



# SANCOLD News

Newsletter of the South African National Committee on Large Dams  
[www.sancold.org.za](http://www.sancold.org.za)

November 2014

## SPECIAL EDITION! SANCOLD CONFERENCE 2014 and ICOLD 2016

### ICOLD 2016

The ICOLD Secretary-General (ICOLD SG), Mr Michel de Vivo visited South Africa from 2 to 6 November 2014 with the prime purpose of inspecting the facilities and holding a meeting with the Local Organising Committee (LOC) in preparation for the ICOLD Annual Meeting in May 2016 which will be held in Sandton, Johannesburg. The ICOLD President, Mr Adama Nambre from Burkina Faso was to have joined the Secretary-General, but had to cancel at the last minute due to the unrest in his country. He sent his greetings and good wishes for a successful Conference.

Pre- and Post-meeting Study Tours with a maximum duration of a week are also arranged to dams in South Africa and neighbouring countries. We expect about 1 200 delegates from the 97 ICOLD Countries.

The meeting covered a large range of topics and was very useful in refining the programme. Various presentations were made such as the framework for the Symposium and Workshops and the various social and cultural activities.

Several hotels of different classes near the Sandton Convention Centre were also inspected.

It was very reassuring when the Secretary-General stated that “*you have a very good team!*”



*ICOLD SG meeting with the LOC*



*Inspecting the Sandton Convention Centre (SCC)*

The Sandton Convention Centre was inspected in detail and the Secretary-General was impressed with its facilities. The only problem the LOC has is to find enough small venues for the 25 Technical Committee meetings as there are not enough in the SCC. We need these to be within a short walking distance from the SCC.



***Inspecting the Lesedi Cultural Village near Hartebeespoort Dam***

A Cultural Evening is held mid-week and Lesedi offers an interesting insight into the peoples of South Africa.



***Meeting with the Executive Mayor of JHB  
L to R: Michel de Vivo, HE the Executive Mayor,  
Mr Parks Tau and Danie Badenhorst***

We met up with the Executive Mayor of Johannesburg who was most enthusiastic about the ICOLD 2016 Event and undertook to co-operate in terms of a protocol that the City has for such Events.

Much work remains in organising ICOLD 2016 and we will need a number of SANCOLD Volunteers particularly for activities related to:

- One-Day Technical Tours;
- Study Tours;
- Symposium and Workshop;
- Raising of Sponsorship.

Please send in your names to the SANCOLD Secretary!

## **SANCOLD Conference 2014**

The SANCOLD Conference 2014 was held at the Birchwood Conference Centre near the OR Tambo Airport. We had a record attendance of 265 registrants which bodes well for our next Conference and ICOLD 2016. Several innovations were introduced this year namely:

- A Professional Conference Organiser (Event Dynamics) was appointed;
- A professional photographer was engaged to photograph key parts of the Conference. Delegates will be able to gain access to the photographs via an Internet link;
- Three optional technical tours were arranged.



***Delegates prior to the start of a session***



***Event Dynamics Team***



***A Swiss cow bell notified delegates of the start of sessions***



**SANCOLD Chairperson, Danie Badenhorst**

Danie Badenhorst in opening the Conference mentioned that it was a special event being attended by the ICOLD Secretary-General who would deliver the Keynote Address. Countries attending the Conference were Botswana, France, Lesotho, Namibia, Zambia, Swaziland, Switzerland, Germany and Japan.

The Conference theme was: *Towards sustainable dams in Southern Africa*. Some 52 papers had been grouped into sessions with a specific theme as shown below.

- Technical advances in the design and construction of new dams;
- Hydrology, hydraulics and flood discharge works;
- Hydropower;
- Operation, maintenance and refurbishment of dams;
- Tailings and water quality dams;
- Advances in dam safety risk management;
- Environmental and social issues related to dams and reservoirs.

Young Engineers produced and presented 18 papers. We were very pleased that around 65 Young Engineers indicated that they would be attending the YEF meeting and social: this bodes well for the future of dam engineering in South and Southern Africa.

