

An aerial photograph of a river flowing through a lush, green forested landscape. In the foreground, a dam structure is visible, with water flowing over it. Power lines and pylons run across the middle ground, crossing the river. The background shows rolling hills under a blue sky with scattered clouds. The overall scene is a mix of natural beauty and human infrastructure.

Swedish Centre for Sustainable Hydropower

“Sustainable, safe and optimized hydropower operates as the most important enabler in Sweden’s transition to a sustainable energy system, while working to safeguard riverine biodiversity. Interdisciplinary research and innovative solutions, in close cooperation with the industry and public sector, strengthen our position among the international leaders in research on hydropower and river systems.”

Knowledge based solutions

An aerial photograph of a large dam and reservoir. The dam is a concrete structure with several spillways, situated in a lush green forested area. The reservoir is a large body of water behind the dam. The sky is blue with some clouds. The overall scene is a mix of natural beauty and industrial infrastructure.

- To maintain safe hydropower facilities with continued long-life spans
- To facilitate the implementation of measures for ecological rehabilitation of riverine ecosystems
- To optimize the usage of water in regulated rivers, balancing the needs of different stakeholders, including supply of renewable, fossil-free electricity to the society



Dam Safety Challenges today in Sweden

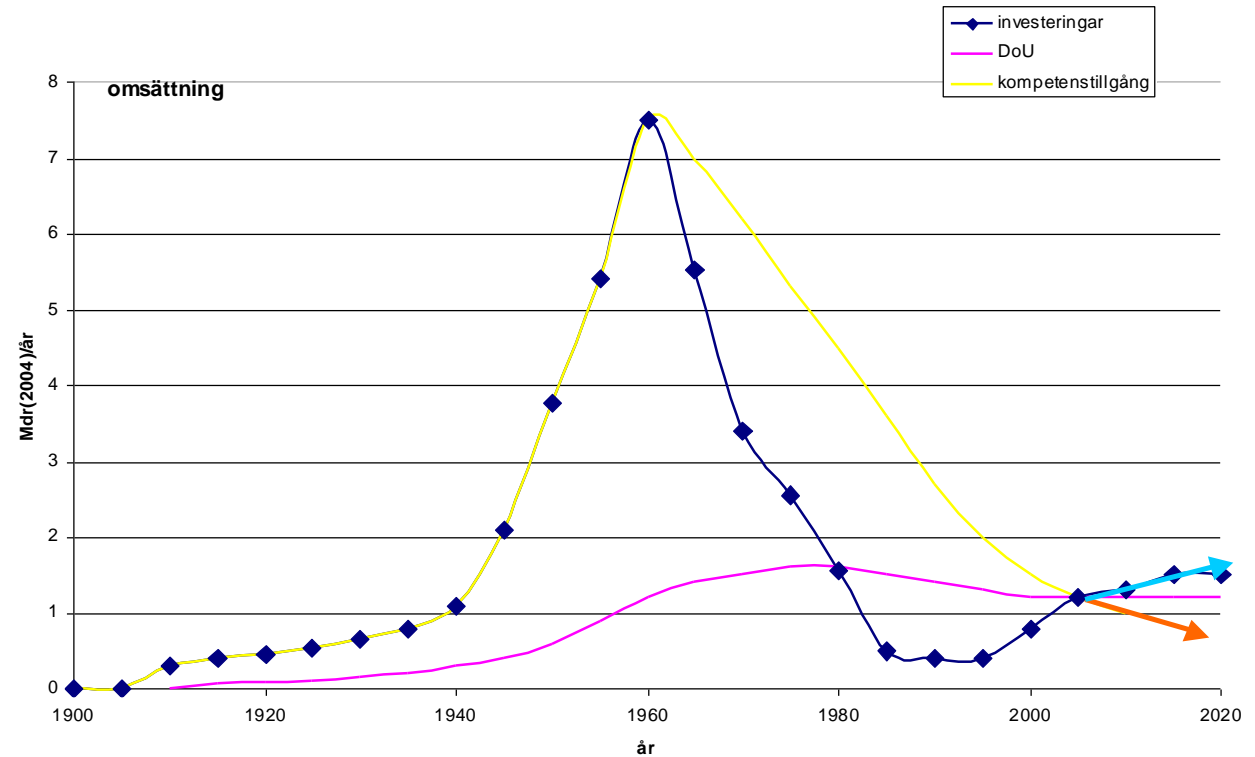
- Building and maintaining expertise in dam engineering and management through ongoing education, research and skills development is essential to ensure the continued safe operation of an ageing dam portfolio.
- Need to promote knowledge sharing, encourage research and innovation and cultivate a skilled workforce
- Develop methods and knowledge in analyzing, modeling and decision-making



