

Seismic Impact on Engineering Constructions Hanoi, 7 October 2008

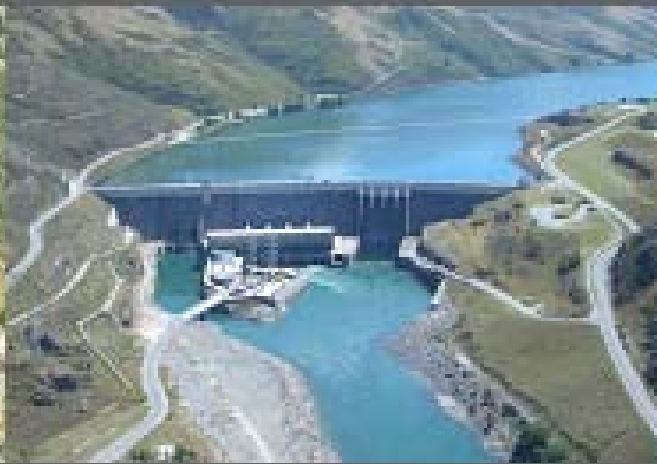
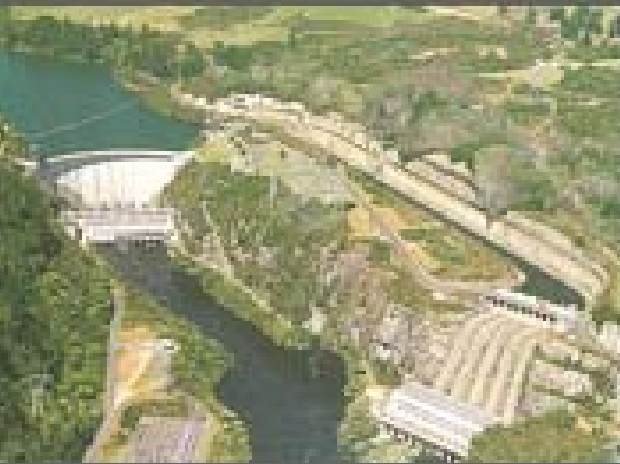
Seismic hazards - overview

Noel Trustrum

GNS Science, PO Box 30-368, Lower Hutt, New Zealand

www.gns.cri.nz

www.damwatch.co.nz

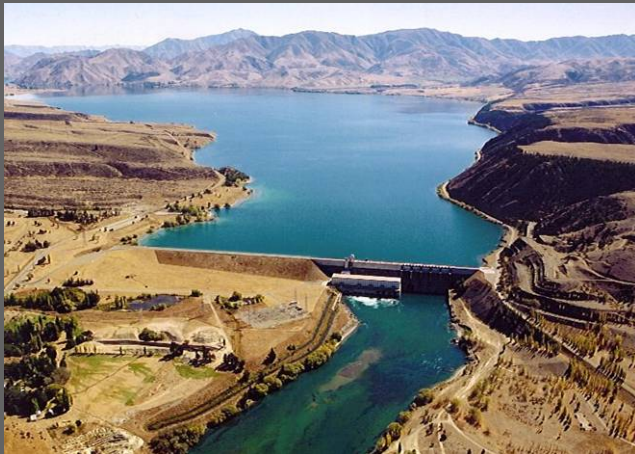


Themes



Dams and Earthquakes in New Zealand

Peter Amos & Murray Gillon
Damwatch Services



Seismic Hazard Case Histories

Kelvin Berryman & Stuart Read
GNS Science

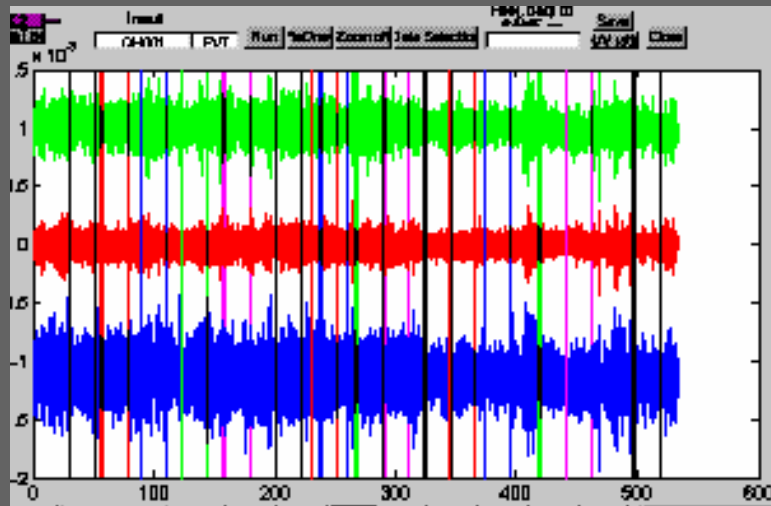
Papers prepared

Presentation

EARTHQUAKE DESIGN CRITERIA AND SEISMIC MICROZONING FOR SONLA HYDRO-POWER DAM

Le Tu Son , Tran Thi My Thanh

*Institute of Geophysics,
Vietnamese Academy of
Science and Technology*



Presentations

Dams and Earthquakes in New Zealand

‘Our Approach’