The papers reflect not only local and regional experience, but also international experience of South African engineers engaged on such projects. Major projects dealt with in papers are: LHWP, Kariba, Cahora Bassa, uMkhomazi-Ungeni Water Project, 273m high Yusufeli arch dam. The papers also reflect new developments

and approaches such as in rollcrete and geofabrics where SANCOLD Members are making important inputs into state-of-the-art publications of ICOLD.

Three technical tours on Friday related to acid mine drainage and tailings dams. These will be well attended and around 60% of the delegates went on a tour.

The Conference has been accredited with 3 CPD points by SAICE on behalf of ECSA

The number of delegates and the interesting contributions showed that there is a need for SANCOLD and a need for a Conference such as we held. Here we can share dam engineering experiences and knowledge.

ICOLD Secretary-General, Michel de Vivo delivered the Keynote Address. He first relayed a Welcoming Statement from the ICOLD President. A slightly edited excerpt is given below:

*"I would like to emphasise what I think is an important role of SANCOLD for the development of the art and science of Dams in Africa. South Africa has achieved lot of progress and has accumulated important know-how and a knowledge base through an extensive development of the water and energy resources in South Africa and in many countries of the Southern Africa region. This knowledge base will be very useful for the rest of the African continent. I am glad to see and encourage the initiative of our elder Paul Roberts to share with the others members of the Africa Regional Club of ICOLD (ARC) the newsletter of SANCOLD. I would like also to appreciate the work of our friend and Colleague Vice President of ICOLD Prof Gerrit Basson, Chairman of the ARC. I would like to encourage SANCOLD for the development of cooperation between African National Committees of ICOLD to help to strengthen the Profession and ICOLD in Africa.*

*Developing the Profession is a key factor for speeding the progress in Africa where a huge untapped potential of water and energy resources are available and also where the needs are critical. In the same time Africa is the continent where the profession is still weak and facing difficult technical challenges due to the*

*peculiarities of our environment. I will mention just one example related to the need to advance the soils mechanics and geotechnical knowledge related to tropical unsaturated soils and their use as foundations and materials for Dams which need to be developed.*

*On behalf of ICOLD, it is my pleasure to thank SANCOLD and its Chairperson for its important contribution to the strengthening of ICOLD and for the promotion of the best practices in dam and hydropower engineering to contribute to sustainable development in Southern Africa and the World. SANCOLD is providing important support to the Central Office for improving the quality of our Bulletins. SANCOLD has provided and is providing important support for ICOLD management and direction through the contribution of Honorary President TPC VAN ROBBROECK, Past Vice president Paul ROBERTS and current Vice President Prof G BASSON. Many SANCOLD representatives are very active in ICOLD Technical Committees as chairpersons or members and SANCOLD has hosted several successful annual meetings and a congress of ICOLD like the ICOLD CONGRESS in DURBAN in 1994. The experience gained by SANCOLD through the efficient development of the scarce water resources of South Africa for cheap and clean energy production, for water supply and irrigation has shifted SOUTH AFRICA to a leading position in the World. This experience is of high interest for the ICOLD community and I am sure that the outcome of the Conference will provide more for the profession.*

*I would like to congratulate SANCOLD for hosting the Annual Meeting of ICOLD for 2016 and I am confident that we will have a great success taking into account the commitment and ability of SANCOLD, the political support from the country Authorities and the rich culture and history of this great country the country of Our MADIBA. I wish a great success to the SANCOLD Conference and see you in Johannesburg 2016.*

Michel de Vivo gave an excellent Keynote Address which gave an international overview of dam engineering. There are some 50 000 large dams in the world. The Secretary-General stated that *“Dam engineers are the architects of water!”*

Africa is lagging behind other Continents regarding water resources development as only 6% of the resource has been developed. South Africa is an exception within the Continent. Only about 5% of cultivated land is irrigated in Africa while only 8% of the hydropower potential has been developed. Clearly there remains much to do in water and energy resource development in Africa.

