



water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

KEYNOTE ADDRESS BY Ms. NOMVULA MOKONYANE, MINISTER OF WATER AND SANITATION DURING THE OPENING OF THE INTERNATIONAL COMMISSION ON LARGE DAMS (ICOLD) SYMPOSIUM HELD AT THE SANDTON CONVENTION CENTRE, JOHANNESBURG,

18 MAY 2016

The President of the International Commission on Large Dams, Dr Schleiss
Honourable Minister of Water of the Republic of Morocco , Ms Charafat El
Yedri Afailal

Honourable Vice Minister of the Dept. of International Cooperation, Science
and Technology in China: Vice Minister Liu Ning

SANCOLD and ICOLD Board members

Distinguished Guests

Ladies and Gentlemen

Introduction

I have a great pleasure in welcoming you all to South Africa and to the 84th International Committee on Large Dams (ICOLD) International Symposium. The title for this year's event: “**Appropriate Technology to ensure proper Development, Operation and Maintenance of Dams in Developing Countries**” is very relevant to the challenges and the type of solutions

needed to address our water needs. A developing country such as South Africa, is looking for new, and environmentally friendly advanced solutions which will boost the economy and at the same time ensuring that the poorest of the poor are able to access fresh, clean water and that the private sector such as mining, agriculture, industry is able also able this important resource. This symposium is not only important for South Africa, but Africa as a whole should be left a richer country when it comes to enhanced dam engineering knowledge.

Dam engineering in the current drought situation in South Africa

South Africa and the entire region have in the past few months being experiencing severe drought which has last been experienced in the past 34 years. The country's dam levels averaged 34% then as compared to the 2015 dam levels of approximately 55% recorded in January 2016. This coupled with the El Nino phenomenon, became a wake-up call to a most South Africans that water is a precious resource which needs to be guarded and preserved. It is a basic human right enshrined in our constitution and it is because of this that our government, is working very hard to ensure that everyone benefits and enjoys this important basic human need.

South Africa is a water scarce country, with a mean annual rainfall of approximately 450 mm (*as compared to a global average of 860 mm*). Dam building has always been an important water storage mechanism, therefore the need for improved technological advances is very important to address issues of drought in the future as well as utilising our dams to generate hydro-power electricity. To address water shortage challenges which are not related to the drought situation but to historical issues, the Department of

Water and Sanitation is embarking on turning single use into multi-purpose use dams and this requires engineering and technical advances, to ensure that those who did not have access to water, receives water. Business, industry and the irrigation sector should also ensure that this scarce resource is shared and not only benefits the fortunate few.

South Africa has in the past two decades constructed at least ten (10) dams (i.e. Inyaka, Nandoni, Berg River, Springrove, De Hoop, Ludeke, Qedusizi, Driekoppies Dam and the two dams at the Ingula Pump Storage scheme in the Drakensberg).

We have plans to build or expand six dams over the next decade to address the long-term water and sanitation needs of the country. The dams identified by the government include the dam on the Mzimvubu River which aims to support the support the socio-economic developments in the Eastern Cape.

We have also commenced with the feasibility study on a project to augment water supply to the City of Cape Town and the surrounding areas as well as the Zalu dam along the Xura river in the Eastern Cape. We also mentioned in our second National Water Resources Strategy (NWRS-2) that a dam on the Mkomazi river is being considered to augment supplies to eThekweni-Msunduzi Metropolitan areas.

The department has also commenced with plans to raise the Clanwilliam Dam, Hazelmere Dam and Tzaneen Dam. Construction of the Polihali Dam is Lesotho will commence soon and this will also provide the water to Gauteng, Free State and Kwa-Zulu Natal provinces. This project is being prepared for implementation by the government of Lesotho and South Africa

through the Lesotho Highlands Development Authority, with completion expected in 2020.

International shared water resources and co-operation in the region

South Africa shares a number of river basins with its neighbours. This requires South Africa to have long-term cooperative arrangements with its neighbours to avoid water availability being a constraint on future growth. Phase II of the Lesotho Highlands Water Project is currently underway with the construction of the Polihali Dam expected to commence soon. This important bi-lateral collaboration will benefit both the Kingdom of Lesotho and the Republic of South Africa. Phase II of the Lesotho Highlands Water Project will advance the sustainable, socio-economic growth and development of Lesotho and South Africa by:

- Delivering water from the Senqu/Orange River to the Republic of South Africa, increasing the current supply rate of 780 million cubic metres of yield per annum to more than 1 260 million cubic metres per annum.
- Utilizing the water delivery system to generate hydro power that will ensure a consistent peak power supply to the Kingdom of Lesotho and is a further step in the process of securing an independent electricity source to meet Lesotho's electricity requirements.

