Themes and Challenges for Volcano Science Work in Developing Countries:

IAVCEI General Assembly, Portland, Oregon, United States - Friday 18 August 2017

**Background**

During the IAVCEI 2017 conference in Portland, U.S. an open invitation meeting was held to gather volcano scientists working in a developing country context. With a focus on discussing common challenges and barriers to understanding and mitigating volcanic risk in developing countries and coming up with strategies to encourage the scientific community to incorporate these considerations in their work. This included discussion of how IAVCEI could improve the support for this part of the community.

Key questions that were raised during the meeting include:

1. Is there a need to create a formalised mechanism to support networking and the sharing of resources between scientists working in a developing country context (should this be formalised within the IAVCEI framework); are you willing to form a community of practice for volcano work in a developing country context?

2. What would it be good to see happen within such a community to support scientists in the developing country context?

3. Are there some mechanisms and organisations already in place that can be leveraged to support work in developing countries, what else can be done?

4. What are the key actions or next steps for the group?

An associated social event was held to support the creation and strengthening of relationships between scientists in developing nations (Thursday 17 August 2017).

The following document presents a summary of the discussions at the meeting and represents the views of ~20 participants to shape the development of this group and activities for the future.

# Summary

1. **Is there an interest in creating a formalized mechanism to support networking and sharing of resources between scientists working in a developing country context?**

The feedback from participants was positive that there was a desire to establish some type of forum for networking and sharing of information between scientists working in a developing country context. Several key aspects should be considered when determining the best context and mechanism for this:

* Creating a ‘one stop shop’ for easy storage and use of relevant tools and information
* Utilising existing platforms, for ease of use and low maintenance e.g. Vhub
* Linking in to other existing networks and agencies that are closely aligned the goals of the network e.g. WOVO, UNISDR, UNDP, UNOCHA, World Bank
* Bringing together a wider range of participants involved in Disaster Risk Reduction (DRR) e.g. Non-observatory staff, Disaster Management Offices
* Linking in to other non-specialised (not just volcano) DRR contractors
* The need to gather a wider range of input as to the mechanism, focus and goals of such a network, for example a survey of the wider community

# What would you like this to achieve?

Several key work themes were identified at this initial meeting as being areas for initial focus for the community that could be delivered through the development of a Developing Nation Network:

## Capability in the development context

* A centralised location for depositing and easy access to training materials that have been targeted at the developing country context.
* Current practice and approaches to developing training that is accessible and targeted for this context.
* Help to identify professional development opportunities - links to adverts for training and workshops and mechanisms for funding.

## Formation of a network to share resources

* A centralised location for resources that are commonly utilised by volcano scientists such as reports, thesis, powerpoints, example maps or hazard assessments. Ideally set up with adequate explanation in the abstract text for users to be able to gauge the relevance to them and with multiple ways to access the data for instance an email contact for mailing options if participants have limited internet access.
* A forum for researchers seeking feedback to post the work that they have been undertaking to develop research or operational methods that they would like to be utilised in developing countries, with a mechanism for developing country scientists to post their comments or thoughts on how to make it more accessible.
* A repository for methods and approaches that can be applied e.g. risk analysis, training, engagement, hazard mapping, working with local communities and links to IAVCEI commissions that focus on these areas.
* A database of who is working in which country (and in what context) so that scientists wishing to start work there know who to contact. Including a clear link to WOVO as the natural hub of information in a particular country, but also acknowledging that not all countries have an observatory.
* Providing links to other regional groups e.g. ALVO, SPC and agencies working in multiple developing nations e.g. VDAP.
* International funding opportunities and partnership information.
* A forum for scientists in developing nations to post potential topics of research that would support their strategic goals so that international academic institutes (and prospective students) can align graduate projects with current gaps and needs in the volcanological community.
* Provide more information on the structure of IAVCEI with the commissions/unions (e.g., IAVCEI, AGU, EGU etc) and groups/activities that may be of benefit to scientists in a developing country context.

## Providing a forum for developing and raising awareness of common themes and challenges to work in the developing country context

* Development of best-practice guidelines for non-crises engagement in developing nations (to complement the existing IAVCEI work on guidelines developed for scientists in a crisis).
* Provide a forum for future discussions and survey on common themes / challenges and potentially a ‘key topic’ to be explored by the group e.g. on an annual or decadal basis.
* Establish a list of common research themes or additional ‘big questions’ related to work in the developing country context to promote future work answering these questions.
* Discussion on other future ‘best practice’ documentation applicable in this context.
* Afford an opportunity for scientists that may not be able to regularly attend IAVCEI meetings to share their thoughts, concerns and ideas regarding IAVCEI initiatives that impact them, but that non-attendance acts as a barrier to their contributions.

# What mechanisms and organisations are already in place that can be leveraged to support work in developing countries and what else can be done

WOVO is an organization of and for volcano observatories of the world; members are institutions engaged in volcano surveillance and for the most part are responsible for warning authorities and the public about hazardous volcanic unrest. There are currently initiatives underway to revitalize and promote this existing IAVCEI commission and this proposed network would closely align and complement the current goals of WOVO and extend support for those in developing countries beyond the scientists engaged in volcano surveillance.

Potential support can be provided by in-kind support of the activities mentioned in answer to question 2 and more tangibly to:

***Provide grants* to support travel and subsistence for scientists from developing countries to attend IAVCEI conferences.** There are often grants or sponsorships made available to early career researchers and those from developing countries to attend the larger conferences, but the availability of these is limited and the timing of submissions may not be aligned with processes at national organization. In some cases they are for specific components or up to a given value, further support should be explored to meet these gaps.

***Support attendance of scientists from developing countries to attend IAVCEI or other relevant meetings***. Often the grants are limited to the larger conferences and may not be available for more specific or targeted workshops etc. Options for providing generalized scholarships that can be applied for when needs arise should be explored. This network could provide a centralized location to advertise and view possible funding opportunities at an international or regional basis.

***National funding bodies***are more commonly including a requirement for researchers to state how the work can support development goals. By providing a forum to discuss the common themes and big challenges researchers can match their work to the current gaps. More importantly there is the potential for those operating in a developing country context to influence the directions and applicability of such work by promoting partnerships and engagement with scientists working in-country.

# Key Actions?

Discussion covered many topics for possible future implementation, the agreed first steps were:

* **Development of a ‘Developing Nation Network’** initially through the establishment of a group on Vhub (Action: VMiller) and exploration of how this network could be formalised within IAVCEI and linked to other commissions e.g. WOVO (Action: G.Leonard, V.Miller)
* **Distribution of the meeting participant email list** to be undertaken through the Vhub platform (Action: V.Miller)
* **Reinvigoration and promotion of WOVO** (currently underway Action: N.Fournier)

# Development and distribution of a survey to canvas the wider community on the way forward (Action: TBD)

* **Development of mechanism to communicate who is working in-country** linking to networks in-country, partners with similar interests, WOVO, and leveraging initially through groups already working extensively in-country e.g. USGS-VDAP (Action: TBD)
* **Investigation of possible programs for funding/sponsoring** particularly for early career scientists working in developing countries to support capacity building (Action: TBD)