DFID-GFDRR Challenge Fund

Phase II Final Report: VolFilm

Please note that this report largely concerns Phase II of the VolFilm project. As this is a continuation from Phase I, we refer you to the end-of-project report for Phase I for added detail on these answers.

I. Name of project, target country(ies), USD amount and time frame of Phase II grant

Name: VolFilm: Multilingual and multi-platform films for resilience to risks from volcanic hazards

Target countries: Our films are aimed at a global audience. Active volcanoes are located in 86 countries and additional overseas territories around the world, with, as of 2015, over 800 million people living within 100 km of a volcano worldwide (a distance within which they could be directly affected by volcanic hazards). Note that this population figure increases substantially if you consider the distances potentially affected by volcanic ash.

Whilst our films are meant for any individual or communities living near volcanoes, a particular interest is in reaching those in developing countries, and particularly those communities with no experience of volcanic activity. Indeed a volcano with no previous historical record erupts about every two years. Populations around such volcanoes can be particularly vulnerable due to their lack of experience of volcanic activity. 64 of the countries with volcanoes are ODA recipients, 19 of which are considered 'least developed'.

USD amount: At Phase II we were awarded $150,000

Time frame: Phase II of the project ran from January 2017 to March 2018.

II. **Description of tool, approach, toolkit**

a. Was it demand-led? If yes, how?

The volcanological community and, in particular Volcano Observatories, have long appreciated the value of films as an aid for communication to communities during volcanic emergencies. Two videos produced by the International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI) on volcanic hazards and risks were produced in 1988 and have been widely used, contributing to saving many lives. However, the videos have become out-of-date and there were only two language versions. There have been many advances in both scientific understanding of the volcanic hazards and how best to communicate effectively over the last two decades. Thus there was an increasing appreciation internationally that a new generation of films was needed using contemporary platforms, utilising modern high-resolution footage and in more languages. Thus the project was demand-led from practitioners dealing with volcanic emergencies.

b. Did you work with local beneficiaries in Phase II to develop your tool? If yes, how many local beneficiaries and how were they involved?

We worked with institutions that run Volcano Observatories or work with Volcano Observatory partners in several countries as reported in our list of partners (see III). Two of the partners, namely the Volcano Disaster Assistance Programme of the US Geological Survey (VDAP) and Geological and Nuclear Sciences (GNS) New Zealand work with many partner institutions in developing countries with active volcanoes, greatly increasing the global footprint of the VolFilm project. The project is endorsed by IAVCEI and by the World Organisation of Volcano Observatories (WOVO) and is facilitated through the Global Volcano Model platform. We consider that engaging the national institutions and international programmes is the best approach to engaging local communities.

c. What is 'new'? In other words, what did Challenge Fund monies support in Phase II?

The Challenge Fund monies supported the creation of new films to add to the VolFilm suite, begun at Phase I. In Phase I we created hazard and impact films for pyroclastic flows and lahars, and a proof-of-concept experiential film on lahars at Nevado del Ruiz. In Phase II we have substantially increased the number of films, covering more of the most significant hazards (from the point of view of frequency and scale of impact), and developed three experiential films. A fourth experiential film in Nicaragua on volcanic gas was produced by partners from other funds. The films are short and appropriate for the internet and social media age. Each film can be viewed as a self-contained entity with basic information and key messages. The films can also be used together so that any particular hazard can be considered either from a more factual perspective (the hazard and impact films) or from the words of people who have been affected by the hazards (the experiential films). Animations were used in several of the films to highlight key messages on how people can protect themselves from the hazard and to convey key messages. All films were extensively reviewed by partner colleagues and local communities through our partners.

All films for both Phase I and II have been produced in English, French, Spanish and Indonesian. An Italian version is being produced.

