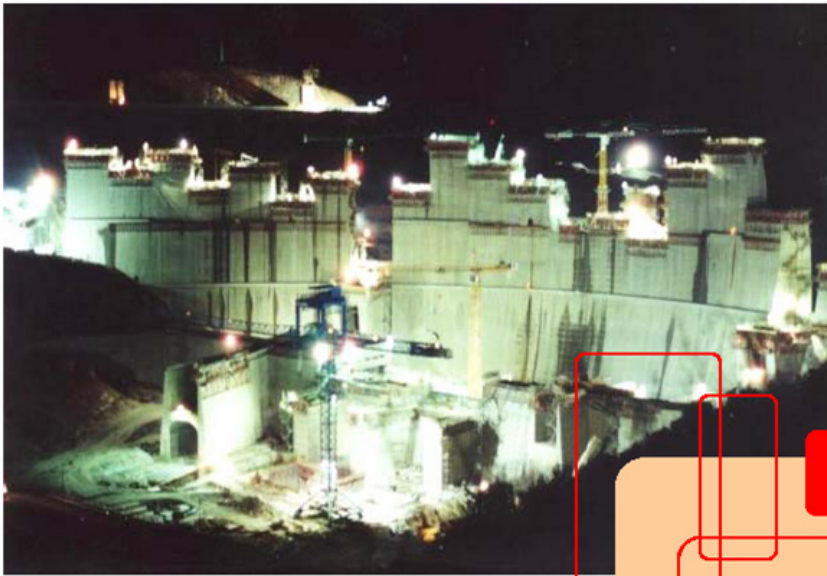


5th International Conference on

Dam Engineering

14 – 16 February 2007 • Congress Centre of LNEC • Lisbon, Portugal



Alqueva Dam, Alentejo, Portugal

Program

Welcome

On behalf of the Portuguese National Laboratory of Civil Engineering (LNEC), I am most pleased to welcome you in Lisbon to attend the 5th International Dam Engineering Conference.

This is the first time the Dam Engineering Conference series is held in Europe, which is a great opportunity to the European Dam Engineering Community exchange their experience and achievements with other non-European Communities.

The conference takes place at the Congress Centre of LNEC, an institution of scientific research and technical development. Since LNEC's foundation, that is just completing its 60th year, dam engineering has been an area of excellence and has given a significant contribution for the progress of dam engineering science in Portugal and abroad.

Therefore I welcome all colleagues and their accompanying guests from all over the world, and hope you enjoy the conference and your stay in Lisbon.

Carlos Pina
Conference Chair

Organising Committee

Conference Chairperson: Carlos Pina

Conference Co-Chairperson: Eliane Portela

Members:

Jorge Pereira Gomes, LNEC, Portugal

Teresa Fonseca, LNEC, Portugal

Tam-Fah Chong, Malaysia-China Hydro Joint Venture, Malaysia

Saied Saiedi, University of Petronas, Malaysia

Qingwen Ren, Hohai University, China

John S Y Tan, CI-Premier Pte Ltd, Singapore

Qian Chen, W&H Ltd, China

Portuguese Scientific Committee

C. Matias Ramos, President of LNEC

J. Oliveira Pedro, LNEC

E. Maranhã das Neves, Technical University of Lisbon

J. Rocha Afonso, Secretary General of the Portuguese Committee on Large Dams (CNPGE), INAG

Ricardo Oliveira, COBA S. A.

M. Pinho Miranda, EDP

A. Pinheiro, Technical University of Lisbon

A. Silva Gomes, T. Viseu, LNEC

J. Mora Ramos, LNEC

A. Lopes Batista, LNEC

Laura Caldeira, LNEC

International Scientific Committee

C. B. Viotti, President of ICOLD, Brazil

Luis Berga Casafont, President of SPANCOLD, Spain

G. Canali, Vice-President of CBGB, Brazil

J. Millmore, British Dam Society, UK

Bernard Gouguel, CFBR, France

Alberto Masera, ITCOLD, Italy

Guocheng Jiang, China Institute of f Water

Resources & Hydropower Research

Keming Cao, East China Investigation and Design Institute

Dietmar Adam, Technical University Vienna, Austria

Azm Al-Homoud, American University of Sharjah, UAE

Martin Wieland, Electrowatt-Ekono Ltd, Switzerland

Paulo Cruz, Consulting Engineer, Brazil

Bayardo Materón, Bayardo Materón & Associates, Brazil

Gao Lin, Dalian University of Technology, China

General Information

Location

The congress will be held at:
Laboratório Nacional de Engenharia Civil (LNEC)
Av. do Brasil, 101, 1700-066 Lisboa, Portugal
Tel: +351 21 848 21 31
Fax: +351 21 849 76 60
Web: <http://www.lnec.pt>
LNEC is located near the city centre and not far from Lisbon Airport.
It is served by the metro line at Alvalade station and several bus lines (see <http://www.transporlis.sapo.pt> and <http://www.metrolisboa.pt/>)

Language

English is the official language of the Conference.

