD MC to ratify
4. SANCOLD applying for membership. Approval by GA in 2013.

### **SANCOLD and Capacity Building**

I was asked to supply our capacity building activities in a report to the ICOLD Committee on Capacity Building and the reply is given below. It was of interest to see how active we are in this matter and this reinforces the value of SANCOLD membership!

What is your National Committee (SANCOLD) currently doing for capacity building in your country on aspects of Dam Engineering?

- Various publications such as Guidelines on specific aspects of dam engineering of relevance to South and Southern Africa are produced. We recently released a guideline on freeboard for dams. Several new ones are in preparation and will cover floods, risk analysis of dams, geofabrics for embankment dams and a publication on "Your Dam" aimed at dam owners.
- In the process of developing the above Guidelines we have research funded by the Water Research Commission. This has resulted in considerable capacity building at various Universities at post graduate level. Some students from other parts of Africa have been involved.
- A regular Newsletter is circulated to SANCOLD members. The Newsletter distributes information on ICOLD/SANCOLD events, publications etc.
- SANCOLD has a post-graduate scholarship for dam engineering which is awarded and supports study in this field.
- SANCOLD has a website ([www.sancold.org.za](http://www.sancold.org.za)) which has a wealth of information on dams and specifically related to South African conditions.
- SANCOLD organizes an Annual Event alternating between a course and a conference. The attendance is about 200 and includes persons from neighbouring countries. The event lasts for three days and includes a one-day visit to a dam under construction or rehabilitation.
- SANCOLD is represented on 12 ICOLD Committees and SANCOLD Working Groups have been formed for most of these Committees with the SANCOLD Representative on the ICOLD Committee as the Convener. In this way involvement of a larger number of persons and also younger members is ensured.
- South Africa has formed the South African Young Engineers Forum. Currently it has 33 members. A special page on the SANCOLD website is devoted to this Forum. The Young Engineers will be presenting a session at the forthcoming SANCOLD Annual Event.
- SANCOLD has participated actively in the African Regional Club (ARC) and has been successful in having sponsored tours of some SANCOLD members on the capacity building tours of ICOLD.

### **SANCOLD Membership Fees 2013 and Membership Certificates**

Payments for 2013 membership fees have been received from 67% of Corporate Members and 80% of Individual members. Several reminders have been sent out which requires a lot of effort for the SANCOLD administration. Please help by paying any outstanding fees as soon as possible. I have received a very positive response regarding the membership certificate and this appears to have been a beneficial initiative.

## Members Contact information

Please ensure that you inform the SANCOLD Secretary of any change in your contact details, especially e-mail addresses. I note that several organisations have changed their names and yet members still use the old name!

## SANCOLD Scholarship-Holder Report

The SANCOLD Scholarship for post-graduate studies in a field of dam engineering was awarded to Guy Robertson for 2012 and 2013. I received the report below in August on his progress and activities and I thought that it would be of interest to SANCOLD Members. The next SANCOLD Scholarship for full-time Master's Degree study will be advertised in about July 2013 for award in 2014 and 2015.



**Guy Robertson**

I recently received this Progress Report from Guy and thought that it was of general interest to members.

### Introduction

*This (informal) report gives a brief update on what has been done towards the completion of a thesis focussing on the negative pressures on a labyrinth spillway and the verification of mathematical modelling. It outlines the current status of the project and the projected timeline for the completion of the remaining sections.*

### Current Status

*The project has been divided into five chapters:*

- 1. Introduction and Background to Study*
- 2. Literature Review*
- 3. Physical Modelling*
- 4. Computer/Mathematical Modelling*
- 5. Comparison of Modelling Methods and Verification of Mathematical Model*
- 6. Conclusions and Recommendations*

*The introduction and the conclusions can only be written once all other sections have been completed.*

*The Literature Review is an on-going section requiring new material to be researched as new challenges are discovered. Currently it is well underway and there is very little expected research that left to do at this stage. Most of the current material has also been included in a report format already.*