The new films and the links to the English version of the films are below. Please note that they will be made live shortly after the submission of this report, so you may need the password 'magma' to access them:

Hazard and Impact films	
Explosive eruptions: the hazard	https://vimeo.com/248150325
Explosive eruptions: the impact	https://vimeo.com/248150327
Lava: the hazard	https://vimeo.com/248150337
Lava: the impacts	https://vimeo.com/248150341
Volcanic gases: the hazard	https://vimeo.com/248150328
Volcanic gases: the impacts	https://vimeo.com/248150333
Experiential films	
Experience: Living with volcanic gases, Masaya, Nicaragua	https://vimeo.com/249376281
Experience: Lahars "A river of rock"	https://vimeo.com/258992598
Experience: Pyroclastic flows "A glowing cloud"	https://vimeo.com/258990483
Experience: Ashfall "An eclipse"	https://vimeo.com/258987023

d. How does it support risk identification and decision-making?

The central aim of the project is to help people in communities threatened by volcanic activity to understand the risks they face from the major kinds of volcanic hazard. The films will also be very useful for authorities and staff in civil defence and emergency services who have to respond to volcanic emergencies. Thus, the films will affect decision-making in two different ways. First the films contain simple key messages on how best for individuals to protect themselves. Second, decisions need to be made both formally and informally by authorities and professional emergency services. These decisions notably include evacuation. The films will benefit risk managers by improving their knowledge of the hazards and will help explain to communities why difficult decisions, such as evacuation are necessary.

e. Describe the degree to which it is openly-available and how users can access it.

We have posted the films on the video hosting site Vimeo. The Phase I films were posted here in early 2017, and are publicly accessible. The Phase II films are currently set to private, requiring a password to access them. This was for the period of review that has been undertaken since January 2018. Minor amendments are being made on the films, and the final versions will be put on Vimeo week beginning March 5th. We will make them publicly accessible shortly thereafter. They will also be placed on popular video hosting site YouTube, which has a larger user base. The links to the films will be shared through webpages and social media to ensure widespread knowledge of their presence. The Volcano Observatories will be key in making the films widely accessible through their own educational, outreach and communication programmes.

The films are free to access and download and available to all with the internet. Our online presence is designed to allow the films to reach as many people as possible. The videos can be viewed online (streamed) or downloaded at different file sizes to account for variability in internet speed around the world. We were alerted by one partner during the review process that downloads proved slow. We will address this issue by contacting all volcano observatories (members of WOVO) to inform them the films are now available, and in multiple file sizes. We will supply them with the films on a memory stick if downloads are difficult, which they can then share as required.

Our partners and members of WOVO will thus have copies of the films, to show in their observatories, monitoring institutions, at public outreach events, educational events and in developing volcanic emergencies. The Volcano Disaster Assistance Program (VDAP) will also use the films as educational tools in their response to developing emergencies.

f. Discuss how it enables (or will enable) users to make more effective disaster management and resilience decisions.

To a large extent this question has been addressed though the answer to (d) above. The basic objective is to give individuals and emergency response organisations the basic information on the hazards and their impact so that they can take measures to protect themselves. All our partners intend to use the films in their work with communities around volcanoes.

The films are designed to inform individuals about the hazards they might face, and provide simple self-protection measures. The films should encourage individuals to consider how they might be affected. It is hoped by beginning this thought process, they will have already given thought to their options and evacuation routes prior to a volcanic emergency. It will also enable a better understanding of events and information provided by the authorities during volcanic activity. A better informed individual or community is more resilient.

III. Description of partnerships (active in Phase II, but which could have started in Phase I), in particular those involving local partners. *Did you work in partnership(s) with a local partner(s)? If yes, please provide the name(s) of the local partner(s) and the nature/strength/sustainability of the partnership.*

The VolFilm project developed crucial partnerships with numerous monitoring and research institutions around the world. Whilst led by Bristol, at Phase II key new partnerships were added with the British Geological Survey (BGS, Dr Anna Hicks) and University of East Anglia (UEA, Professor Jenni Barclay). BGS and UEA brought expertise and experience in the development of experiential films and risk communication. Bristol, BGS and UEA formed the main production team for the films, developing them, preparing the scripts, identifying footage to use, working closely with the film companies, undertaking the filming and interviews for the experiential films, and undertaking the evaluation.