Internet

During the Conference all participants will have access to LNEC's wireless network in the congress center area. It will be provided internet room access for all participants next to the secretariat.

Coffee breaks

During the session breaks, drinks are going to be served in the Conference Hall.

Lunch

Lunch will be served in the 15th and 16th February next to LNEC's Conference Centre.

Bus

For the banquet and the technical visit, it will be provided buses for transportation of participants.

Mobile phones

It's forbidden the use of mobile phones in the rooms of the Conference.

Delegates Identification

Delegates must use the identification tags during all events of the Conference.

Exhibitors

FiberSensing
Grupo Edifer
Mota-Engil

Organizers:

LNEC (Laboratório Nacional de Engenharia Civil), Portugal
CI-Premier Conference Organisation, Singapore

Co-Sponsors

Águas de Portugal
EDP
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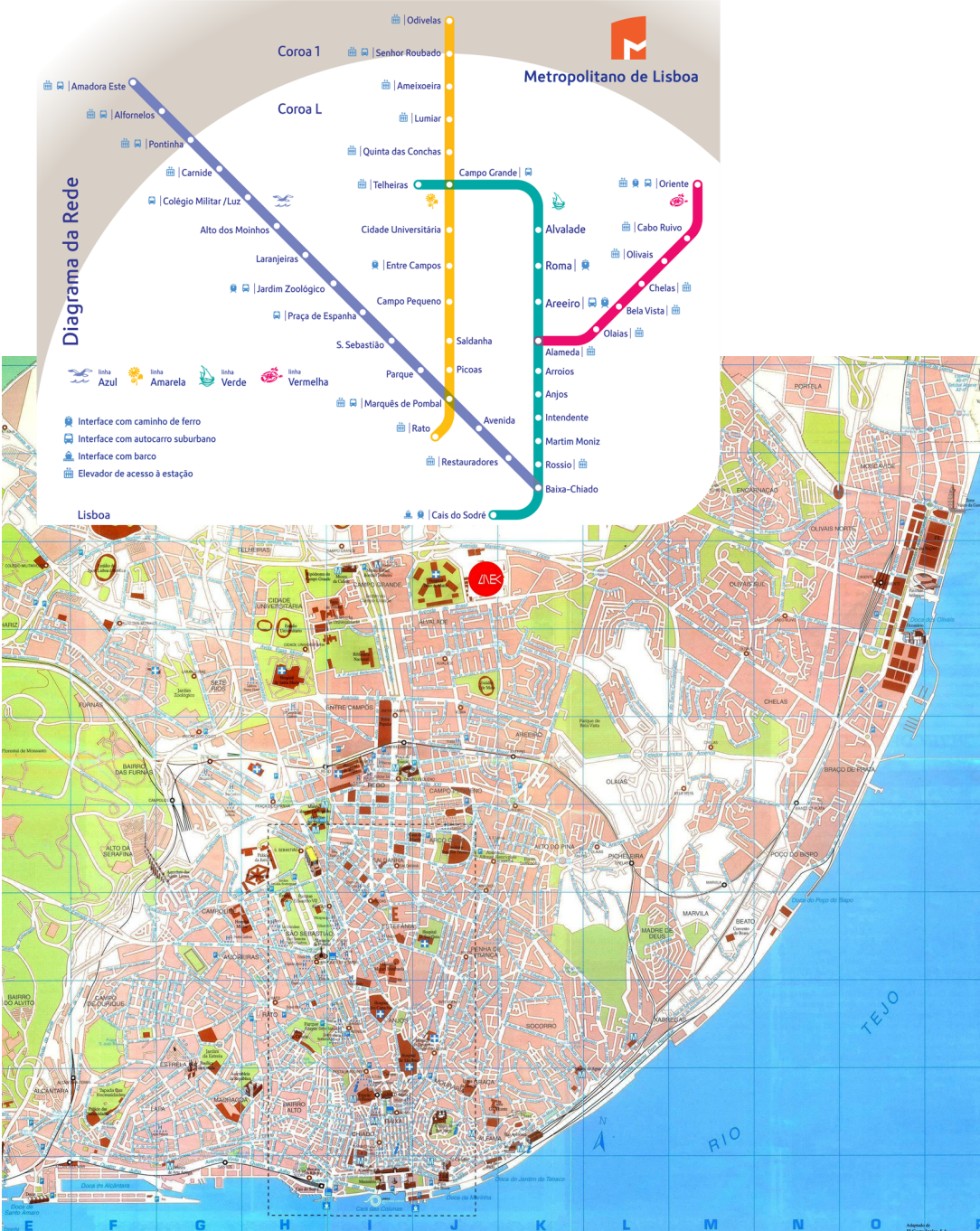


