



## SANCOLD NEWS 2009.5.31

### SANCOLD Conference November 2009

The SANCOLD Conference and AGM details are on the SANCOLD website and also on [www.civeng.sun.ac.za/sancold/](http://www.civeng.sun.ac.za/sancold/). Please note that a block booking for accommodation has been made at the Alpine Heath Resort, but delegates must make their own reservations. The request for accommodation must be sent to Christel Roets, Banqueting Co-ordinator, Alpine Heath Resort, PO Box 112, Jagersrust, 3354 Tel: 036 438 8500, Direct line: 036 438 8576, Fax: 086 612 6774, Email: [info@alpineheath.co.za](mailto:info@alpineheath.co.za). Website: [www.alpineheath.co.za](http://www.alpineheath.co.za). If you try to make reservations via the reservation facility on the website, it will indicate that no accommodation is available for the first few days of the SANCOLD Conference (because of the blocked SANCOLD reservation). Please make your reservations early to avoid disappointment and also send in your registration form.

The deadline for the submission of Abstracts (see website for the Abstract template) has been extended to **12 June 2009**. The notification of acceptance to Authors will be undertaken during the period of 5 to 15 June 2009.

### South African Register of Large Dams

SANCOLD is pleased to announce that the South African Register of Large Dams can now be downloaded from the SANCOLD website. The Register is given in the form of a spreadsheet as well as interesting facts, some of which are reflected below. The spreadsheet provides the facility of being able to sort the information easily and to draw interesting conclusions. The South African Register of January 2009 contains information pertaining to 1 082 large dams. To qualify for inclusion in the Register, a dam must meet the following criteria:

- The dam must have a height of not less than 15m.
- Dams between 5m and 15m impounding more than 3 million m<sup>3</sup> are also included.

### Interesting South African Dam Facts

Interesting information abstracted from the South African Register of Large Dams is:

- The oldest dam is the Upper Mpate built near Dundee in 1880. It is an earthfill embankment with a height of 18m and crest length of 293m.
- The total storage capacity of the 1 086 dams is 31 619 million m<sup>3</sup> which is about 65% of the mean annual runoff of South Africa of 49 000 million m<sup>3</sup>.
- The development of major dams over time can be determined from the Register. The initial development rate was low, there was a lull in dam development during the Second World War, but accelerated in the period from 1970 to 1980 with the construction of the Orange River Project and the Thukela-Vaal Project. There has been a progressive decline in dam development from 1980. While the rate of development has reduced, dams will still be required to provide water for various purposes to meet future rising demands.
- The percentage distribution of dam types in South Africa is shown below. Most dams in South Africa are constructed from earthfill.

| Dam type               | % of Total |
|------------------------|------------|
| Earthfill              | 74%        |
| Rockfill               | 2%         |
| Concrete gravity       | 12%        |
| Concrete arch/buttress | 10%        |

- The distribution of the heights of large dams in South Africa is tabulated below. Most large dams in South Africa are lower than 30 m in height.

| Height range m | Number of dams | % of total % |
|----------------|----------------|--------------|
| <30            | 950            | 85%          |
| 31-50          | 27             | 11%          |
| 51-70          | 28             | 2%           |
| 71-90          | 8              | 1%           |
| >90            | 2              | 0.2%         |

- The highest dam in South Africa is the Vanderkloof Dam on the Orange River with a height of 108 m. The **Big Five Dams** in South Africa are given in the table below.

| Dam<br>(alphabetic order) | Height<br>m | Volume<br>million m <sup>3</sup> | Storage<br>capacity<br>million m <sup>3</sup> | Water<br>surface area<br>km <sup>2</sup> |
|---------------------------|-------------|----------------------------------|---|--|
| Gariep                    | 88          | 1.4                              | 5 343   | 352                                      |
| Pongolapoort              | 89          | 0.6                              | 2 267   | 132                                      |
| Sterkfontein              | 93          | 19.8                             | 2 617   | 67                                       |
| Vaal                      | 63          | 1.4                              | 2 610   | 323                                      |
| Vanderkloof               | 108         | 1.3                              | 3 187   | 133                                      |