Michel also gave an overview of ICOLD and the role it plays. ICOLD is a leading International Organisation which provides a forum of exchange of knowledge and experience in Dam Engineering, Construction, Operation and Maintenance. ICOLD leads the profession in setting guidelines to ensure that dams are built safely, economically and in an environmentally and socially sustainable manner.

The Secretary-General concluded with an apt quote from the late Former President Nelson Mandela:

*“Political freedom alone is still not enough if you lack clean water. Freedom alone is not enough without light to read at night, without time or access to water to irrigate your farm, without the ability to catch fish to feed your family. For these reasons the struggle for sustainable development nearly equals the struggle for political freedom. They can grow together or they can unravel each other.”*



**SANCOLD Vice Chairperson Quentin Shaw handing over a presentation to Michel de Vivo**

We were very pleased that we had a strong delegation from the Zambezi River Authority. Themba Mhlanga, Senior Manager (Projects and Dam Safety) gave an excellent presentation on Kariba Dam. There have been many scare stories in the media regarding the safety of

Kariba Dam and this authoritative paper certainly set the record straight. SANCOLD Members are urged to read it!



**Themba Mhlanga of the Zambezi River Authority delivering his paper on the rehabilitation of Kariba Dam**

After the 55 years of operation, the Kariba Dam now requires some major rehabilitation works on its spillway and plunge pool for continued safe operation. The rehabilitation of the spillway upstream control facility will involve the refurbishment of the upstream stop-beam guides and replacement of secondary concrete to prevent failure during operation of stop-beams as well as the fabrication and installation of an emergency gate and a new gantry to prevent uncontrolled loss of water in the event of floodgate failure. The plunge pool works will involve a reshaping of the pool profile by rock excavation and subsequent protection of the upstream face of the pool profile with a reinforced concrete mattress that will prevent erosion of the fault zone of weak rock.

Detailed designs have been produced for these works and the anticipated time frames for implementation of the projects are 8 and 3 years for the spillway and plunge pool respectively. These time frames take into due consideration the continued operational safety of the dam and associated infrastructure, as well as minimum interruptions to power generation. This paper discusses the salient features of the projects and the key design considerations behind the preferred solutions.

SANCOLD Management Committee Member, Kelvin Legge made an interesting presentation on the progress on updating ICOLD Bulletin 55: *Geotextiles as filters and transitions in embankment dams* which he and others had been undertaking. Kelvin has recently been

recognised internationally by his appointment as Chairman of the Technical Committee on Filters of the International Geosynthetic Society. Well done Kelvin!

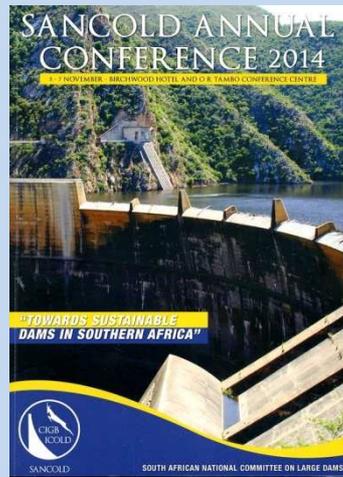


**Kelvin Legge presenting his paper on geotextiles in dams**



**Louis Hattingh wanting to pose a question!**

Danie Badenhorst closed the Conference and thanked all for their participation.