B BANQUET: 15th FEBRUARY, 20:00 h - 23:00 h
 Local: Centro de Congressos de Lisboa,
 Praça das Indústrias, Alcântara, Lisboa
 Buses leave from LNEC to the Centro de Congressos at 19:00 h

The registered accompanying persons have access to the Reception and the Banquet

Program for Accompanying Persons
 Information and tickets for tours, please contact the Secretariat

Subway Lines



Hotels



Technical Visit to the Multipurpose Alqueva Project

Program

8:00 – Departure from Lisbon (LNEC Campus)
8:00 to 10:30 – Trip to Alqueva
10:30 to 12:30 – Visit to the Alqueva concrete dam
13:00 to 14:30 – Lunch



15:00 to 16:00 – Visit to the Álamos embankment dam
16:00 to 18:30 – Return to Lisbon

General Program

	Wednesday 14th February	Thursday 15th February	Friday 16th February	Saturday 17th February
8:00 – 9:00		Registration		Technical Visit
9:00 – 9:30		Opening Session	Plenary Lectures	
9:30 – 10:45		Plenary Lectures		
10:45 – 11:15		Coffee Break	Coffee Break	
11:15 – 13:00		Parallel Sessions	Parallel Sessions	
13:00 – 14:30		Lunch	Lunch	
14:30 – 16:15	Registration	Parallel Sessions	Parallel Sessions	
16:15 – 16:45		Coffee Break	Coffee Break	
16:45 – 18:30		Parallel Sessions	Parallel Sessions	
18:30 – 19:00	Reception		Closing Session	
19:00 – 20:00		Bus leave to Banquet		
20:00 – 23:00		Banquet		
23:00 – 23:30		Bus leave to Hotel		

Program

Wednesday, 14th February

14:30 – 18:30 REGISTRATION

18:30 – 19:30 RECEPTION

Hall of the Congress Centre

Thursday, 15th de February

08:00 – 09:00 REGISTRATION

09:00 – 09:30 OPENING SESSION

Auditorium

09:30 – 10:45 PLENARY LECTURES

Auditorium

10:45 – 11:15 COFFEE BREAK

11:15 – 13:00 PARALLEL SESSIONS

Monitoring and Surveillance

Auditorium

Spillways

Small Auditorium

Embankment Dams

Room 2

13:00 – 14:30 LUNCH

14:30 – 16:15 PARALLEL SESSIONS

Monitoring and Analysis

Auditorium

Spillways

Small Auditorium

Concrete Face Rockfill Dams

Room 2

16:15 – 16:45 COFFEE BREAK

16:45 – 18:30 PARALLEL SESSIONS

Methods of Analysis and Design of Dams

Auditorium

Rolled Compacted Concrete Dams

Small Auditorium

Friday, 16th February

09:00 – 10:45 PLENARY LECTURES

Auditorium

10:45 – 11:15 COFFEE BREAK

11:15 – 13:00 PARALLEL SESSIONS

Methods of Analysis and Design of Dams

Auditorium

Hydraulic: Spillways and General Aspects

Small Auditorium

Rockfill dams

Room 2

13:00 – 14:30 LUNCH

14:30 – 16:15 PARALLEL SESSIONS

Rolled Compacted Concrete Dams

Auditorium

Scour of Rock: Plunge Pools and Sedimentation

Small Auditorium

16:15 – 16:45 COFFEE BREAK

16:45 – 18:30 PARALLEL SESSIONS

Hydropower Projects, Warning Systems and

Auditorium

Dam Legislation

Dam Foundation

Small Auditorium

Program

5th International Conference on DAM ENGINEERING

Thursday, 15th February

08:00 – 09:00	REGISTRATION	
09:00 – 09:30	OPENING SESSION	Auditorium
09:30 – 10:45	PLENARY LECTURES	Auditorium