- The storage capacity of the Sterkfontein Dam in the upper Vaal River catchment is virtually the same as that of Vaal Dam, while its water surface area is only 20% of that of Vaal Dam. The evaporation losses from Sterkfontein Dam are accordingly far lower than those from Vaal Dam. Water is therefore kept in reserve in the more efficient Sterkfontein Dam and only released once Vaal Dam is at its minimum operating level thus saving appreciable evaporative losses.
- The dam with the largest storage capacity is the Gariep Dam on the Orange River with a capacity of 5 343 million m<sup>3</sup>.
- The dam with the longest crest is Bloemhof on the Vaal River with a length of 4 270m.
- The shortest dam is Hellsgate near Uitenhage built in 1910 with a crest length of only 4 m. This concrete dam with a height of 26 m is built in a narrow gorge.
- The dam with the largest volume is Sterkfontein near Harrismith with an earthfill volume of 19.8 million m<sup>3</sup>. Sterkfontein Dam is the only South African dam in the ICOLD Register of the World's Largest Dams on account of this characteristic.
- The largest floods are expected in the Vaal River and provision has been made in Vaal Dam for a spillway capacity of 25 000 m<sup>3</sup>/s. The two major dams on the Orange River each have a spillway capacity of 20 400 m<sup>3</sup>/s.
- The dam with the largest water surface area is Gariep at 352 km<sup>2</sup> (352 million m<sup>2</sup>).
- The Woodhead Dam on Table Mountain constructed in 1897 (50m height) was recently awarded the American Society of Civil Engineers (ASCE) International Landmark status in 2008. See SAICE Journal October 2008.

### **SANCOLD website: Access to Member's Page**

The Member's Page contains documentation such as minutes of meetings and other information which will be restricted to SANCOLD Members. If you are interested in gaining access to this information, please contact the SANCOLD Webmaster who will provide you with the access information. Send an e-mail to [webmaster@sancold.org.za](mailto:webmaster@sancold.org.za).

### **Advertisements on the SANCOLD website**

Provision has been made for posting advertisements on the SANCOLD website at very reasonable rates. Suppliers, contractors and consultants involved in the dam industry are encouraged to make use of this facility. Please contact the SANCOLD Secretary for further information.

### **Commercial opportunities**

SANCOLD has already distributed information to members regarding commercial opportunities in the dam industry and the intention is to make this facility a regular feature. If you require relevant information to be circulated to SANCOLD members regarding commercial opportunities such as the request for consultancy proposals or tenders for construction contracts, please supply the information to the SANCOLD: Secretary.

### **Outstanding membership fees**

SANCOLD calls on members to pay their outstanding membership fees as soon as possible. Appreciation is expressed to those members who responded to the appeal for payment in the last Newsletter. **Only paid-up members are entitled to nominate and vote at the AGM.**

### **ICOLD draft reports**

The following draft ICOLD reports have been received for comment and considered for approval at the next Executive Meeting in May 2010 (Hanoi, Vietnam). Please contact the SANCOLD Secretary if you wish to receive a copy of the draft report and will undertake to provide comment.

- Sedimentation and Sustainable Use of Reservoirs and River Systems (3.1 MB, 187 pages). Prof Gerrit Basson of the University of Stellenbosch is the ICOLD Committee Chairperson.

- Seismic parameters for large dams (update of 1989 Bulletin 72) [1 MB, 42 pages].

### **ANCOLD 2009 Conference**

The ANCOLD 2009 Conference will be held in Adelaide from 11 to 15 November 2009. The theme of the Conference is "*Dams: where to next in climates of change?*" Further detail is available on [www.ancold.org.au](http://www.ancold.org.au)

### **2009 Abruzzo earthquake, Italy**

The Italian Committee on Large Dams has sent SANCOLD technical information relating to the above seismic event and the impact on 22 large dams. Please contact the SANCOLD Secretary should you wish to receive an electronic copy of the information.

### **Features in the next SANCOLD News**

We will give you feedback on the ICOLD Annual Meeting and Congress in Brasilia.

Regards

Paul Roberts

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