We were aided by a strong and experienced advisory group, that we developed through partnerships with the United States Geological Survey (USGS, Dr John Pallister, Dr Carolyn Driedger, Dr Elizabeth Westby); Geological and Nuclear Sciences New Zealand (GNS, Dr Gill Jolly, Dr Julian Thomson); Vanuatu Geohazards Observatory (Dr Esline Garaebiti); the Goma Volcano Observatory, Democratic Republic of Congo (GVO, Professor Katcho Karume, and Mr Mony Murongani); the Institut de Physique du Globe de Paris, France (IPGP, Professor Jean-Christophe Komorowski); the Instituto Geofisico Escuela Politecnica Nacional, Ecuador (IGEPN, Dr Patricia Mothes); the Istituto Nazionale di Geofisica e Vulcanologia, Italy (INGV, Dr Daniele Andronico, Professor Augusto Neri, Dr Micol Todesco), the Seismic Research Centre of the University of the West Indies, Trinidad and Tobago (SRC, Professor Richie Robertson, Ms Stacey Selman-Edwards); the University of Plymouth (Professor Iain Stewart); and the General Directorate of Mineral Research and Exploration, Turkey (MTA, Mr Gokhan Atici, Ms. Bilge Karaman).

As of 2018 the International Volcanic Health Hazard Network (IVHHN), directed by Dr Claire Horwell of Durham University, UK, have become partners on the VolFilm project. IVHHN will produce short films from other funding sources that will become part of the VolFilm series. These films will be focused on Indonesia and volcanic ash. They will demonstrate methods for protection from inhalation of volcanic ash to mitigate health hazards of ash. One will be an experiential film, with stories from the 2010 eruption of Merapi Volcano in Indonesia.

During Phase II a team from the University of Leeds, UK (led by Dr Evgenia Ilyinskaya) became a partner. This team contributed on the volcanic gases films and produced the experiential film on volcanic gas at Masaya, Nicaragua, produced by a local film maker in Nicaragua (Calé Producciones).

Good relationships have been established with the film companies Aspect Film and Video, Bristol, UK (hazard and impact films), Lambda Films, Norwich, UK (experiential films) and Calé Producciones, Nicaragua (gas experiential film). The project has established working relationships with many film makers around the World, notably including the Krafft Foundation and the Katia and Maurice Krafft Collection at the Image 'Est, Nancy, France.

The partnerships established here are strong. VolFilm will continue beyond the end of this project, but must look for new funding.

iv. Description of capacity building of local stakeholders. *Did you conduct training in Phase II for local communities or beneficiaries in the use of your tool? If yes, please describe the type of the training and the number/type of beneficiaries trained. Did you measure change in knowledge as a result of your training? If yes, please provide results. Did you follow up in any way after the training to see if what you discussed was put into practice? If yes, please explain.*

Phase II of the VolFilm project did not involve specific capacity building in the form of training of stakeholders. However, our films will become useful tools enabling volcano observatories and other institutions to educate and inform their local communities and even authorities. Thus, the films will form a part of future training. The films ultimately will help make individuals, communities and authorities better informed about volcanic hazards, their impacts and steps that can be taken to mitigate against these.

We conducted a period of review of our films with partners and their local communities. Please see our evaluation report as an appendix. Some of the findings of this are summarised under point VIII.

v. Did you leverage private or public sector resources? *If yes, please describe the source of the leverage as well as the total USD amount of combined cash and in-kind contributions. If relevant, please describe the nature of your relationship with the source(s) of leverage.*

The project has been able to leverage a significant amount of in kind and additional funding. The most significant contributions came from pro bono staff time and through the generosity of film-makers around the world who have made their footage available at greatly reduced costs and in some cases at no cost. We estimate below that pro bono staff time in Phase II amounted to $194,300; significant reductions in the costs of film compared to their true commercial value or production costs amounted to about $28,000 and funding from other sources amounted to $99,000. The grand total of leverage for Phase II of VolFilm is estimated at $321,300. Adding together the leverage from Phase I (>$100,000) the total project leverage is estimated at over $421,300.

Here we report leverage from phase II in more detail.

