

Workshop on Risk Acceptance Criteria in Civil Engineering Decision Making



19.-20.June 2023, Trondheim, Norway

Context and content

Safety is fundamental in society, and provision of sufficient safety for the users of infrastructure facilities is one of the main obligations for civil engineers. Similarly, it is one of the main obligations for the regulators to provide the framework for the evaluation of safety across types of infrastructures and across industries. However, safety of individuals and associated welfare of the public come at a price. Requirements to safety and acceptable risks to life and health have strong implications on the present allocation of shared resources and trade-offs play a crucial role for sustainable societal development. Thus, to ensure adherence to safety, while facilitating optimal and sustainable allocation of publicly shared resources, it is paramount to establish and act in accordance with an adequate rationale.

It has for long time been clear to professionals dealing with safety and risk that such a commonly accepted rationale has not yet been implemented. Presently a variety of incoherent regulations, standards and codes are applied - and what is understood as best practices of safety management may not always be justified with respect to an adequate level of safety, where the resources used are in balance with objectives of the society. In consideration of the significance of safety regulation, the common rationale is evidently missing. The motivation for this workshop is, with a focus on safety management within civil engineering, to bring together the main stakeholders: regulators, public authorities, planners, designers, owners and operators infrastructures as well as leading experts from industry and academia, with the objective to pin down the main reasons for the present situation, to agree on the actions needed to correct the situation and finally on the allocation of responsibilities for implementing these.

The workshop is organised by IABSE Commission 1 and JCSS as a structured and facilitated discussion, inspired by targeted presentations from a few selected speakers. Experts and stakeholders are specifically invited for contributing and participating in the comprehensive discussions. The presentations and the discussion at the workshop will be documented in the proceedings. The main emphasis of the workshop is to establish a consensus on how to proceed towards a common understanding and methods for the assessment of risk acceptance in engineering practice and standardisation.

Welcome to the workshop!

The organising committee:

Jochen Köhler (Norwegian University of Science and Technology)

Niels Peter Høj (Høj Consulting)

Gerhard Ersdal (Petroleum Safety Authority Norway)

Jorge Mendoza Espinosa (Equinor)

Oskar Larson Ivanov (Boverket)

Michael H. Faber (Aalborg University)

Preliminary Program Day 1 - 19.6.2023

09.30	Registration and Coffee	
10.00	Session 1: Setting the scene	
	Welcome and overview	J.Köhler (NTNU)
	Introduction on Acceptance Criteria	N.P. Høj (HC)
	Discussion	all
10.45	Coffee break	
11.15	Session 2: Practical implementation	
	Risk-based decision-making in tunnel safety	B.Kohl (ILF)
	Safety Targets for Probabilistic Safety Analysis for Swiss Nuclear Power Plants	D.Proske (BFH)
	Major Bridges	A.Lenz (COWI)
	Discussion	all
12.30	Lunch break	
13.30	Session 2: Practical implementation cont.	
	Risk analysis and risk acceptance for floating bridges, with emphasis on ship impact hazards	T.Moan (NTNU)
	Practical implementation of criteria in the oil and gas industry	G.Lian (Equinor)
	Discussion	all
14.45	Coffee break	
15.00	Session 3: Regulatory Context	
	Target reliabilities in codes of practice	T.Vrouwenvelder(TNO)
	The perspective of a land based building authority	O.L.Ivanov (Boverket)
	Safety regulation in the oil and gas industry	B.Heide (Ptil)
	Discussion	all
16.30	Coffee break	
16.45	Session 4: Scientific Approach to Risk Based Decision Making and Acceptance	
	Formal criteria derived from Bayesian decision theory	M.H.Faber (AAU)
	The use of risk acceptance criteria - an evaluation	NN (Proactima)
	Discussion	all
18.00	Closure Day 1	
19.30	Dinner	

Preliminary Program Day 2 - 20.6.2023

09.00	Registration and Coffee	
09.15	Session 5: Tools and metrics for risk based decision making	
	Engineering methods and practical examples	M.Schubert(MATRISK)
	Common frameworks and misconceptions	A.Evans (Imp. Col.)
	Discussion	all
10.30	Coffee break	
11.00	Session 6: Group Work	
	Task: Is there, based on the presentations in the workshop, a common ground for risk-informed decision-making for structures and how can that be described?	all
	a) List the main principles that should be followed when assessing risk acceptance.	
	b) What should be avoided? What are the main sources of inconsistencies?	
12.00	Lunch break	
13.00	Presentation of the group work	
13.30	Discussion, wrap up and down the path.	all
	The principles for a report of the workshop.	
14.00	End of the Workshop	

Speakers:

Bernhard Kohl (Group Director Transportation, ILF Group Holding GMBH, Austria)

Dirk Proske (Professor, Bern University of Applied Science, Switzerland)

Albrecht Lenz (COWI, Denmark)

Torgeir Moan (Professor (em.), NTNU, Norway)

Gunnar Lian (Equinor, Norway)

Ton Vrouwenvelder (Professor (em.), TNO, The Netherlands)

Oskar Larson Ivanov (Boverket – the Swedish National Board of Housing, Building and Planning)

Bjørnar Heide (Petroleum Safety Authority Norway)

Michael Havbro Faber (Aalborg University, Denmark)

Matthias Schubert (Matrisk GmbH, Switzerland)

Andrew Evans (Professor (em.), Imperial College, UK)

Practical Aspects

- The workshop will be held at the Norwegian University of Science and Technology (NTNU) on the main campus “Gløshaugen”.
- We want to keep costs low. A participation fee of 50 Euro will be collected at the workshop. That covers coffee breaks and lunches. The dinner will be paid individually at the spot.
- We facilitate for online participation. However, the anticipated character of the workshop, which will encourage highly interactive debates and discussions, is very much more suited for physical participation.
- Trondheim can be reached by plane, train, car or ship and has plenty of good hotels in the city centre - in walking distance to the workshop venue.
- For those arriving Sunday afternoon, we organise an informal get together dinner on Sunday evening.
- The detailed directions to the venue of the workshop and the social events will be distributed to the [registered](#) participants in front of the workshop.
- The workshop is taking place close to mid-summer, which means that it will not get dark at night. The weather is usually nice, but bring a medium warm sweater and a rain jacket for any case.

Registration

Please register to the workshop at the following [link](#).

Deadline for the registration is 1.06.2023.

Web Page

A simple [web page](#) is available and continuously updated with relevant information.