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Floods in Europe cause mass migration

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FP7 themes	health	agro	ict	nano	energy	environment	transport	ssh	space	security

ERA goals	mobility	infrastructures	rtd institutions	knowledge sharing	joint programming	cooperation

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Manifestation	Sudden development
Importance for EU	★ ★ ★ ★ ★
Strategic attention	by 2030 ★ ★ ★ ☆ ☆ by 2050 ★ ★ ★ ★ ☆
Type of impact	Very negative
Inspired by	Brainstorming session and group discussions in the iKNOW Workshop in Manchester (February 2010)

Potential impacts in Europe

infrastructures	★ ★ ★ ★ ★
people's lives	★ ★ ★ ★ ★
legislation & regulation	★ ★ ★ ☆ ☆
economy & business	★ ★ ★ ★ ☆
defence & security	★ ★ ☆ ☆ ☆
government & politics	★ ★ ☆ ☆ ☆
environment & ecosystems	★ ★ ★ ☆ ☆
science & technology	★ ★ ★ ★ ☆

Key words	flooding, mass-migration, disaster response, environment

Negligible ★	Minor ★ ★	Moderate ★ ★ ★	Major ★ ★ ★ ★	Critical ★ ★ ★ ★ ★

Wild card

Serious protracted flooding of low-lying areas leads to mass migration to higher lying areas and forces a rethink in low country policies. This could be due to e.g. sea level rise, exceptional tide, storm surge, summer drought and consequent fluvial flooding. Migration would flow in unsuspected directions, e.g. Africa which would lead to overcrowding in higher lying areas. This would lead to ghetto formation and possibly civil unrest. Social inequality would increase as higher lying areas would be inhabited by the rich whilst lower lying and high risk areas would be inhabited by the poor.

Surprises ('wild' scenario features)

The wild factor here is not necessarily the flooding itself, which could be inevitable with ongoing rapid climate change. The lack of preparedness and policy measures to cope with the flooding and the likelihood of this happening within the next 20 years would make this a wild card. The issue of migration also adds wildness to this card and the scale and unprecedented way of the migration from lower lying areas. We are at the moment too focused on local disaster plans and not holistic cross-national plans to respond to disasters such as flooding. Migration from EU countries to Africa would make this wild card very wild, as migration stream in this direction is unprecedented in recent history and many African countries are not well prepared to receive a high volume of displaced people. Higher lying and thus sought after areas would quickly become over crowded, and civil unrest is likely to follow. This would also put a strain on natural resources in the most inhabited areas and consequently energy and food safety would be threatened.

Possible interpretations

There is a possibility of positive interpretations such as the reconstruction of damaged infrastructure or a limited disaster may force a change in the way disasters are dealt with and increase preparedness for future events. This wild card would certainly test the Business Continuity Plans that are in place as in the case of discrepancies that became apparent when the World Trade Centre was destroyed. A negative interpretation would point to the fact that no one seemed prepared for this scale of a flooding disaster. Warnings were not listened so emergency responses were not well planned or coordinated.

Key actors

Key actors related to this wild card, include:

* **Scanners** or "early warners" such as risk analysts, engineers and modellers that would attempt to predict level and timing of flooding and create disaster recovery plans and countermeasures.

* **Shapers** (i.e. enablers/inhibitors): governments, policy makers, national and international response bodies, military, police, and rescue teams.

* **Stakeholders** positively or negatively impacted include insurance companies playing an important role post wild card.

Potential impacts

There would be immediate impact on local people and infrastructure and then more widespread consequences for example if London, an international financial centre, was flooded it could lead to a collapse of markets and subsequent economic disaster. Impact on the insurance sector would be vast and could even lead to a breakdown of the system.

Flooding and migration could also lead to a rise of a new superpower or at least change the power balance across Europe. Mass migration from lower-lying areas would possibly lead to a ghetto formation in high risk areas whereas the poor would not be able to afford to live in safer areas. This would also put a strain on natural areas and resources and increase urban populations.

The poor would live in high risk areas while the wealthy could choose to live in safer areas. This would increase inequality and social division.

Potential actions

In order to be prepared for this, focused disaster investment would be required, in addition to allocation of resources on standby to cope with the effects and for evacuation.

* **Policy actions**

  Early actions: Policy makers would need to use existing evidence to prepare.

  Early reaction: Preservation of continuity in relocation; Provision of essential services Preservation of critical infrastructure; Relocation planning, taking into account the hazard areas.

- **Business actions**

  Early actions: All encompassing disaster planning and creation of contingency plans for businesses.

  Early reactions: Recovery of productivity and market position.

- **Research actions**

  Early actions: Look at indirect/secondary implications of the disaster and from there develop ways to prevent it; Find ways to artificially increase land space; Develop ways to evacuate the towns efficiently and quickly; Exploring possible role of civil society in disaster communication and response management; Economic market analysis would need to be carried out.

  Early reactions: Continuing economic market analysis; Identification of low hazard areas; Research would also need to focus on social and welfare issues.

Weak signals

Weak signals that indicate the unpreparedness include the absence of measures to respond to such a situation. Organizations seem and concern of organizations and people in general. We are seeing an increase in flooding in low lying areas in Europe, recently we have seen flooding on the west coast of France the west coast of France (a nation with similar climate and level of development to the UK) has just seen storm winds and sea surges, with the loss of 45 lives and a national emergency. It is also a weak signal that many low lying places seem to be very ill prepared for flooding. An example of this would be St Ives and Zennor, who were flooded in April 2009. These places had flood protection implemented but according to the council, lacked drainage solutions to quickly get rid of surface water. The public also seemed unaware of what measures they could take in protecting their homes and businesses.

Flooding response in the UK in 2007 demonstrated further how unprepared many places are for severe flooding and how vulnerable infrastructures are, such as railway and road system. Many roads were closed and train services suspended. Officials were later criticised for a high level of unpreparedness and slow response. Also armed forces were overstretched in rescue operations around the country.

Recommended research

Thematic area(s)

Environment, social sciences and humanities, health and security.

Research topic

Managing multi-agency communication and response in case of disasters.

Climate change and changes in weather patterns have brought on increase in flooding across Europe. Increase in frequency of flooding as well as flooding in unprecedented locations has proved to be a great challenge for the organisation of response. Uninterrupted and clear communication between early warning systems and response bodies has proved to be an obstacle to successful management of preparatory methods and the aftermath of severe flooding.

Objective

The research could focus on communication technology with the aim of improving multi-agency communication during instances of flooding by using new developments in ICT. Research should focus on how best to improve early warning systems and their communication with regulatory and response institutions (e.g. government, rescue, police, fire services and ambulance teams) as well as the general public. Research could also focus on ways of managing the aftermath of severe flooding and take into account organisational confusion, controlling of civil unrest and mass migration to higher lying areas.

Expected impact

The research should lead to a) design of a communication that is capable to handle multiagency communication; b) utilise new IC technologies to ensure uninterrupted communication c) assist in development of a flooding response system; d) pilot bottom-up approaches (i.e. exploring possible ways of engaging civil society) in disaster management.

Importance for Europe

Flooding is fast becoming one of the grand environmental challenges in Europe. Fast response and uninterrupted communication between early warning systems and response bodies is vital so that loss of human life and damages to infrastructures can be minimized. It is important that EU forms a coherent disaster response that could guide member states in forming their practices. It is important that research underpins innovation and the development of new communication technologies so that it may be designed to the highest standard.