



THE INTERNATIONAL ENERGY AGENCY TECHNOLOGY  
COLLABORATION PROGRAMME ON HYDROPOWER

**IEA** Hydropower

*Research and innovation in the*  
**International Energy Agency (IEA)**  
**Hydropower Technology collaboration Programme (TCP)**  
**Hydropower and Fish** (Annex XIII)

**Hans-Petter Fjeldstad**  
**(Operating Agent)**



## *Vision*

- Through the facilitation of worldwide recognition of hydropower as a well-established and socially desirable energy technology, advance the development of new hydropower and the modernization of existing hydropower

## *Mission*

### *Mission*

- To encourage through awareness, knowledge, and support the sustainable use of water resources for the development and management of hydropower



## *Status of Program: Annexes*

### Technology Cooperation Program on Hydropower

#### Annexes

**ANNEX II**  
Small Scale  
Hydropower

**ANNEX IX**  
Valuing  
Hydropower  
Energy and  
Water  
Services

**ANNEX XII**  
GHG  
Emissions  
from  
Freshwater  
Reservoirs

**ANNEX XIII**  
Hydropower  
and Fish

**ANNEX XIV**  
Management  
Models for  
Hydropower  
Cascade  
Reservoirs

**ANNEX XV**  
Maintenance  
Works and  
Decision-  
Making for  
Hydroplant  
Renewals



## COLLABORATION WITH OTHER ORGANIZATIONS

### **ACHIEVED**

#### **IEA/TCP**

- Chairman attended 69th **REWP** meeting and associated workshops
- Reviewed **IEA** publications, including **MTREM** Report

#### **Other Organisations**

- **Aqua Media:** Publishers of *Hydropower and Dams* and organizer of HYDRO 2016, ASIA 2016 and AFRICA 2017
- **International Hydropower Association (IHA):** MoU for collaboration on Annex XII

### **PLANNED**

#### **IEA/TCP**

- Attend at least 1 **REWP** meeting and workshop per year
- Review **IEA** publications as requested
- **Liase with REWP** to raise awareness of TCP and empower a broader role in IEA's strategic direction

#### **Other Organisations**

- **Aqua Media:** HYDRO 2017, ASIA 2018
- **International Hydropower Association (IHA)**



## *DISSEMINATION*

### *ACHIEVED*

- **HydroVision 2016 - USA**  
Panel discussion on the work of IEA Hydro and Annexes
- **HYDRO 2016 - Switzerland**  
Chairing sessions & presenting work of IEA Hydro Annexes
- **ASIA 2016 – Lao PDR**  
Presentation on work of the TCP
- **AFRICA 2017 – Morocco**  
Delivering plenary & chairing/presenting in sessions
- **Regular Website updates**
- **Launching Report and Appendices for Annex XI**

### *PLANNED*

- **HydroVision 2017 – USA**  
Organizing Annex meetings
- **HYDRO 2017 – Spain**  
Chairing sessions & presenting work of IEA Hydro Annexes
- **ASIA 2018 – Myanmar.**  
Presentation on work of the TCP
- **Regular Website updates**
- **Launching Summary Report and Appendices for Annex XI.**
- **Launching Guidelines Volume 3 Report for Annex XII.**



## *Members (Annex XIII)*

- Norway (Operating agent): NVE, SINTEF, Statkraft
- Australia (Secretary): Hydro Tasmania
- Finland: Fortum, Kemijoki OY
- USA: PNNL
- Brazil: Universidade Federal de São João del Rei (UFSJ)
- The EU Commission
- ~~France: EDF~~
- Also attending: Japan, China, Sweden, Turkey, Switzerland, Germany and Iceland



## *Major challenges:*

1. The fish issues that directly affect hydropower operation and development and how best to manage them (Existing HP)
2. The impacts of new and existing hydropower development on fish and the impacts when not managed appropriately (New/Existing HP)



## *Scope of work*

The scope covers the development of a roadmap/guideline for sustainable fish populations and management in rivers with hydropower production. Case histories will focus on best practices covering:

- Hydropower dams – impacts on physical habitat for fish
- Hydropower structures – overcoming fish migration barriers
- Regulated flow and fish
- Management, compensations and mitigating measures

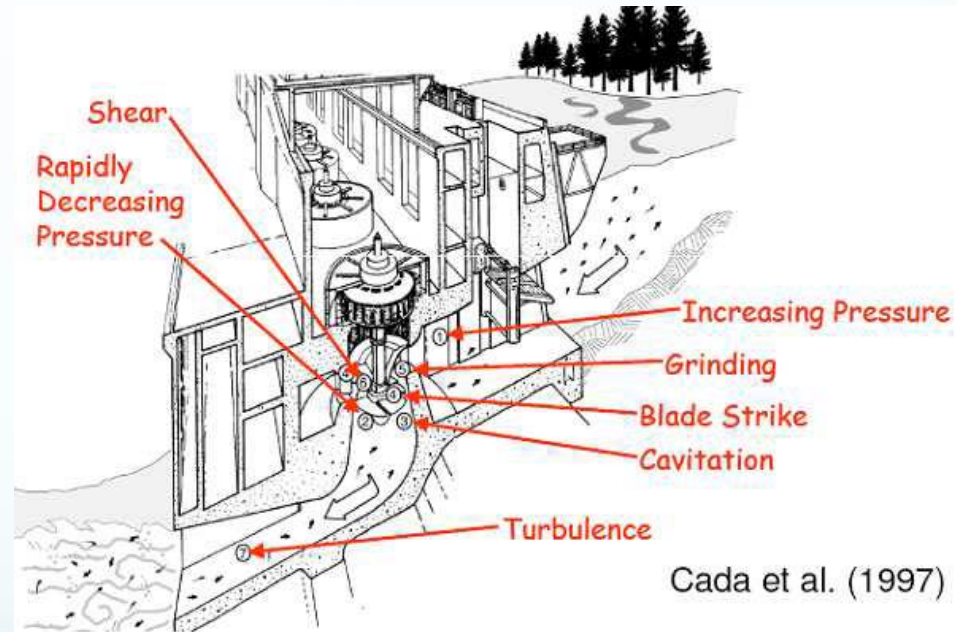




## *Main focus*

A comprehensive program to:

- Better understand the effects of hydropower on fish.
- Identify best practices for management and mitigation
- Provide sound advice for industry, investors and government to make good decisions on sustainable hydropower.
- Coverage to include new and existing hydropower.



Potential Damage Mechanisms for Fish Passing Through Hydro Turbines



## *Main focus (II)*

- A comprehensive collection of Case Studies
- Main Audience: Developers of HP, Governments and Management
- Display of Emerging trends, Essential elements, New technology and Knowledge Gaps/Needs
- Planning procedures and Management models
- Final deliverable: One Booklet or Special issue
- Draft final Roadmap to be finished within 2018



# Thank you!

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# IEA Hydropower

Thank  
you!

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