



## **Can seasonal hydrological forecasts inform local decisions and actions? A decision-making game**

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Games provide an interactive and entertaining platform to foster discussions. Here, we present highlights of a game played during a stakeholder focus group on seasonal hydrological forecasting (SHF), co-organised by the University of Reading and the Environment Agency (England) for the EU Horizon 2020 IMPREX project.

SHF provides an insight into the hydrological situation that might be expected over the coming months; this is valuable for informing future flood or drought risk and water availability. However, use of SHF for local decision-making in the UK remains low, largely due to barriers in communication and interpretation. Our game used roleplay to capture how different water sector users (i.e. flood forecasters, water resource managers and groundwater hydrologists) apply SHF to inform decisions and actions in the West Thames river catchment, UK.

Participants were provided with background context to the West Thames (i.e. its geography, flood risk and current hydrological situation). They were then given three sets of progressively skilful and locally tailored SHF (for an extreme flood event) for the next 3-4 months, in three game stages. At each stage, participants were asked to discuss and record (using maps and empathy charts) their decisions (from doing nothing to taking action e.g. to help with preparedness, early warning, repairs or maintenance to flood defences). Participants played with their 'day job' hat on and were not informed whether the event was a flood, drought or a business-as-usual scenario.

The game provided a mix of confirmatory results and new information. Participants increased their decision/action choice in response to more skilful forecasts. Local knowledge of previous flood events was important for informing decisions. However, the exact decisions/actions taken by water sector users differed from our expectations, and subsequent discussions highlighted a demand for better communication of SHF which should be tailored to different user groups (areas currently being explored by IMPREX and the Environment Agency).

Participants enjoyed engaging in informal discussions with different water sector users and stated that the game complemented their everyday work and understanding of SHF. We found that roleplay is a great way of creating realistic scenarios that participants can identify with, whilst allowing the game creators to observe different thought-processes. We advocate for incorporating a means of recording participants' thoughts and decisions (e.g. empathy charts) and encourage the use of discussion sessions to clarify findings.