Chair: Carlos Pina
Eliane Portela

E. Maranha das Neves *Rockfill: new developments*
Neves, E. M.

Bayardo Materón *State of the Art of Compacted Concrete Face Rockfill Dams (CFRD)*
Materon, B

10:45 – 11:15 COFFEE BREAK

11:15 – 13:00 PARALLEL SESSIONS

Monitoring and Surveillance

Auditorium

Chair: Domingos Silva Matos
Secretary: António Tavares de Castro

Franco Robotti *Latest monitoring techniques for dam control*
Robotti, F

Julián Portillo Aguilar *Automatic system for the management of monitoring information in 16 dams in the South of Spain*
Gallego, J D; Olías, E M; Lopez, D S and Aguilar, J P

R Bremen *Contribution of the monitoring to the safety improvement of dams*
Bremen, R

E. Carvalho *Structural Surveillance of Cahora Bassa Dam*
Carvalho, E ; Silva, H and Tembe, I

Juan Mata *Application of neural networks to dam safety control*
Mata, J; Portela, E and Dias, J

António Berberan *Enhancing on-site dams visual inspections*
Berberan, A; Portela, E A and Boavida, J

Spillways

Small Auditorium

Chair: António Pinheiro

Secretary: José Piteira Gomes

- F Lempérière *Dam safety and low cost spillway designs*
Lempérière, F and Vigny, J P
- C Cortes *Hydraulic Operation of the Spillway on "Aguamilpa" Hydro-Electric Power Plant*
Marengo, H and Cortes, C
- Farhang Daneshmand *Numerical Investigation and Hydraulic Model Test of the Bottom Outlet of Vaniar Dam*
Daneshmand, F and Lari, Y B
- Farhang Daneshmand *The Hydraulic Test of the Spillway of the Sivand Dam*
Daneshmand, F; Yazdi, E A and Liaghat T
- E González *On-Tunnel Spillway Design on Hydraulic Model of "La Yesca" Hydroelectric Project*
González, E and Camargo, J
- V Fiorotto *Lining design in spillway stilling basins*
Marson, C; Fiorotto, V and Caroni, E

Embankment Dams

Room 2

Chair: António Silva Gomes

Secretary: Ricardo Santos

- A. Veiga Pinto *Nacala Dam. Structural safety assessment and corrective measures*
Pinto, A V
- Laura Caldeira *New Proposal For Portfolio Safety Assessment Of Embankment Dams*
Caldeira, L and Pimenta, L
- Andrea Brito *Compaction control of soil-rock mixtures at Odelouca Dam by vibratory compaction tests and rammer compaction tests*
Brito, A and Caldeira, L
- R. Minasyan *The rational technology on research of an actual condition of earth dams related to their safe operation*
R.Minasyan, R; Zeizafun, S and Minasyan, S
- A. Mahboobi *Finite Element modeling and back analysis of Gavoshan Dam during construction and pondage intervals*
Mahboobi, A; Aminpoor, M and Kazempoor, S
- Stella Pytharouli *Kremasta Dam (Greece): Long-term behaviour and performance of the highest earthfill dam in Europe*
Pytharouli, S; Kontogianni, V; Psimoulis, P and Stiros, S

13:00 – 14:30

LUNCH

14:30 – 16:15

PARALLEL SESSIONS

Monitoring and Analysis

Auditorium

Chair: Franco Robotti

Secretary: Celeste Jorge

Antonella Frigerio	<i>Histride: an integrated software environment for the diagnosis of large dams via modal identification</i> Frigerio, A and Bon, E
Sergio Oliveira	<i>Dynamic behaviour characterization of concrete dams based on continuous monitoring</i> Mendes, P; Costa C O; Garrett, J A and Oliveira, S
Shrirang Nivrutti Tande	<i>Seismic analysis of gravity dam with opening</i> Tande, S N and Patil, S A
José Muralha	<i>Contribution of incremental extensometers In the monitoring of concrete dam foundations</i> Muralha, J and Castro, A T
Maria Luísa Braga Farinha	<i>Analysis of seepage in the foundation of Pedrógão Dam</i> Farinha, M L B; Lemos, J V and Castro, A T
Stéphane Bonelli	<i>The impulse response function analysis of pore pressures monitoring data</i> Bonelli, S and Radzicki, K