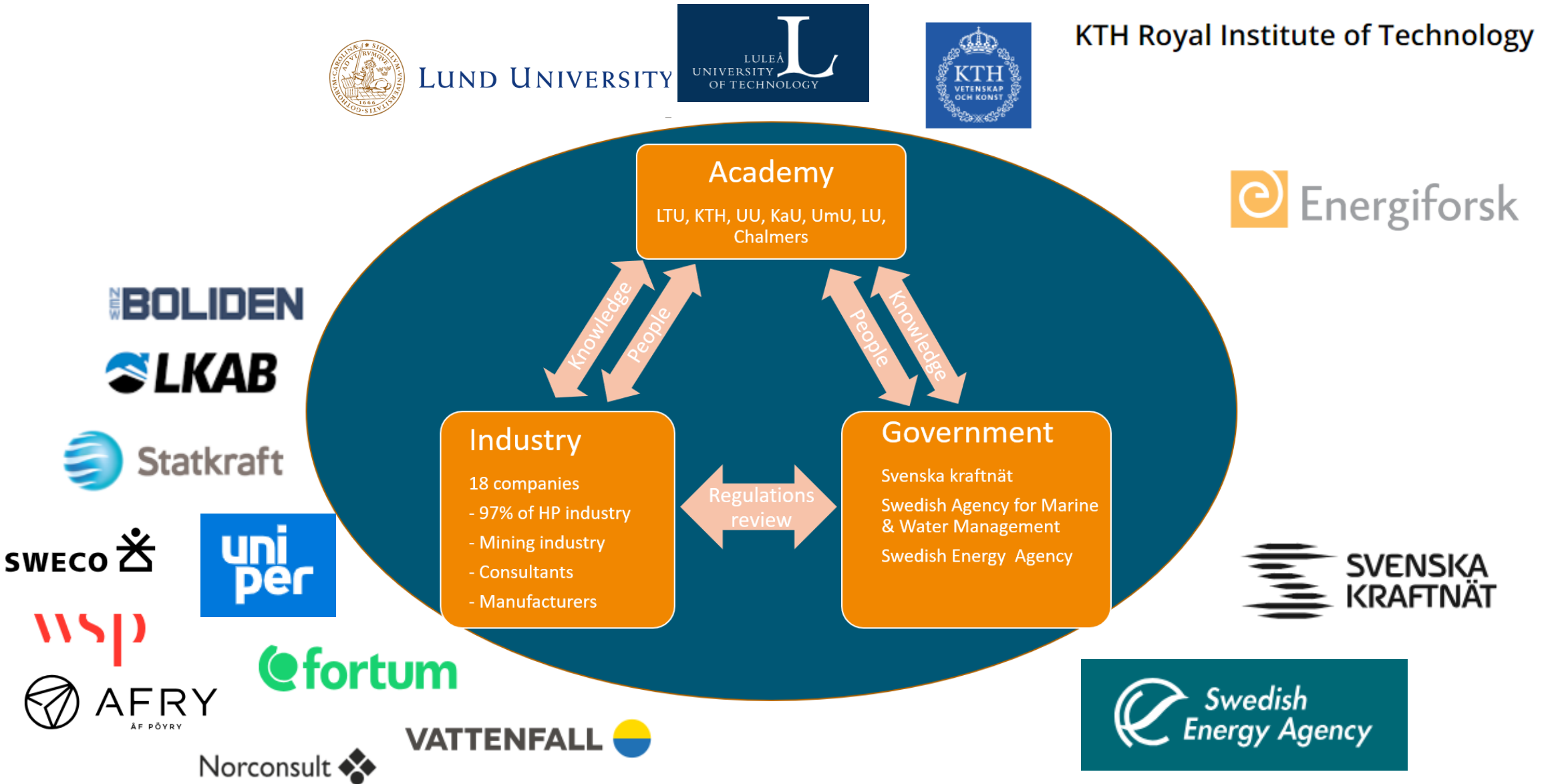
Strong and resilient capability development

