

Humanitarian and Hydropower Sectors Join Forces to Manage Flood Risk

Hotel Intercontinental, Addis Ababa (Ethiopia), May 9-11, 2017

*Side event co-convened by the Climate Centre, IFRC and GFDRR
in the context of the World Hydropower Congress*

How can the Red Cross and Red Crescent support the hydropower sector in designing and implementing dam safety measures and policies? This side event, organized by the Red Cross Red Crescent Climate Centre, IFRC and World Bank GFDRR, brings together disaster managers, donors, dam operators, government officials, researchers, and machine learning experts. We'll jointly explore new approaches to flood risk management downstream of dams, focusing on two promising opportunities: 'Forecast-based Financing' (FbF) and Machine Learning. FbF is being piloted in West Africa through a digital tool called FUNES: Volunteers collect rainfall data in the Mono river basin upstream of the Nangbéto Hydropower Dam in Togo, and an innovative self-learning algorithm designed under data scarcity which anticipates the probable timing and discharge of any imminent dam overflow. This forecast enables dam operators to plan releases, including those that may inundate communities downstream, according to a downstream model. When FUNES forecasts flood elevated flood risk, the Red Cross, government and partners receive an automated message to activate radio alerts, distribute water purification kits, and deploy other pre-funded disaster preparedness measures. First successfully tested in September 2016, the FbF+FUNES system received the 2017 World Government Summit's Global Innovation [Award](#).

This side event is an opportunity to open dialogue with all actors and interested parties on the given opportunity to adapt and scale up this hydro-humanitarian collaboration to simultaneously improve hydropower operations and humanitarian outcomes?

OBJECTIVE:

Bring together the global hydropower community and the disaster risk management sector to forge long-term, creative, systemic collaboration

PARTICIPANTS:

- Red Cross and Red Crescent humanitarian workers
- Dam Operators
- Government Officials
- Donors
- Researchers, Hydrometeorological Forecasters, and Machine Learning Experts

PROPOSED AGENDA:

MAY 9: What can the humanitarian sector do for & with hydropower dams?

8am: Registration, Virtual Reality experience

9am: Learning who we are and what we can do together: Interactive session

9:30: Welcoming remarks

- o Ethiopian Ministry of Water, irrigation and energy
- o Ethiopia Red Cross Society
- o IFRC
- o World Bank

10am: Understanding humanitarian challenges of flood risks downstream of dams

- o From data & knowledge --> action & funding
- o Institutional setups & Incentive structures

11:00: Coffee, Virtual Reality

11:15: The FbF+FUNES innovation in Togo

- Self-learning algorithm for flood prediction
 - Integrated digital platform for data collection+analysis & Early Warning
 - Forecast-based Financing for flood preparedness
 - Plans for growth (GFDRR support, crowdsourcing, and more)
- 12:00:** Rethinking innovation: How to improve and scale up Forecast-based Financing?
13:00: Lunch
14:00: Expanding the boundaries of what's possible: Game Time!
15:45: Coffee
16:00: Developing concrete proposals (small groups – coffee available)
16:45: Interactive Synthesis and 'forecast' for Day 2
17:00: Adjourn

MAY 10: Exploring options for joint work

- 9am:** Interactive Synthesis of Day 1
9:15: Understanding flood risk downstream of dams
- Commonalities & differences between Hydropower & Humanitarian sectors
 - Challenges & opportunities for collaboration
 - Data collection & analysis
 - Forecasting, Early Warning & Early Action
 - Reservoir management & early releases
- 10:30:** Coffee
10:45: Embracing technology & innovation
- Crowdsourcing
 - Machine Learning
 - Virtual Reality & Augmented Reality
- 12:00:** Lunch
13:00: Working Groups
- a) Improving FbF+FUNES in Togo
 - b) Developing new pilot projects: Ethiopia, Malaysia, and more
 - c) Institutional frameworks for Hydro-Humanitarian collaboration
 - d) Mobilizing machine learning for risk management downstream of dams
 - e) Innovative communication through virtual reality & augmented reality
- 14:30:** Cross-fertilization across working groups
14:45: Coffee Break
16:00: Working Groups (continued)
16:30: WG Progress reports
17:00: Adjourn

MAY 11: Concrete next steps in hydropower + humanitarian collaboration

- 9am:** Interactive Synthesis of Day 2
9:30am: "Yes, but...": Insights and lessons from successful and failed innovative initiatives
10:00: Working Groups (continued – including coffee break)
11:15: Group presentations & feedback
12:10: Plenary discussion & way forward
13:00: Adjourn to Lunch
14:00 Onwards (optional): Development of proposals for potential donors