Safety of dams and the regulatory role of the Department

The Department of Water and Sanitation plays a major role in regulating the use of our water resources and ensuring the safe operation of dams in the country. In 2012, The Dam Safety Regulations were amended to ensure that owners of dams, whether it be private or public comply with the set

regulations to guard against potential loss of life as well as against destruction of infrastructure in case of a dam failure.

Notwithstanding the fact that there are still some challenges in enforcing compliance in this regard, we are proud to state that since 1994, South Africa has not suffered a single fatal dam incident due to our strict laws on dam safety.

In 2014, a total of approximately 1 575 letters were sent to mainly dam owners to ensure compliance with the dam safety legislation and this includes, also, a total of 220 dam safety evaluations instructions issued to dam owners.

The Department of Water and Sanitation is the largest single owner of large dams in the Republic of South Africa. It owns 320 dams of which 218 are listed in the ICOLD world register of dams. There are more than five thousand (5000) registered dams in South Africa owned by both the private and public sectors of which eighty-seven percent (87%) of the gross storage capacity is in DWS owned dams.

Most of our dams and associated water resources infrastructure components were built more than 40 years ago. While the main concrete and heavy steel structures may have an extremely long functional life, spillways, gates, pumps and associated equipment need regular maintenance and occasional major rehabilitation to ensure safe and reliable operating capability over extended periods.

Since 2006, the Department of Water and Sanitation initiated the Dam Safety Rehabilitation Programme (DSRP) to address the dam safety related problems found in its dams. Majority of the dams were inherited from the old apartheid system of homelands and were found not to meet the South African National Committee on Large Dams (SANCOLD) and ICOLD dam safety guidelines. Some of these dams were also suffering from poor / lack of proper maintenance which led them to be in a poor state of condition. The department has to-date fully rehabilitated 39 dams at a cost of approximately R 2 billion (*i.e ±USD 134 million*) over ten (10) years. This clearly indicates our seriousness at ensuring sustainable reliability of our water sources and guaranteed supply to the users.

We are also investing on the use modern technology, from GPRS, fibre optic, through to Satellite, which will be used to collect data from virtually anywhere in South Africa. We have started installing remote dam safety monitoring system in eleven (11) of some of our large dams to monitor the dam wall movement at any given time.

Hydro-power production and transfer schemes

In the past few months, our demand for electricity has been exceeding supply and this led to a number of challenges in our energy sector. The Department of Energy together with the Department of Water and Sanitation has commissioned an investigation on the prospect of for retrofitting hydro-electric generation equipment at existing DWS dams. Fourteen (14) sites have been short-listed for this exercise.

The total technically feasible hydropower potential is estimated to be 11 000 GWh/year. We cannot continue to design and build dams which will address our water challenges and not be innovative enough to address our other socio-economic issues. The Mzimvubu dam project will serve as a good example of how we should think innovatively as it will be a hydro-power scheme.

This year's drought has also opened up our eyes to invest more on water transfer schemes. As a department, we should be able to transfer water from areas of high supply to those under stress when the need arises, thus the department is investigating the possibility of building more of these schemes.

Reservoir sedimentation and management

The way in which dams are designed and their chosen location goes a long way in determining their actual useful life without only relying on the structural soundness of the dam. The effect of sediment management is important in how we manage our dams. The continent is looking forward to a fruitful engagement on this subject and how the rest of the continent is managing and monitoring stream flow to get the best out of their dams.

Conclusion

In conclusion, we are delighted that ICOLD is showing interest in ensuring that knowledge and skills transfer is continuously being kept on the agenda with the participation of young engineers. It is our hope that we remain open minded when it comes to new technology and new ways of doing things which our young engineers from all the member countries are trying to

introduce into our dam engineering fraternity. The ICOLD's Young Engineers Forum should not be used as a way of increasing only membership but also to learn from them young.

We hope that during our social interactions we will be establishing new relationships. South Africa will also be looking at how future drought challenges should be addressed post the ICOLD meeting in South Africa. Africa as a whole is open for business and new ideas.

Dankie

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