

# Integrating natural science into humanitarian and development planning: NGO guidelines

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## 1. Introduction

Non-governmental organisations (NGOs) are key actors in disaster risk reduction (DRR) in volcanic and other hazardous environments, working closely with local communities in order to facilitate the assessment and reduction of their risks. Prior to our research, there had been little systematic review of the methods for community-based risk analysis implemented by NGOs. In order to address this research gap, semi-structured interviews with NGO representatives were conducted between 2009 and 2012 in the UK and Philippines (see Duncan, 2014). Our results identify that these organisations typically rely almost exclusively on knowledge from local communities for the purposes of assessing risk, with little inclusion of scientific information. Our findings identify a number of barriers to integrating science in these assessments. A particular concern is the lack of effective communication of science. There is, therefore, an opportunity for scientists to raise awareness of the type of information that might be of value to NGOs and for NGOs to communicate their needs to scientists.

Our research identifies a lack of guidance for NGO practitioners looking to integrate science in their work. In order to address this gap, a set of guidelines for NGO practitioners were produced as part of a collaborative research endeavour. We acknowledge that raising awareness of how to access and utilise science does not directly equate to its uptake; however, by underlying in the barriers to communicating and integrating science (along with the purpose of the guidelines) within this presentation, we aim to emphasise areas of science integration that need to be improved.



Integrating science into humanitarian and development planning and practice to enhance community resilience

Full guidelines

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## 2. Barriers to integrating science: the need for better communication

The following findings are based on the analysis of semi-structured interviews with 19 participants from Head Office NGOs (17 in the UK and two in North America), 16 participants based in the Philippines and two based in other field countries (Nicaragua and Kenya). These participants represent international, national and local NGOs. Participants were asked about their approaches to hazard assessment, particularly at the community level. Here we present the findings that relate to the utilisation of science in this context and areas that require improvement, in particular the communication of science.

The majority of interviewees valued science but emphasised that science has to be **relevant, understandable and well communicated**. General concerns included:

- **Access to and availability of scientists and relevant science**, with interviewees citing a distinct lack of information at the local community scale and that science is expensive: *'There's no massive [scientific] study of different hazards in different communities. So, for lack of that, we would really rely more on local communities [than scientists]'* (local NGO representative, Philippines)
- **Lack of communication of science**, including the challenge of translating technical terms and poor information sharing by scientists: *'It was us the NGOs who translated [the science] to more understandable version...information been there....for years but it hadn't been shared'* (local NGO representative, Philippines)
- **Understanding science** – a few participants noted that NGOs are mostly comprised of 'social scientists': *'The science thing...we as NGOs are struggling with that'* (Head Office NGO representative, UK)

Both groups perceived that the **approaches and objectives of scientists and NGOs may differ**, with NGOs being perceived as more concerned with 'life and death' compared to scientists and thus having greater urgency to their work. In addition to the practical barriers, **ideological influences** pervaded interviewees, particularly those at Head Office, including the emphasis on community empowerment, vulnerability and bottom-up approaches. For instance, some participants were concerned that science would shift emphasis away from vulnerability:

*'the danger we see is...where technical aspects become more important...or suddenly prioritised in terms of funding over analysis of social political economic dynamics'* (Policy and Research Advisor – DRR, international NGO)

The findings indicated that science is valued by Head Office staff but not nearly utilised to the extent it is in the Philippines. The distinctions between the degree of utilisation and perceptions of science between those at Head Office and those in the Philippines are listed below:

Head Office participants	Philippines participants
<ul style="list-style-type: none"><li>• <i>Uncertainty regarding what science is of use and how to use it: science tends to be conceptualised and utilised primarily within the context of climate change</i></li><li>• <i>Integration of science is constrained by emphasis on vulnerability over hazard, community empowerment and bottom-up approaches, which reduces the degree of external influences. This led to some hesitancy or lack of appreciation for integration of science.</i></li><li>• <i>Some acknowledged the limits of community knowledge, perceiving it to be 'redundant' in a changing climate</i></li><li>• <i>Mixed opinions as to whether scientists should directly communicate with communities</i></li></ul>	<ul style="list-style-type: none"><li>• <i>Greater acknowledgement of the role of science (beyond climate change science) but its integration is the ideal and not the norm owing to a number of barriers including access to and availability of science and scientists and poor communication between scientists and NGOs.</i></li><li>• <i>Reliance on the initiative of key individuals and informal networks to access science.</i></li><li>• <i>Greater discussion of direct communication between scientists and the community (NGOs providing the role as the knowledge broker), but noting that scientists are not able or not willing to visit the communities.</i></li></ul>