Background

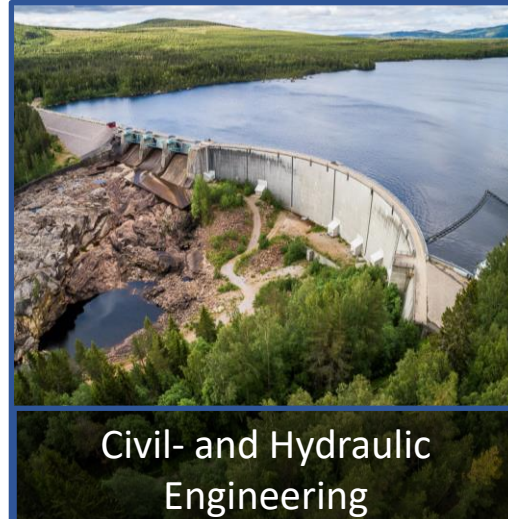
- 1990s
 - Lack of recent new dam construction
 - Retirement of experienced dam engineers
 - > shortage of skilled engineers with expertise in dam safety
- 2005
 - Education and research related to hydro power in swedish universities was more or less zero
 - Swedish Hydropower Center (SVC) was established



ALL RELEVANT STAKEHOLDERS GATHERED IN CENTRE OF EXPERTICE



Three work-packages on a common base

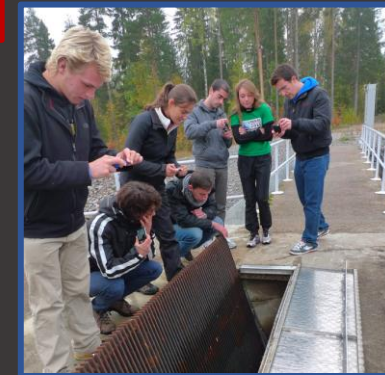


Interdisciplinary projects & shared infrastructure, research school & international network

Effects of climate change
Large scale pump-storage
Hidden hydro
Digital sand-box
Mitigation & surveillance



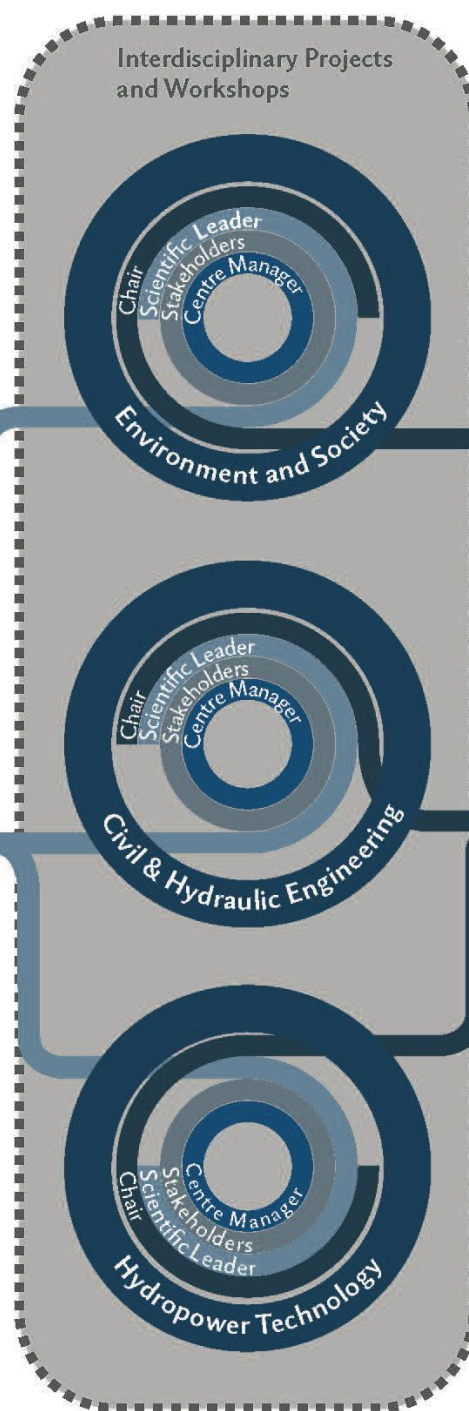
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Science Advisory board
Emerging global trends
Scientific excellence



WPs (The engine)
Built strong research env.
Define projects
Interchange data & people
The base for junior tracks



Programme Council
Strategies & synergies
Industrial and societal needs
Equality



Vice Chancellor
Luleå University of Technology

WP Steering group

- Where the needs are identified and projects developed
 - Structural Engineering
 - Geotechnics
 - Rock mechanics
 - Hydraulic Engineering





Thank you