Spillways

Small Auditorium

Chair: François Lempérière

Secretary: Andrea Brito

Ebrahim Jabbari	<i>The use of flood forecasting in optimization of spillway capacity</i> Ghaffari, M and Jabbari, E
Nasser Talebbeydokhti	<i>Numerical turbulent simulation of labyrinth spillways and corresponding discharge coefficients</i> Talebbeydokhti, N and Zahraeefard, V
Lúcia T Couto	<i>A new solution for a concrete spillway over a rock fill dam. Hydraulic model study of Barriga dam in Spain</i> Couto, L T; Magalhães, A P; Toledo, M A and Moya, R M
J Juanche	<i>Instrumentation alternatives on spillways</i> Juanche, J and Cortes, C
Sebastien Erpicum	<i>Dam rehabilitation study with process oriented numerical flow models</i> Erpicum, S; Archambeau, P; Detrembleur, S; Dewals, B and Piroton, M

Concrete Face Rockfill Dams

Room 2

Chair: Paulo Cruz

Secretary: Lurdes Pimenta

- Nelson Pinto *A challenge to very high CFRD Dams: Very high concrete face compressive stresses*
Pinto, N
- Anna Ghannad *Construction of Siah Bishe Concrete Face Rockfill Dam (CFRD)*
Modarress, L and Ghannad, Z
- Juan de Dios Aleman Velásquez *El Cajon dam, Analyses of the behavior during construction and first filling*
Velasquez, J D A and Lessa, S V
- Hamid Fallah *Rockfill shear strength parameters for Siah Bishe Concrete Face Rockfill Dams (CFRD)*
Fallah, H

16:15 – 16:45

COFFEE BREAK

16:45 – 18:30

PARALLEL SESSIONS

Methods of Analysis and Design of Dams Auditorium

Chair: José Vieira de Lemos

Secretary: Sérgio Oliveira

- A Frigerio *The contribution of ICOLD "Dams & Computation" technical Committee to computational aspects of dam analysis and design*
Mazza, G and Carrère, A
- José Paixão *Arch dam design of the Baixo Sabor upstream scheme*
Silva Matos, D; Paixão, J and Antunes, N
- Gilberto Silva Monteiro *Main design features of the downstream gravity dam of Baixo Sabor*
Monteiro, G S; Fernandes, I R and Matos, D S
- Hui Peng *Study on the optimization model of arch dam closure process under construction and its impacts on river ecosystems*
Peng, H; De-fu, L and Bin, T
- A. Scuero *Rehabilitation of Covão do Ferro Masonry Dam*
Scuero, A A; Vale, J M; Vaschetti, G; Quintela, A; Ribeiro da Silva, A; Ramos, J M and Sá da Costa, A
- Daliri Massoud *Evaluation Behavior and Safety Conditions of Shirvan Arch Dam Subjected to movement of left abutment Fault*
Massoud, D

Rolled Compacted Concrete Dams

Small Auditorium

Chair: Francisco Ortega

Secretary: António Bettencourt

D Krüge	<i>Data acquisition and thermal modelling of Fundao roller compacted dam (RCC)</i> <i>Lacerda, L A; Moser, D E and Krüge, D A V</i>
Douglas M Moser	<i>Temperature and strain measurements in RCC dams using fibre optic instrumentation</i> <i>Moser D E; Aufleger, M; Hoepffner, R; Neisch, V; Soares, M A and Filho, J M</i>
Ali Roshani Mamaghani	<i>Suggesting some strategies & analysis of the required preparations for seismic design of RCC & RMC Dams</i> <i>Milani, S S; Ershadpour, S; Mamaghani, A R and Hamidi, S M</i>
Graça Maria Moura	<i>Thermal and structural studies of the RCC downstream dam of Baixo Sabor</i> <i>Moura, G M and Monteiro, P</i>
Chen Sheng-hong	<i>Composite element method for the temperature field analysis of layered roller compacted concrete (RCC)</i> <i>Nai-bo, S; Qing, X and Sheng-hong, C</i>
João Luis de Abreu Pinto	<i>Mix-Design Methods Comparison for conventional, self-compacting and high-strength concretes</i> <i>Pinto, J L A; Traboulsi, M A; Bettencourt, R M; Bettencourt, R M, Molin, D C C and Geyer, A L B</i>

Friday, 16th February

09:00 – 10:45

PLENARY LECTURES

Auditorium

Chair: Carlos Pina
Eliane Portela

J. Oliveira Pedro *Alqueva Dam. General Aspects of Design, Construction and Operation*
Pedro, J O

Paulo Cruz *Cracks and Flows in Concrete Face Rock Fill Dams (CFRD)*
Cruz, PY and Freitas, M S Jr