SANCOLD ANNUAL CONFERENCE 2014  
15-18 NOVEMBER - MARCHWOOD HOTEL AND O'SAMBO CONFERENCE CENTRE

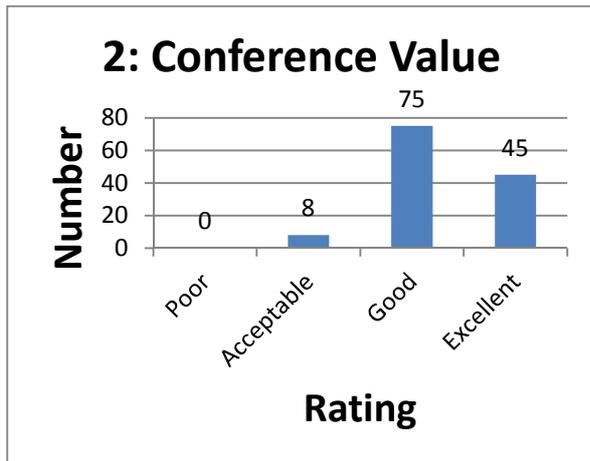
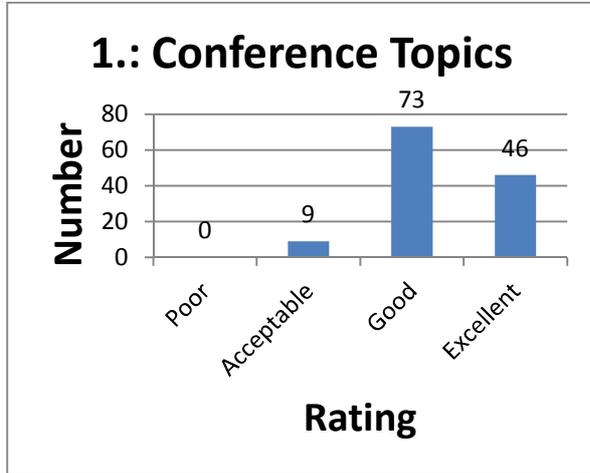
"TOWARDS SUSTAINABLE DAMS IN SOUTHERN AFRICA"

SANCOLD SOUTH AFRICAN NATIONAL COMMITTEE ON LARGE DAMS

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)

## Evaluation of SANCOLD 2014

A detailed Evaluation Form was handed to delegates and about a 50% return was achieved. The ratings and comments have all been captured to aid future improvements and also for inputs to ICOLD 2016. The results of the rating of a few of the critical parameters are shown graphically below.

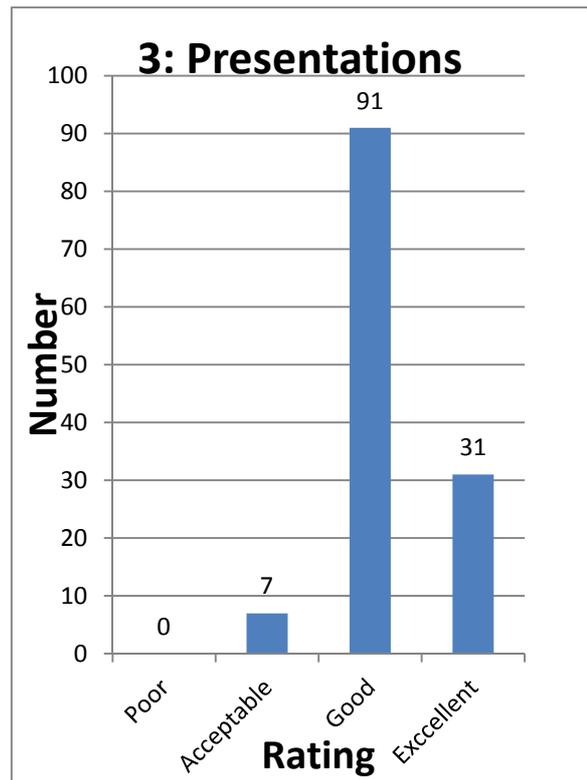


The other ratings peaked as follows:

- Venue: Good;
- Food and refreshments: Good;
- Audio-Visual: Good;
- Conference length: Just right;
- Number of papers: Just right;
- Proceedings: 40% want it in hardcopy, while 60% of delegates want it electronically.

One of the most significant remarks was the length of presentations. Many felt that a longer time than the 15 minutes per person for presentation and discussion should be allowed. This is obviously a compromise as increasing the time allocation will reduce the number of speaking opportunities. It is the intention next

year to have one long “keynote” presentation per session and to allow more discussion time.



## SANCOLD AGM 2014

The AGM was well attended and the minutes of the meeting and the Annual Report 2014 will be circulated to members and also placed on the SANCOLD website.

## SANCOLD Young Engineers’ Forum

The Chairperson **Motebele Moshodi** opened the YEF meeting which was fairly well attended. A small YEF Working Group was formed to assist Mo with future activities.