*The design process and details of the physical model have been completed and written up. Whilst the completion of the physical model testing at the end of last year allows the focus of the project to now move on to the computer modelling stage. Definite trends were found in the physical modelling results which is a good sign at this stage and the model is still standing which is great news after the 600 l/s of water we passed over it.*

*The Computer Modelling is underway at the moment. For the last month I have been cleaning up the geometry and setting up the mesh. The process is a learning one and it seems that I generally take two steps forward and one back whilst getting used to the running of the programme and its interface. I am confident however, that by the middle of March I should have been able to get the model to run successfully.*

*The Comparisons of the different models and their results should take me to the middle/end of May and I will be holding thumbs that there are sufficient similar trends across the systems. If this is not the case, further testing may be required.*

### Targets

*My target for submission of a draft is the middle of June. The submission process is complicated in that I submit a draft to Prof. Basson, which I get back with corrections/suggestions. After which I will submit to the external examiner. The external examiner makes suggestions for me to complete although I do not submit to them again, unless there are many corrections to make. A journal article is also required after submission. The last form of assessment is the presentation or defence; this may only take place in November as that is when the examiners are present. I am free, however to leave the University on submission to the external examiner.*

### Conclusions

*With all the necessary coursework completed and exams at T.U. Delft passed, the focus is now squarely on the completion of the thesis. This allows for the targets to be set with realistic timelines. From what has been said above the goal of completing all sections, a draft submission, corrections and a journal article by the end of June to the middle of July is what I will be working towards.*

Good luck and progress with the thesis Guy!

### **SANCOLD Publications**

Mention was made in 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. The Progress Reports for the four publications are given below:

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**

<b>Guideline/Publication</b>	<b>Convenor</b>	<b>SANCOLD Working Group</b>
Guideline on Floods	Willie Croucamp	Andre' Gorgens Danie van der Spuy
Guideline on Risk Analysis	Louis Hattingh	Ivor Segers Chris Oosthuizen Andre' Bester Pilate Moyo Moses Motaung Gerald de Jager
Geofabrics for Dams	Kelvin Legge	Prof Fannin Eduard Vorster +Local experts
<i>Your Dam</i> Publication	Kelvin Legge	Leo van den Berg 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 is being reviewed by SANCOLD and will then be released. A SANCOLD delegation discussed the implementation of the proposed NFSP with the senior management of the WRC and received a very positive response. A workshop with potential and interested researchers will be held in the near future in to determine the road map for the programme. Workshop invitations would be sent to Weather Services, Water Affairs, SANCOLD, Research community, consultants.

## Guideline on Risk Analysis

Good news! We have made major progress on this matter and have received a proposal on the way ahead from SANCOLD Member Louis Hattingh which is given below:



**Louis Hattingh**

## **SANCOLD GUIDELINE ON RISK ANALYSIS ON THE SAFETY OF DAMS**

### **1. PURPOSE OF THE GUIDELINE**

The building of dams in South Africa went through a boom period from the 1950's to the 1990's, peaking during the 1980's. As a consequence, the safety assessment and rehabilitation of existing dams have become the focus area of the large majority of dam engineers. Although the probabilistic risk analyses of the safety of dams and the use of its results in the prioritisation for the rehabilitation of the portfolio of dams have been performed at the Department of Water Affairs (DWA) since the late 1980's, the large majority of safety assessments and rehabilitation decisions are still made using design criteria.

The use of risk analysis in the safety assessment of existing dams as well as the design of new dams and of rehabilitation of existing dams have been in use in the USA, Canada as well as Australia for at least a decade or more. In these countries as well as the DWA the use of risk analysis have proven its usefulness.

New Dam Safety Regulations were also promulgated early in 2012. These regulations require risk analysis and/or risk assessment for a dam during design or safety evaluation when requested by the Director-General (Dam Safety Office).