10:45 – 11:15

COFFEE BREAK

11:15 – 13:00

PARALLEL SESSIONS

Methods of Analysis and Design of Dams Auditorium

Chair: Manuel Pinho de Miranda
Secretary: Ana Vieira

Chen Sheng-hong *Finite element analysis of crack propagation at arch dam heel*
Wei-ming, W and Sheng-hong, C

Chen Sheng-hong *Composite Element Method for the Temperature Field Simulation of the Concrete Structures containing Cooling Pipes*
Qing, X; Nai-bo, S and Sheng-hong, C

A Frigerio *A comparative study of the leaching behaviour of cement mortar and concrete under different accelerated test conditions*
Berra, M; Faggiani, G; Mangialardi, T and Paolini, A E

Hamed Jahangiri *Study of New Methods for Restoration & Repair of Concrete Parts in Dams*
Jahangiri, H and Ettehad, R

Hydraulic: Spillways and General Aspects Small Auditorium

Chair: Carlos Matias Ramos

Secretary: Ricardo Resende

António Pinheiro	<i>Hydrodynamic forces on slabs of hydraulic jump stilling basins</i> Pinheiro, A N; Quintela A C and Ramos, C M
Saied Saiedi	<i>Experiences in design and construction of a hydraulic model for energy dissipation and erosion studies</i> Saiedi, S and Vallyutham, K
F J Ochoa Álvarez	<i>Pressure Fluctuation in a Surge Tank with Different Arrangements on Hydraulic Model, of "Zimapan" Hydropower Plant</i> Marengo, H; Ochoa, F and Cortés, C
Farhang Daneshmand	<i>Hydraulic model test of the bottom outlet of Sivand Dam</i> Daneshmand, F; Yazdi E A and Lari, Y B
Oscar Ruiz Pena	<i>Operation of impounding work on hydraulic model of "Atemajac" Hydropower Plant</i> Pena, O R and Camargo, J

Rockfill dams

Room 2

Chair: Emanuel Maranha das Neves

Secretary: Joana Carreto

A Veiga Pinto	<i>Influence of the type of rock on mechanical properties of rockfill</i> Pinto, A V
Alex Martins Calcina	<i>Irapé Dam - Design, Construction and Behaviour</i> Calcina, A M; Marques, P L Filho; Leitão, J F; Cruz, P T and Moreira, R D Filho
Ljubomir Tancev	<i>Three Dimensional Analysis of Kozyak Dam</i> Tancev, L; Kokalanov, G, and Petkovski, L
James Yang	<i>Analytical solutions of two-dimensional turbulent seepage in rock-fill dams</i> Sundqvist, P and Yang, J

13:00 – 14:30

LUNCH

14:30 – 16:15

PARALLEL SESSIONS

Rolled Compacted Concrete Dams

Auditorium

Chair: António Bettencourt

Secretary: Luísa Braga

- Francisco Ortega S *Roller-Compacted Concrete (RCC) Dams: Design Alternatives-Case study: Pedrogão RCC Dam (Portugal)*
Ortega, S F
- Douglas M Moser *Research on the use of ultrasound technology in RCC layering control*
Lacerda, L A; Kormann, A C M; Moser, D E and Oliveira, L F P
- António Tavares de Castro *Analysis and Interpretation of Pedrogão Dam Behaviour during the First Filling of the Reservoir*
Castro, A T; Batista, A L and Serra, C O
- Tim Griggs *Hydro Tasmania Consulting's Recent RCC Dam Experience*
Griggs, T and Herweynen, R
- Douglas M Moser *Durability of RCC-Methods and fines content analysis*
Medeiros, B L; Michaud, C E; Kormann, A M and Moser, D E
- Basavaraj Katageri *Behavior and analysis of compaction characteristics of high paste roller compacted concrete mixes*
Katageri, B; Sivapullaiah, P V and Herkal, R N

Scour of Rock: Plunge Pools and Sedimentation

Small Auditorium

Chair: Teresa Viseu

Secretary: Juan Mata

- Anton Schleiss *State-of-the-Art of Rock Scour Technology - Part 1*
Annandale, G W and Schleiss, A J
- George Annandale *State of the Art of Rock Scour Technology - Part 2*
Annandale, G W and Schleiss, A J
- George Annandale *Case study: RicoBayo dam scour analysis*
Annandale, G W and George, M F
- Erik Bollaert *Scour prediction at Srisailem Dam (India)*
Bollaert, E F R
- Anton Schleiss *Constitutive modeling of rock scour by jet impingement*
Bollaert, E F R and Schleiss, A J