Murray Gillon
Senior Engineer, Damwatch

‘Engineering Examples’

Peter Amos
Managing Director, Damwatch



Presentations (cont)



Seismic Hazard Case Histories

Earthquake Shaking Evaluation

Kelvin Berryman
Principal Scientist, GNS Science



Foundation Fault Displacement Evaluation

Stuart Read
Senior Scientist, GNS Science

Peter Amos

Peter Amos is the Managing Director of Damwatch Services Ltd, an engineering consulting company specialising in dam safety and dam engineering. He is a civil engineer with over 24 years experience in dam and underground structures design and construction. As the Project Manager leading engineering design and dam safety teams, Peter has just completed a world leading major dam foundation remediation project, installing seepage cutoff walls through an operational concrete gravity dam. This project followed an emergency grouting project that Peter led in 2001.



Peter has undertaken several dam safety reviews for earth and concrete structures. He also led the feasibility design of an 85m high RCC dam currently proposed in New Zealand. This has included presenting the project design to resource consent hearings. Peter managed the analysis of the proposed dam for extreme seismic loads and has carried out seismic analysis and earthquake strengthening projects for several dams and their appurtenant structures.

Murray Gillon

Murray Gillon is the Chief Engineer and was the founding Managing Director of Damwatch Services Ltd. He is a civil engineer with 39 years experience primarily concerned with a wide variety of dam related work. Murray has worked in construction, design, operations and remediation of dams as a contractor, owner and consultant. He has led or had influential technical roles in the remediation of over 20 dams and has carried out safety reviews of over 30 dams in New Zealand, Australia and China. Murray is internationally recognised for his work on the repair of earthquake damage to the Matahina Dam, its later strengthening for potential fault movement through the dam (a world first) and the large project to stabilise 18 large rock slides in the reservoir of the Clyde Dam. He has also played a leading role in the development of seismic loads and related stability assessments for the major hydro dams in New Zealand.



Murray has been active in the New Zealand Society of Large Dams (NZSOLD) and ICOLD over the last 20 years. He was the Chairman of the ICOLD Technical Committee responsible for the publication of the ICOLD Bulletin on the investigation and management of reservoir landslides. He has published over 50 papers on a wide variety of dam engineering subjects.

Kelvin Berryman

Dr Kelvin Berryman is a Principal Scientist at GNS Science, a government owned Crown Research Institute specialising in earth science research and consultancy. Kelvin is one of New Zealand's leading earthquake geologists with 33 years experience as a practicing researcher and consultancy provider in New Zealand, Australia, Papua New Guinea, Mongolia and the USA. His particular expertise is past behaviour of active faults and seismic hazard in the Pacific region, and he is a recognised expert in coastal neotectonics and late Cenozoic structural evolution, Quaternary stratigraphy and earthquake hazard studies.



Kelvin is the current research leader of the major GNS research programme on 'Geological Hazards and Society' and has been lead scientist on a number of major seismic hazard evaluation projects for dams and nuclear facilities, including development of probabilistic approaches considering geological, seismological and engineering inputs, as well as a major contributor to the New Zealand Seismic Hazard model.

Stuart Read

Stuart Read is a Senior Scientist at GNS Science. He is an engineering geologist with 36 years consulting and research experience in evaluation, investigation, construction and refurbishment of hydro projects in New Zealand and South America. Initial practice was on construction projects, and more recently has included feasibility and safety evaluations involving site engineering geology, evaluation of river valley evolution, assessment of rock and soil mass characteristics, as well as geological hazard assessments.



Stuart has been team leader for geological and seismological inputs by GNS Science for recent major seismic safety evaluation studies and engineering geological input for dam foundation remediation and dam feasibility projects. He is also the landslide processes research objective leader. Stuart has been on the NZSOLD Management Committee for 19 years; being Chairman from 1997 to 1999 and convener of the organising committee for three NZSOLD symposia since 2000 as well as the Australasian conference in 2007.

Noel Trustrum

Noel Trustrum is manager of International Services for the Natural Hazards Group at GNS Science International with 36 years of consultancy and research experience in New Zealand and overseas including Vietnam where his involvement commenced in 1993 as a soil erosion and sediment hazard expert for integrated watershed management in Son La province. Over the last decade Noel has focussed on development projects involving post-disaster scoping missions, feasibility and project design studies of integrated watershed management, coordination and leadership of multi-agency projects spanning natural resource and multi-hazard risk assessment.



Noel is currently the Project Manager of a NZAID project aimed at enabling Vietnam to minimise the impact of tsunami disasters on coastal and offshore island communities through building the capacity of Vietnamese scientists so that seismic and tsunami risk can be assessed and early warning systems developed for effective mitigation. Noel is the chairman of the Natural Hazards New Zealand business cluster.