**YEF Chairperson Mo Moshodi**



**ICOLD SG addressing the YEF**

The Secretary-General addressed the YEF and stated how pleased he was to see how many young Engineers had participated in the Conference. He stated that “it takes 20 years to become an expert in dam engineering”.

SANCOLD Secretary Paul Roberts also addressed the group and encouraged the attendees to participate in the SANCOLD Working Groups as a way of becoming involved and learning.



**A sumptuous African meal in the lapa**

### SANCOLD 2014 Technical Tours

We arranged three technical tours this year to:

- Acid Mine Drainage (AMD) Treatment Works;
- Cullinan Diamond Mine Tailings Dam;
- Kareerand Tailings Dam.

The tours were well attended and feedback indicates that they were most interesting and informative.

ICOLD deals not only with “clean” water dams, but also has a Technical Committee devoted to Tailings Dams.



**Tour group inspecting the large submersible pumps at the AMD Project**



**Cullinan Diamond Mine Tailings Dam**



**Kareerand Tailings Dam**

### ICOLD 2016

The SANCOLD Secretary Paul Roberts made a presentation on ICOLD 2016 which is to be hosted in South Africa in May 2016 in Johannesburg. More detail to follow in future Newsletters.



## SANCOLD Management Committee Elections

Six candidates were nominated and the election is underway. Remember to vote before **17:00 on Friday 28 November 2014**.

## SANCOLD Scholarship (2015-2016)

Five applications have been received and are being evaluated.

## ICOLD Technical Committees and SANCOLD Working Groups

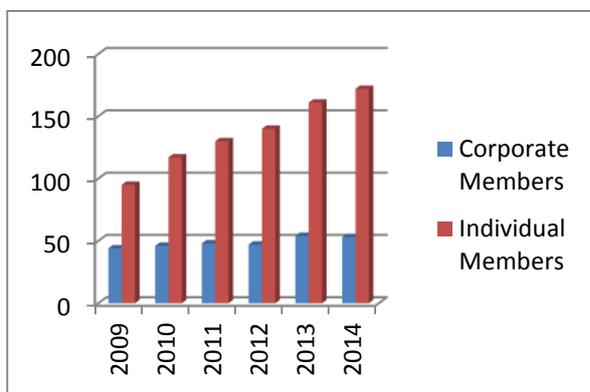
SANCOLD is now represented on 14 ICOLD Committees. SANCOLD Working Groups have also been formed for these Committees. If anyone is interested in participating in a Working Group, please contact the SANCOLD Secretary. We received several offers during SANCOLD 2014.

## SANCOLD 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 slow. 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. Some 13 applications were received after SANCOLD 2014.



**SANCOLD Membership from 2009 to 2014**

Invoices for the 2015 SANCOLD Membership fees will be sent out either in December or early January 2015.

## SANCOLD 2015

The planning for the SANCOLD Conference 2015 is already far advanced. The Conference will be held in **Cape Town** from **Wednesday 2 September to Friday 4 September 2015**. Please diarise these dates! We are evaluating two Technical Tours to dams and also will soon inspect the Conference venue.

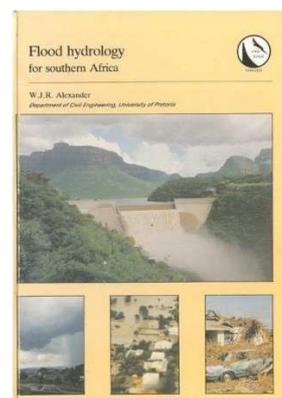
The Conference theme is: **“Dam safety, maintenance & rehabilitation of small & large dams in Southern Africa.”** The Call for Papers and Conference announcement will be circulated in mid-January 2015.

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!**

## 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.

### **SANCOLD and ECSA**

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 has applied and approval is expected very soon.

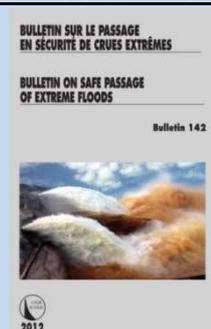
### **Membership Contact Details**

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

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### **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.