## 3. A science communication tool: guidelines for NGO practitioners

The interviews indicated some underlying concerns within NGOs that need to be addressed in order for practitioners to integrate science into their work. Some of these concerns require changes at the institutional and organisational level, but there are steps individuals can take to improve their approach to integrating science:

1. There is therefore a need to enable NGOs staff to **know what questions to ask of scientists** and to **ensure that they have the skills to translate and communicate science**, particularly since they are (at least initially) likely to access science without the assistance of a scientist. It is therefore vital that NGOs staff are **able to gauge the credibility of information**.
2. **Scientists are constrained in their ability to engage** and it is necessary for NGOs to be aware of these constraints and to engage productively with scientists.
3. It appeared that **NGOs are not always aware of what science might be of use**. There is, therefore, an opportunity for scientists to increase science awareness amongst NGOs, but also a need for NGOs to recognise that it is necessary to integrate science with community knowledge. **Emphasising the impact of science** in helping vulnerable people is therefore essential.

In order to address the concerns identified in the analysis of the interviews with NGOs, a set of guidelines entitled **integrating science into humanitarian and development planning and practice for enhancing community resilience** (Duncan et al., 2014) was developed.

These guidelines were the consequence of an international collaboration, encompassing the research and experience of a number of knowledge exchange academics and NGO DRR advisors (see Duncan et al., 2014 for the list of contributors), but they were particularly informed by the research discussed in this presentation.

The guidelines are designed for NGO practitioners but are also of utility to scientists wishing to gain insight into working with NGOs. They encompass **five components and emphasise that the process of integrating science is iterative** (Figure 1). The document emphasises the importance of formalising partnerships between scientists and NGOs well in advance of (volcanic) crises.

The guidelines are not designed to be exhaustive, but they do address a number of the concerns raised in this presentation.

**Proposed future research includes:**

- Analysis of the impact of guidelines
- Guidelines for scientists (discussions underway)

If the reader is interested in getting involved in the impact of communicating and integrating science, please contact the lead author ([melanie.duncan@ucl.ac.uk](mailto:melanie.duncan@ucl.ac.uk)).

### References

Duncan, 2014. *Multi-hazard assessments: lessons from the Philippines and applications for non-governmental organisations*. EngD Thesis. University College London: UK.  
Duncan et al., 2014. *Integrating science into humanitarian and development planning and practice for enhancing community resilience*. Guidelines for NGO practitioners. Available: <http://www.ucl.ac.uk/abuhc/resources/guidelines>

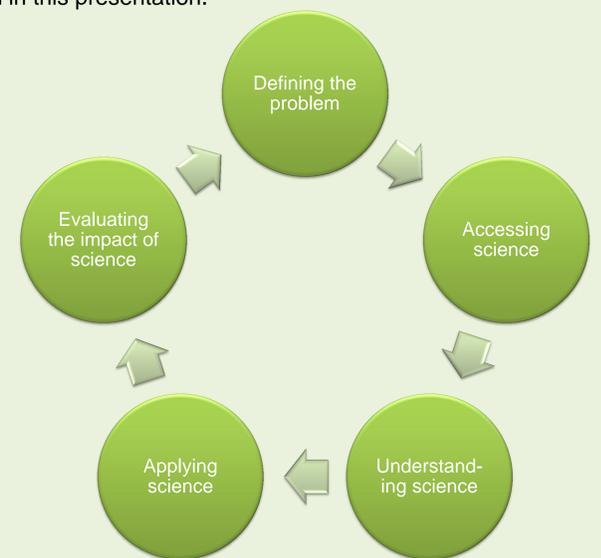


Figure 1 Components of integrating science