16:15 – 16:45

COFFEE BREAK

16:45 – 18:30

PARALLEL SESSIONS

Hdropower Projects, Warning Systems and Dam Legislation (6) Auditorium

Chair: José Oliveira Pedro

Secretary: Nuno Azevedo

- Humberto Marengo *"La Yesca", The newest hydroelectric project in Mexico*
Marengo, H; Hernández, E and Aguirre, S
- A. Silva Gomes *The functions of the technical manager of the dam operation according to the portuguese regulations for safety of dams*
Gomes, A S
- Teresa Viseu *Alqueva dam early warning system*
Viseu, T; Palma, J and Costa, C O
- Ricardo Santos *Risk Analysis of Embankment Dams through FMEA Application to a Tailings Dam*
Santos, R; Serra, J B and Caldeira, L
- Marcio Antonio Arantes Porto *Enterprise management models of electric energy generation: a study case on Furnas Centrais Elétricas S.A.*
Porto, M A A

Dam Foundation

Small Auditorium

Chair: Luís Lamas

Secretary: Bruno Figueiredo

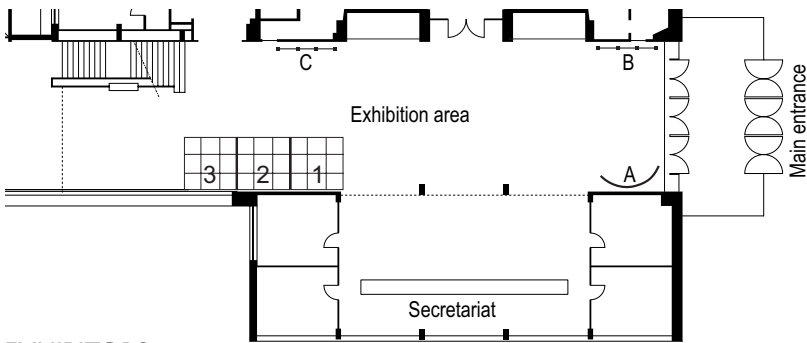
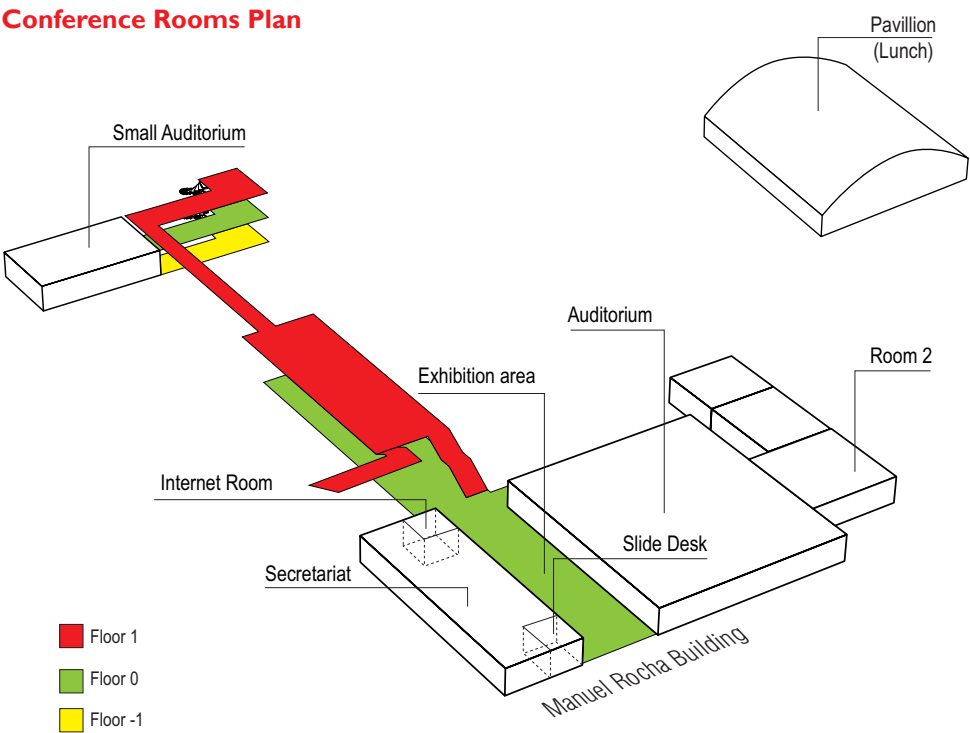
- Ilidio Tembe *The hydromechanical behaviour of Cahora Bassa dam foundation*
Silva, H S; Tembe, I M and Carvalho, E F
- F Eslamian *Technical Difficulties Associated with the Development of Karkheh Dam Complementary Cut-off Wall*
Heidarzadeh, M; Eslamian, F and Mirghasemi, A A
- Mohammad Heidarzadeh *Prediction of Grout Take in Grouting Works at Karun III Dam Site*
Heidarzadeh, M and Yaghooti, H R
- Agnieszka Rutecka *Clogging phenomenon - laboratory tests and numerical modeling*
Rutecka, A and Kowalewski, Z
- Wei GAO *Search on critical slip surface of slope based on ant colony algorithm*
Wei, G

