Understanding Community Based Flood Early Warning systems in the Gangetic plains of Nepal and India

SUPERVISORS: Giovanna Gioli & Mikaël Attal (School of Geosciences, University of Edinburgh). Contacts: g.gioli@ed.ac.uk; mikael.attal@ed.ac.uk

PROJECT ABSTRACT
Communities are not mere consumers of information, but also producers of knowledge. This project aims at documenting and assessing various examples of community-based flood EWS in India and Nepal.

PROJECT RATIONALE
While Early Warning System (EWS) are understood differently across regions and stakeholders, people-centred approaches (Basher 2006) have gained traction with the central idea of putting affected communities at the core of the system and throughout the chain, from collection to dissemination and reception. As an offspring of this approach, practitioners have developed the notion of Community Based Flood Early Warning System (CBFEWS). CBFEWS is an integrated system of tools and plans to detect and respond to flood emergencies that are prepared and managed by the communities themselves. Increasingly, "communities" are not merely seen as consumers of information, but also as producers of knowledge. This research attempts at documenting various methods deployed at the community level to forecast floods and heavy rainfall in selected sites in the Gangetic plains of India and Nepal. 

Vulnerability to flood cannot be simply understood as 'natural', but it is rather the result of a set of material, discursive and policy factors that contribute to the ongoing production and reproduction of the geography of vulnerability. In the Gangetic plains, knowledge on floods -considered as both blessings and hazards-constitutes a complex hazardscape (Mustafa 2005) that has been historically produced by colonial legacy and politics of caste, class and gender (Shrestha et al 2014), along with the ecological flux that is inherent to it. Unpacking the notions of 'local knowledge' and 'communities' is key to understanding vulnerability and to evaluate if and how CBFEWS can be a successful tool counterbalancing the pitfall of technocratic and centralized EWS, or, instead, if CBFEWS (re)produces inequalities and determinants of vulnerability. This research is in line with NERC’s strategic goals of building resilience to environmental hazards and reducing the cost of flooding. There are also important lessons to be learnt from the CBFEWS that can be transferred to a Global North context.

KEY RESEARCH QUESTIONS
By documenting the experience with CBFEWS, this research aims to: (a) understand if and how the co-production of knowledge improve the efficacy of flood EWS; (b) unpack the notion of 'community' and 'local knowledge' and assess whether inequalities and vulnerability are (re)produced; (c) assess the degree of success of EWS in terms of efficacy and social learning; (d) assess and compare the gender blindness embedded in CBFEWS and official flood early warning systems; and (e) assess the degree of change brought by new technologies and knowledge innovation.

METHODOLOGY AND TIMELINE
This is an interdisciplinary project. The student will use surveys, interviews and focus groups to gain a deep understanding of the cultural dynamics that affect flood EWS. Critical geography approaches and intersectionality will be applied in the analysis. In addition, the student will need to define the physical characteristics of the floods in the regions of interest, through the analysis of a range of datasets including remotely sensed data and time series of discharge, precipitation, soil moisture, and temperature. Suitable climate indices will be developed with Amigo Climate in order to
assess climate variability and the potential impact of climate change in the region. Participatory video and/or photography are also encouraged in order to document what it means to be vulnerable from different perspectives.

**Timeline:** Year 1 – Familiarisation with the topic, literature review and research methods. Trainings. Conceptualisation of the work and first short field trip to identify local contacts and select the field sites. Year 2 – Preparations of the tools for data collection. Fieldwork in selected sites and data analysis. Year 3 – Data analysis and writing up. Throughout year 2 and 3: paper writing and conference/workshop attendance.

**CASE PARTNERSHIP:** Amigo Climate ([http://www.amigoclimate.com/contact/](http://www.amigoclimate.com/contact/))

S.M.E. providing consulting services for climate analysis and risk management to international organizations and commercial companies in different economic sectors. Contacts: Dr. Marcello Petitta, via Flaminia 48 00196 Rome, Italy. Email: mp@amigoclimate.com; Tel: +39(0)697279156

**TRAINING:** A comprehensive training programme will be provided comprising both specialist scientific training and generic transferable and professional skills. The student will be trained participatory and community-based methods and in political ecology issues. The student will work within a very diverse community of postgraduate students with background in both physical and social sciences. These include students from the Land Surface Dynamics group who are currently working on the physical processes associated with sediment transport and flooding in the Himalayas (L. Dingle, L. Quick, E. Graf, all supervised by M. Attal). Amigo Climate will provide training on how to use climate indices to understand climate and weather related risk.

**REQUIREMENTS** The project would suit a student with a background in Geography or a cognate discipline. A strong background in qualitative research methods and analysis are needed. The candidate should also be willing to engage with the physical sciences. Knowledge of South-Asian context/local languages is an asset.

Additional funds are required for fieldwork on top of the RTSG (which will be used to cover conference/workshop, publication and miscellaneous costs), detailed below:

<table>
<thead>
<tr>
<th>Activities</th>
<th>Sub total</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field work</td>
<td>3600 £</td>
<td>Including local transport and accommodation</td>
</tr>
<tr>
<td>Local assistance</td>
<td>800 £</td>
<td>Necessary for successful and safe completion of field work</td>
</tr>
<tr>
<td>2 round flight to Nepal</td>
<td>2000 £</td>
<td></td>
</tr>
<tr>
<td>2 flight from Nepal to India</td>
<td>500 £</td>
<td></td>
</tr>
<tr>
<td>Equipment for participatory photography/video</td>
<td>300 £</td>
<td></td>
</tr>
<tr>
<td><strong>Grand total</strong></td>
<td><strong>7200 £</strong></td>
<td></td>
</tr>
</tbody>
</table>

**REFERENCES**