As a consequence preparing guidelines have become a necessity to provide a baseline for any future use of the concepts.

The purpose of the guideline is therefore seen as follows:

□ To provide a set of living documents that would provide best practice guidelines on the risk analysis of dams for use during safety evaluations and the design of new dams or rehabilitation of existing dams.

### **2. WORKING GROUP**

The following persons have been identified to form part of the working group:

- Ivor Segers, Department of Water Affairs;
- Dr Chris Oosthuizen, Department of Water Affairs;
- Dr Andre Bester, Goba;
- Prof Pilate Moyo, University of Cape Town;
- Moses Motaung, Madikela Engineering Solutions;
- Gerald de Jager, Aecom; and
- Louis Hattingh, Hattingh Anderson Associates CC.



All the above-mentioned persons have agreed to participate in the working group. It is important to note that all the persons have extensive experience in probability based risk analysis or probability based yield analysis

### 3. PROCESS TO IMPLEMENT

The following process is proposed to facilitate the compilation of the guideline:

□ Scoping: SANCOLD has already engaged with the WRC in trying to facilitate funding for an initial scoping exercise. As per the typical WRC process the scoping most probably would culminate in a workshop where the results will be discussed (3 to 6 months from the start);

□ Preparation of the guideline documents: It is foreseen that the guideline consists of a number of documents starting with one on the overall philosophy and methodology. Separate documents will be compiled for each relevant subject for example hydrology, concrete dams (gravity, arch, other), mechanical etc. by a relevant person. The draft guidelines would be presented to SANCOLD for comments. It is foreseen that this process would take at least 2 to 3 years.

These guideline documents should also be seen as living documents that should be updated when new information becomes available.

□ Publication of the documents.

#### Guideline on Geofabrics for Dams

Kelvin Legge reported on the progress achieved at the last SANCOLD Management Committee meeting. The target date for the first draft is at the end of April 2013. Dr Vorster offered support from the SAICE Geotechnical Division.

#### Publication on *Your Dam*

Kelvin Legge is leading the initiative and has involved the participation of a number of persons. The intention was to make use of current IT technology and make it more interactive. The publication holds marketing potential for SANCOLD and this will be pursued. The target date for the publication is still mid-2013.

#### Publication on SA Dams

The host country of an ICOLD Annual Meeting normally produces a publication on its dams and water resources management. Preliminary preparations have been made for this publication and the Water Research Commission has indicated that it will assist in its compilation. Michelle Blaeser is Convenor of the publication. Specific authors have to be identified for the various chapters.



***Michelle Blaeser***

### **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) Registrations after 1 May are more expensive.

### **ICOLD 2016 Hosting in South Africa**

The formal bid to host the 2016 ICOLD Annual Meeting in South Africa is under preparation and will be submitted at the ICOLD General Assembly in Seattle in August this year. To date, no other country has submitted its intention to bid. More to follow as detail emerges.

### **12th ICOLD International Benchmark Workshop on Numerical Analysis of Dams**

This Workshop will take place in Graz, Austria from 2 to 4 October 2013. The First Bulletin is now available on the website, at the following link: [http://www.hydro.tugraz.at/icold\\_bmws2013](http://www.hydro.tugraz.at/icold_bmws2013)

### **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.

### **African Regional Club (ARC) of ICOLD**

The ARC will be meeting in Addis Ababa, Ethiopia during the Africa 2013 Conference and again in Seattle in August at the ICOLD Annual Meeting.

### **Africa 2013**

The African Regional Club is also sponsoring Young Engineers to this event. It is hoped that several SANCOLD Members, young and old, will be able to attend and participate in this event. Contact the SANCOLD Secretary for further information or [www.hydropower-dams.com](http://www.hydropower-dams.com). SANCOLD members Danie Badenhorst, Gerrit Basson, Quentin Shaw and Paul Roberts will be attending the event and also participating in the Conference. I hope to provide some feedback in the next SANCOLD News.

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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