18:30 – 19:00

CLOSING SESSION

Auditorium

Conference Rooms Plan



EXHIBITORS

- 1 - FiberSensing
- 2 - Grupo Edifer
- 3 - Mota-Engil

- A - LNEC
- B - Departments of LNEC
- C - ISRM/SPG

Notes

Notes

Connecting to LNEC's Wireless Network at Congress Center



Example
Using Windows XP SP2
(with the integrated Microsoft Wireless client)

Requirements:

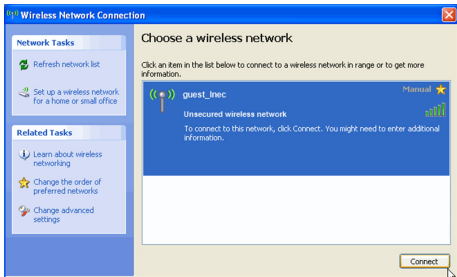
- Your computer must have a wireless network adapter compatible with IEEE 802.11g activated;
- This instructions assume that you are using the integrated Windows XP Wireless Client, so the Wireless Zero Configuration Service must be activated. If you are using other clients, like Intel ProSet Wireless Client the procedure could be significantly different. If you are unable to make the configuration please ask for support by the Helpdesk;
- If you are using **Mozilla Firefox**, go to the menu Tools, choose Options, section General, button Connection Settings and insert values like the image below shows:

Procedure:

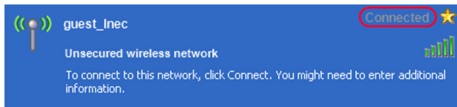
Double click on the **Wireless Network Connection** icon that appears on the lower right hand side of your screen;



- The Wireless Network Connection window will come up (as shown below) with the available networks;

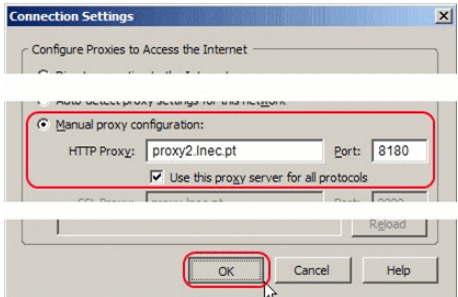


- You should see **guest_lneec**; select it!
- Click on **Connect**;
- Once you have a connection, you will be notified by the following indicators:



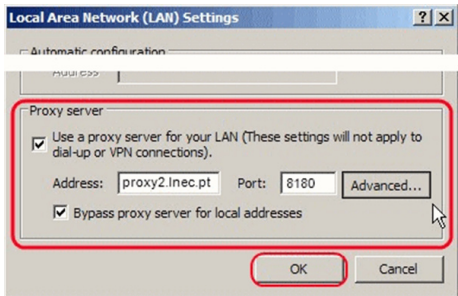
- Now you need to configure your browser to use the following proxy:

Proxy2.lneec.pt Port:8180



HTTP Proxy: **proxy2.lneec.pt**
Port: **8180**
Use this proxy server for all protocols
Finally select the button **OK**
Now you can access the Internet

- If you are using **Internet Explorer**, go to the menu Tools, choose Internet Options, section Connections, button Lan Settings and insert values like the image shows:



Use a proxy server for your LAN...
Address: **proxy2.lneec.pt**
Port: **8180**
Bypass proxy server for local addresses
Finally select the button **OK**
Now you can access the Internet

For help please contact the registration desk

Organizers:



Co-sponsors:

