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Years

# SANCOLD News

Newsletter of the South African National Committee on Large Dams

[www.sancold.org.za](http://www.sancold.org.za)

February 2015

## SANCOLD Conference 2014: YEF

SANCOLD has been encouraging the participation of Young Engineers in the organisation and as an incentive, a prize (Apple Ipad mini) was given by ARQ (Pty) Ltd to the best paper prepared and presented by a Young Engineer during the SANCOLD Conference 2014. The judges ranked the papers by Guy Robertson, Hermann Stehle, Thobekile Makatini and Christiaan Marais to be the top contenders.



**Top contenders and Chairperson and Vice Chairperson**

The recipient was Christiaan Marais of AECOM for his paper on *Computational fluid dynamic modelling of the Spring Grove Dam's spillway*. We will be following a similar procedure during 2015. The Young Engineer must be the principal author and must also present it at the Conference.

### **Membership Contact Details**

Please inform the SANCOLD Secretary of changes in your e-mail address or other contact details.



**Christiaan Marais receiving the prize from Quentin Shaw for the best YEF Paper in 2014**

## SANCOLD Conference 2014 Paper: A first experience of Hardfill on the Wadi Umti Dam, Oman: Apology

SANCOLD received correspondence on the above paper which led to an apology given below. The matter has been solved in an amicable fashion and steps put in place to ensure that it will not happen again.

I would like to apologise for the impression of criticism against consulting engineers Artelia and the Ministry of Rural Municipalities and Water Resources of the Sultanate of Oman that I created in my SANCOLD paper on experience on *Hardfill at Wadi Umti Dam*. No criticism of either organisation was intended, or merited. I have the utmost respect for Artelia, the Ministry and all of the engineers of Artelia and the Ministry who were involved in the Umti project. In Wadi Umti Dam, the Ministry, Artelia and contractors PIP have created an exceptionally

well-engineered structure of which I believe they have the right to be very proud and that I am sure will perform its intended function extremely well for generations to come.

My role on the project was very minor, with limited contributory inputs and I did not have access to all information, nor all factors of influence. The full credit for the success of the impressive Umti project should be attributed to Artelia, the Ministry and PIP.

In trying to share with the SA dams community some personal perspectives and lessons learned through an involvement in the project, I neglected to give the deserved credit to Artelia and the Ministry for a very professionally implemented project and, in my opinion, the development of an extremely appropriate design solution, which I understand to be the first Hardfill dam in Oman (a landmark achievement!). The implementation of a "first" is always a challenging process, which was extremely well managed by the Engineer and the Owner in the case of Umti. During all engagements with Artelia, the Ministry and PIP on the project, I was consistently impressed with the competence and professionalism of all of the personnel involved. The paper provided no background related to the various constraints and difficult conditions under which the project was implemented and failed to recognise the high-quality services that I witnessed to be provided by Artelia throughout, consequently creating a skewed picture.

It was also remiss of me not to follow accepted protocol and to obtain the permission of the Ministry to publish the paper.

I would very much like to invite Artelia and the Ministry to present the full details of the Umti project to SANCOLD.

Quentin Shaw

*Ed:* In order to obviate future such problems, we now require that authors of papers obtain approval to publish from the responsible authorities.

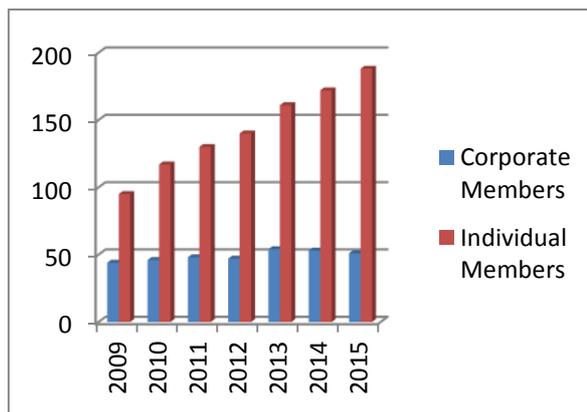
## SANCOLD Membership

SANCOLD has two membership classes namely:

- Corporate Membership;

- Individual Membership.

SANCOLD was restructured in September 2008 and a membership recruitment drive started shortly thereafter. The growth in the two membership categories over the years is depicted graphically below. The growth in Corporate Membership has been rather static. Individual membership has grown very well at a compound rate of about 15% per annum. I hope that the ECSA initiative discussed below will add further impetus to this increase.



**SANCOLD Membership from 2009 to 2015**

Invoices for the 2015 SANCOLD Membership fees were sent out at the end of January 2015. **Please remember to pay before 31 March 2015.**

## SANCOLD Award

Mention was made during the AGM that one of the award recipients would be Zoltan Kovács who was not in a position to travel. The Chairperson and Secretary paid a visit to Zoltan's home and handed over the Award certificate and citation which reads: *Zoltan worked in flood studies in the Hydrology Division of the former Department of Water Affairs and is best known for his Regionalisation of Extreme Floods in South Africa. He also conducted various flood studies following major floods and produced reports on these events. Zoltan has contributed greatly towards improving the safety of South African dams. It has been found in practice that around 30% of large dams had a deficient flood handling capacity.*

*Zoltan studied Civil Engineering at the Technical University of Budapest, 1956 (Hungary) and the Technical University of Delft, 1959 (The Netherlands). He worked for consultants in Spain and South Africa before joining the then Department of Water Affairs in 1975. He worked*

in the Hydrology Division and became the head of the Sub-directorate Flood Studies with the main responsibilities: determination of design floods for dams; field survey and hydrological study of very large floods; early (hydro-meteorological) flood forecasting for Vaal Dam; development and/or improvement of methods for the calculation of flood magnitudes. After retirement in 1993, Zoltan undertook consulting work in flood hydrology and hydraulics related to river engineering (e.g. in environmental studies), dams, road drainage.

Zoltan has published broadly in DWA technical reports (mainly hydrological documentation of large and extreme floods in South Africa, based on field surveys); papers in the Proceedings of national and international conferences and symposia and articles in South African and foreign technical/scientific journals. His work has been acknowledged and he has received several awards, amongst others the AD Lewis Medal from the Department of Water Affairs in 1993.

Zoltan Kovács is clearly an engineer of distinction and a fitting recipient of the SANCOLD Award.



**Zoltan and his wife Erna**

We had a great chat with Zoltan and his wife Erna followed by delicious refreshments.

## ICOLD 2015: Norway



Registration for the 25<sup>th</sup> ICOLD Congress to be held in Stavanger, Norway in June 2015 is now open. <http://www.icoldnorway2015.org>

## ICOLD 2016



The Local Organising Committee met in January.

## SANCOLD Management Committee

SANCOLD Members were informed in early December 2014 that David Cameron-Ellis and Henry-John Wright had been elected for a three year term of office. The Management Committee met on 9 February 2015 and appointed the new Treasurer and extended the appointment of the Secretary. Prof Jeff Smithers of the University of KZN was co-opted for expertise related to floods and Danie Brink for tailings dams. The HESA representation has changed to Prof Fanie van Vuuren of the University of Pretoria. Prof Basson remains on the MC by virtue of his ICOLD Vice Presidential position. The Management Committee and Exco for 2015 are shown below.

Name	Term of Office	Remarks
Danie <b>Badenhorst*</b>	2015	Chairperson
Quentin <b>Shaw*</b>	2015	Vice Chair
David <b>Cameron-Ellis*</b>	2017	Treasurer
Paul <b>Roberts*</b>	2015	Secretary
Gerrit <b>Basson</b>	2018	ICOLD VP
Andre' <b>Bester</b>	2015	Webmaster
Michelle <b>Blaeser</b>	2015	
Danie <b>Brink</b>	2015	Co-opted
Louis <b>Hattingh*</b>	2016	
Mo <b>Moshodi</b>	2016	YEF
Beason <b>Mwaka</b>	2016	DWS (P&I)
Wally <b>Ramokopa*</b>	2017	DWS (NWRI)
Jeff <b>Smithers</b>	2015	Co-opted
Mari <b>Trumpelmann</b>	2016	
Fanie <b>van Vuuren</b>	2017	HESA
Eduard <b>Vorster/</b> Tente <b>Tente</b> (Alternate)	2015	SAICE
Henry-John <b>Wright*</b>	2017	

\*Exco Members

## **SANCOLD Scholarships (2015-2016)**

The SANCOLD Scholarship for 2015-16 has been awarded to Frank Denys who will be studying for a PhD at the University of Stellenbosch. His thesis topic will be on *Investigating the Effects of Aeration on Piano Key Weir Behaviour*. Congratulations Frank!



**Frank Denys**

SANCOLD is currently in a positive financial position and the Management Committee is considering further scholarships and the conditions relating to the field of study. More detail about this later and also on the website.

## **SANCOLD Cares!**

I received this heart-warming message from Gert Cloete of Namibia recently:



**Gert Cloete**

*Hereby just to inform you, two weeks ago I successfully defended my dissertation at Stellenbosch University. The graduation ceremony is end March.*

*I would like to thank you and Beason (Mwaka) who, in 2009, supported me from SANCOLD's side to attend the ICOLD Congress in Brazil. This conference was a great exposure and on it I met guys like Des Hartford (Canada), Adama Nombre (Burkina Faso), Imo Ekpo (Nigeria), David Bowles (USA), Leon Furstenburg (RSA), Andy Hughes and Peter Mason (UK dam safety), who helped me a*

*lot along the way.....some with whom I still have contact.*

*Typically of PhD's, on several occasions I just didn't see a way forward and contemplated giving up, however it was incidents like SANCOLD's support that made it possible for me to meet the right people who in later years opened other doors, assisting me in my research.*

*It is such a relief having a normal life again.....I've been working on the PhD for more than seven years now.*

The title of Gert's thesis is "Risk based dam safety in Namibia: a quantitative approach" and a paper on aspects of the thesis topic was presented during the SANCOLD Conference 2014. The thesis supervisors were Prof GR Basson, Prof JV Retief, and Dr C Barnardo-Viljoen. The thesis abstract is given below.

The Rational Quantitative Optimal risk model assesses risk over a portfolio of dams, guiding the decision makers on a maintenance strategy. The model is based on principles of risk, but an assessment of a portfolio of dams provides discrete optimal results, not expressed in terms of probability. Employing techniques of palaeoflood hydrology, the Regional Maximum Flood (RMF) model of Namibia is updated, improving confidence in probabilities allocated to extreme flood events: palaeoflood results confirmed that the RMF has an annual recurrence interval of approximately 10 000 years. These flood probabilities have direct bearing on the outcome of the risk model.

Gert intends to participate in ICOLD 2016 in Johannesburg to present this work to the international community.

## **ICOLD Technical Committees and SANCOLD Working Groups**

SANCOLD is now represented on 14 ICOLD Committees. SANCOLD Working Groups have also been formed for these Committees. If anyone is interested in participating in a Working Group, please contact the SANCOLD Secretary. We received several offers during SANCOLD 2014.

## SANCOLD Conference 2015

The planning for the SANCOLD Conference 2015 is already far advanced. The Conference will be held in **Cape Town** from **Tuesday 1 September to Thursday 3 September 2015**. **We had to change the dates by one day due to venue availability**. Please diarise these dates! We are presenting two Technical Tours to dams as detailed in the Announcement which is on the SANCOLD website.

The Conference theme is: **“Dam safety, maintenance & rehabilitation of dams in Southern Africa.”** The Call for Papers and Conference announcement was circulated in January 2015.

A Conference date in early September 2015 has been selected so as to provide Delegates and Accompanying Persons the opportunity of visiting the Namaqualand flowers. In addition we needed a gap between our SANCOLD Conference and ICOLD 2016 which is in May 2016.



**Dams and flowers!**

## Lesotho Highlands Water Project Phase II -service provider procurement has commenced

The Lesotho Highlands Development Authority has inform SANCOLD that the procurement of consultants for the design of the main works, the environmental, social and public health impact assessments and resettlement contracts of Phase II of the Lesotho Highlands Water Project has commenced and will continue for the next few months. Prequalification of the dam and tunnel engineering consultants is expected to start during January 2015. Pertinent information including procurement notices for professional services contracts, is available on the Lesotho Highlands Water Project Phase II website at <http://www.lhwp.org.ls>



**LHWP: Katse Dam**

Additional information about the project is below.

### About the project:

The Lesotho Highlands Water Project (LHWP) is a multi-billion Maloti/Rand bi-national project which was established by the Treaty of 1986 signed between the Governments of the Kingdom of Lesotho and the Republic of South Africa.

It comprises water transfer and hydropower generation components and ancillary developments. The LHWP water transfer component entails the construction of dams and tunnels in Lesotho for the purpose of enhancing the use of water from the Senqu (Orange) River and its tributaries by storing, regulating, diverting and controlling the flow to effect the delivery of specified quantities to South Africa and by utilizing such delivery system to generate hydro-electric power in Lesotho.

The Water Transfer Component of the LHWP Phase II comprises a 165m high Concrete-Faced Rockfill Dam (CFRD) at Polihali downstream of the confluence of the Khubelu and Senqu (Orange) Rivers and a gravity tunnel that will connect Polihali Reservoir to the Katse Reservoir.

The hydropower component shall comprise the Kobong Pump Storage Scheme linked to the existing Katse Reservoir as the lower reservoir with a new upper reservoir, or any other similar scheme. The implementation of the Kobong Scheme is subject to agreement on the outcome of a joint final feasibility study.

Other Phase II activities include the establishment of advance infrastructure (roads, camps, power line, telecommunication system, etc.), feeder roads and implementation of environmental, public health and social impact and resettlement mitigation measures.

Phase I of the four-phased project was commissioned in 2003/4.

## Dambreak Analysis Workshop

SANCOLD and the Department of Civil Engineering of the University of Pretoria organised a half-day workshop on dambreak analysis on 10 February 2015. The South African Dam Safety Regulations require that an Emergency Preparedness Plan be prepared for Category II and III dams and this would involve an analysis of the inundated area downstream of the dam in the event of a dam failure. We had an overwhelming attendance of 95 participants. The main presenter was Mr Chris Goodell from West Consultants, USA who presented the new developments with the HEC-RAS software. Louis Hattingh and Scherrit Knoesen provided local inputs. The four presentations have been loaded on to the SANCOLD website, [www.sancold.org.za](http://www.sancold.org.za).

As a result of the experience with the workshop, the SANCOLD Management Committee is considering other short courses/workshops in association with academic institutions. Almost all of the Participants completed a Workshop Evaluation form which has been analysed. A high positive rating was given to the Workshop in addition to a number of positive suggestions which will be taken into account for future events.



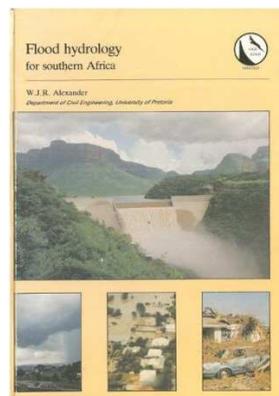
**Prof Fanie van Vuuren addressing the Group**



**Organisers and Presenters**

**L to R: Marco van Dijk, Chris Goodell, Danie Badenhorst, Fanie van Vuuren, Paul Roberts, Louis Hattingh and Scherrit Knoesen**

## SANCOLD Flood Hydrology Handbook



The SANCOLD Flood Hydrology Handbook (1990) by WJR Alexander is out of print, but is still used by practitioners. The revision of the SANCOLD Guideline on Floods will eventually replace the 1990 Flood Hydrology Handbook. In order to meet the demand for the publication, it has been scanned and is available in electronic format. The publication is 472 pages long and the cost of the electronic version for members is R150.00. Contact the SANCOLD Treasurer for orders at [treasurer@sancold.org.za](mailto:treasurer@sancold.org.za)

### CPD Credits for ICOLD Events

Various queries have been received from SANCOLD Members regarding CPD accreditation for ICOLD Events. Enquiries were made via SAICE and the following feedback was received:

*“Any event outside of the country does not require a SAICE or other VA validation number. The delegate simply provides one of the following as proof of attendance/participation to claim the CPD points;*

- 1. Certificate of attendance.*
- 2. Proof of registration and payment for attendance.*

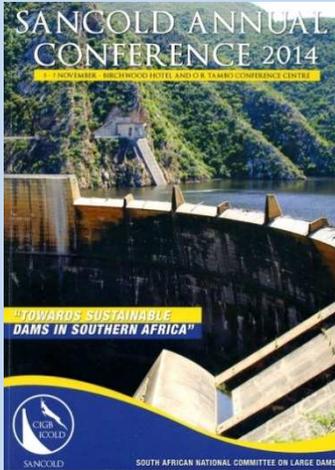
*Unfortunately this would require a manual submission of the ECSA forms as it cannot be picked up on the ECSA website. The candidate will only have to provide evidence if they are selected for audit by ECSA so I would suggest they keep the paperwork on file in case.*

*1 CPD = 8-10 hours (full day)”*

Please keep this information for future use.

## **Editor: SANCOLD News**

Editor: Paul Roberts, Secretary: SANCOLD  
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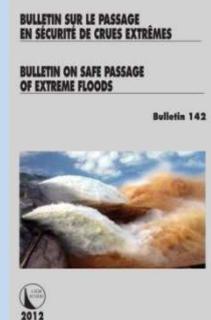
A limited number of the printed Proceedings (588 pages) are available at R200 each. Contact the SANCOLD Secretary [secretary@sancold.org.za](mailto:secretary@sancold.org.za)

## **SANCOLD now a Voluntary Association of ECSA (VA A0046)**

ECSA is an important entity for many dam engineers as the regulatory body for Professional Engineers. ECSA also has a Committee which screens Approved Professional Persons in terms of the dam safety regulations.

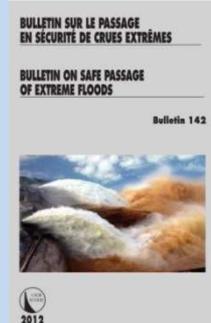
ECSA has provision for **Voluntary Associations** in different categories. One of the benefits of recognition is that registered members of a Recognised Voluntary Association (Categories A and B only) enjoy partial exemption from payment of their ECSA annual fees. This partial exemption of fees is substantial and applies to both Candidate and Registered Professional Engineers. In addition ECSA also provides CPD points to such registered persons who are members of SANCOLD. Your SANCOLD Membership Certificate will become an important document in this regard! SANCOLD applied and approval was received on 6 February 2015. .

## **Free ICOLD Publications for SANCOLD Members**



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.

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