Additional funding

We were able to obtain some additional funds to support VolFilm work during Phase II. The most significant additional funding was grant of £50.5K (US$69.7K)[*] from the Natural Environment Research Council of the UK (NERC) through their Innovation Programme. These funds were allocated to University of East Anglia with Professor Jenni Barclay being PI and the funds supported staff time at UEA, Bristol and the British Geological Survey at £35k ($48.5k). The funds also paid for £15.5k ($21.4k) of travel and expenses associated with the filming of the experiential films (staff and film crew) in Ecuador and Montserrat. The NERC grant did not cover full economic costs so these were supplemented by UEA, Bristol and the British Geological Survey. These staff costs are included in the table below.

During the project we were joined by Leeds University with funding from the Global Challenges Research Fund of the Research Councils UK to make an experiential film on volcanic gas at Masaya volcano funded through NERC. This film was produced by Dr Evgenia Ilyinskaya and Calé Producciones in Nicaragua, as part of the UNRESP (Unseen but not unfelt: Resilience to persistent volcanic emissions) project, with support from VolFilm. This experiential film is part of the Phase II products and production costs were £10k (US13.8k).

VolFilm was also supported by the Vetlesen Prize to Professor Sparks by a gift of £10k (US13.8k), which primarily supported the production of the films in Indonesian. The US Geological Survey supported the travel costs ($US1.5k) of Mr Aditya Andreas from Indonesia to visit the UK to work on the Indonesia translation of the films.

Film production

Our experience and relationships established at Phase I, and the humanitarian and educational nature of the project meant that we were able to secure free or heavily discounted archive footage for use in the films, equivalent to about $20,000. Interviews for the lahar experiential film in Colombia were already available from a NERC funded project called STREVA to UEA and have an estimated value of $10,000

Our international colleagues provided script translations freely, saving about $3,000 on professional translation services. Staff time costs for translation work are included in the table below.

[*] We use the current (March 2018) exchange rate of £1 = $US1.38 in all conversions.

The English voiceover for our films was provided freely by project partner and professional television presenter Professor Iain Stewart, saving about $5,000 at Phase II, which is accounted for in the pro bono staff costs in the table below.

Staff time

The project relied strongly on all partners providing their time freely. Some of the allocated funds from GFDRR covered staff time, notably for Dr Sarah Brown (Bristol University) and Dr Anna Hicks (British Geological Survey). However, all other staff provided their time pro bono. Staff work included translations of English scripts into French, Spanish and Indonesian, communications to develop strategies and plans, project management, contributions to film stock, contributions to the design of film content, reviewing of film scripts and drafts, and organisation of review groups of citizens, civil defence staff and scientists, including implementation of assessment surveys. The table below gives our estimate of the value of these pro bono contributions from key individuals and all partners In Phase II. The time estimates are converted to US$ according to estimates of local daily rates and also depend on the relative contributions of senior and junior staff. The value of NERC Innovations funds towards staff time is shown in parentheses.

	Time in kind	**US$ equivalent**
Production team:		
Dr Sarah Brown (Bristol University UK)	113 days	$33,900
Professor Steve Sparks (Bristol University UK)	20 days	$20,000 ($5,500)
Dr Anna Hicks (British Geological Survey, UK)	60 days	$44,700 ($25,000)
Professor Jenni Barclay (University of East Anglia, UK)	30 days	$21,700 ($8,300)
Dr Teresa Armijos (University of East Anglia UK)	50 days	$15,000 ($9,700)
Advisory group:		
US Geological Survey VDAP team	40 days	$20,000
Vanuatu Geohazards Observatory	5 days	$2,500
Geological Nuclear Sciences New Zealand	15 days	$7,500
Goma Volcano Observatory DRC	20 days	$5,000
Institut de Physique du Globe de Paris	10 days	$5,000
Instituto Geofisico Escuela Politecnica Nacional, Ecuador	20 days	$5,000
Isitituto Nazionale Geofisica Vocanolgia. Italy	5 days	$2,500
Seismic Research Centre, University of West Indies	30 days	$15,000
University of Plymouth	5 days	$5,000
Directorate Mineral Research & Exploration, Turkey	2 days	$1,000
Other:		
Lamda Films	n/a	$26,000
Centre Volcanology Geological Hazard Mitigation, Indonesia	20 days	$3,000
Montserrat Volcano Observatory	10 days	$5,000
University of Leeds, UK	10 days	$5,000
TOTAL		**$242,800**

Approximate In-kind staff time

vi. How did your project consider gender in any aspect of project planning or implementation? Was a gender analysis or assessment conducted? *If yes, did your project address any gap identified in the assessment? If yes, please describe how. All Phase II projects are required to integrate gender into their work. Please use what you wrote in your inception report on gender as the starting point for this section.*

As at Phase I, the VolFilm team has a very good gender balance. Of the the production team, 75% were female. Of the advisory group 44% were female. With the addition of Leeds this rises to 47%. Many of the key roles were held by women.

There are few people portrayed in the hazard and impact films. We try to strike a balance in gender in the people shown, however this is somewhat determined by the availability of footage. We have used male voiceover artists in recognition of the unfortunate fact that a male voice in many cultures will deliver more authority. We are considering a female voiceover artist for the American English voiceover.

We have documented stories from both male and female community members and scientists or those in positions of authority in the experiential films, with about 40% of the interviewees being women.

We asked all partners to consider gender in field testing and reviewing of the films, and approximately half of reviewers were female.

vii. Discussion of how tool or approach can be brought to scale in the future.

There are a number of ways that that project scale can be enhanced. The resources for VolFilm were not sufficient for the following future developments all of which would broaden and widen the impact. There is a high priority need to make further language versions of the films, which will significantly increase the reach of the films globally. We prioritise Swahili, Filipino and Pidgin (English and French) for countries in SE Asia (e.g. Vanuatu and Papua New Guinea). There is a need for films that are more focussed on particular countries or even regions within countries. Our films are generic and there is a need for films that are more bespoke to take account of knowledge of local volcanoes, cultural issues and dialects of a language. Many of the films could be adapted to suit particular places and would likely be more effective as a consequence. While some sampling of the response to the films by community groups was carried out we think there is a need and scope for a much more comprehensive assessment which could well lead to some changes in the existing films. We have identified a need for films on volcanic unrest to explain to communities what is happening and how volcanoes are monitored.

viii. What were main points of learning from this phase of the project?

Future revisions

The feedback we requested from partners and the communities they serve has provided insights into how to make improvements on the films.

Some footage shows people (including scientists) too close to eruptions, which can suggest that this behaviour is acceptable or approved of when in fact this is normally discouraged. For example, where the boats approach the lava ocean entry in Hawaii in the lava films (a very common tourist activity in Hawaii), and where there is someone perilously close to falling rocks in the explosive eruptions film. Unfortunately, this sort of risky behaviour can come at a price (e.g. fatalities in tourists described in Brown et al. 2017) and so discouraging it is paramount. For now, we will ensure to convey this message through the website and partners.

There are some potential small changes to the scripts required. As the voiceovers had already been recorded, they could not be incorporated at this late stage and with no further funds available. The changes are minor, but would make the films and messages even clearer. For example, in the lava hazard film, we discuss lava tubes but show a lava channel (tubes are underground), so adding in channels to the script would be advantageous.

There are also potential valuable changes to make to the animations. For example, in the gas impact film animation, the lights go out in the buildings to illustrate the closing of windows (as in the narration), but some reviewers thought this meant lights should be turned out to guard against volcanic gases.

The surveys identified some occasional disconnect between what is being said in the narration and the visuals. We have chosen to be very literal in our choice of imagery, matching the visual to the script, however this wasn't possible in all cases. The USGS have suggested in future versions as close a match as possible to not only convey the right message but encourage trust in what they or the relevant local observatory or authorities are saying.

Many people live alongside volcanoes. Some volcanoes are currently quiet, some are continuously active and some spring to life with short-lived violent eruptions. It is important to recognise that people can and do live alongside active volcanoes, and in some cases can benefit from their presence. Benefits that volcanoes bring include improving fertility of the land for increased agricultural yields, boosts to the tourist industry as tourist attractions, and growth of new land. We try to provide something of a balance in our message – volcanoes are not all doom and gloom, adaptations and precautions can be made to make living alongside them possible. The positive message is sometimes a bit incongruous with the rest of the film, e.g. explosive eruptions hazard where a little more building on the positive note is needed.

Lessons learned

It was found that the experience films, whilst beautiful and moving, needed a clearer message. It was unclear to reviewers if the message is it is okay to live near volcanoes, or that volcanoes and their hazards are not that bad. They also advised that it would be helpful to more clearly show where the people were in relation to the volcano.

We found that despite our use of a professional, experienced and well-known presenter for the English versions, the soft Scottish accent and thus regional accents in general, are best avoided for worldwide audiences. The accent was found by some to be difficult or distracting. A standard Queen's English accent or American-English accent would likely be more acceptable to a wider audience. However, as a series, consistency of narrator is preferred. We thus are now opting for language options that include local dialects (as mentioned in (vii) above). For example in the eastern Caribbean there is a strong case for having English and French versions recorded in a regional Caribbean dialect.

Country to country there are other language traits that must be considered, for example units (km, miles) and certain words (e.g. windscreen vs. windshield). Future versioning of the existing films will consider these, with the scripts provided for translation giving free reign to make necessary adjustments, not just in the voiceover but in the annotations, animations and signs.

During our translations the 'poetic' use of language, perhaps only really relevant to the titles of the experience films (e.g. Ashfall: An eclipse) does not necessarily convey well in other languages. Translators will be free to adapt these titles as necessary.

Some reviewers suggest inclusion of volcano names for each shot in the hazard and impact films. This is something we have chosen not to do on consultation with Aspect, as we feel it would distract from the messages being given. The films are short, and people need to listen to the narration and pick up information from the videos relatively quickly, and extra annotations would likely prove a distraction. We are including a list of locations seen in each film on the website for those interested.

Something else that the reviews highlighted was that we must give detailed consideration to how each clip could be viewed. For example, the photography of the emergency kit is an example of some of the kit required, and is not meant as a prescriptive illustration. We are advised that it could be viewed as the latter, while in reality, you would need a substantial kit with sufficient food and supplies for days. In this example we do link to the relevant information on the website. Our partners also noted examples of imagery featuring scientists sitting and watching. They felt this may suggest that scientists are not as active and involved in intense monitoring efforts.

Future films

The VolFilm series of films could be expanded considerably, and some films are particularly of interest were further funding to become available.

Firstly, partners and communities have expressed interest in a film dedicated to the monitoring of volcanoes – unrest leading to eruptions (or not) and eruptions themselves. Further understanding of the monitoring techniques, the efforts of scientists and authorities to understand activity and protect communities, and signals that eruptions or hazards may be imminent would be beneficial. This may be undertaken from the point of view of a monitoring scientist so the viewer can gain an understanding of the uncertainty in forecasting activity and the decisions that must be made.

Another potentially valuable film is one that is aimed at emergency responders who have little or no experience in responding to eruptive activity but are expected to engage in search and rescue or recovery activity, or facilitate and maintain evacuations. This would require engagement with response teams with experience to understand and describe the conditions that might be faced, decisions that might be needed, health and safety of the emergency responders and perhaps medical interventions that may be required.

Films tailored to particular countries, regions or communities could be valuable in increasing the relatability of the films, and for addressing issues relevant to these groups. Our current films address the hazards quite broadly, while a more focused approach would allow for specific calls to action and a clear understanding of the specific hazards that may be faced.

And of course, we have currently only addressed five volcanic hazards. There are more that may warrant their own hazard and impact films, such as ballistics and debris avalanches.

Future versioning

There are many options for new versions of the existing films, and partners have already expressed interest in some versions. Professionally subtitled versions of the films would be advantageous to make the films accessible to the hard of hearing, and for use in emergency situations where perhaps sound systems are non-ideal. An American-English version of the film is being discussed, with the USGS leading on finding an appropriate voiceover artist and provision of the necessary funds to produce this. Our Turkish colleagues at MTA are investigating the use of a colleague for the Turkish voiceover, which would be particularly valuable as there is no experience of eruptions in Turkey. Our Italian colleagues have already translated all the films, and recorded the Italian voiceover with a well-known Italian actor. These films are in the final stages of production, so should be made available in the coming month or so. We now have a document to share with colleagues, partners and all interested parties providing the options for new language versions and the different prices, and people are being encouraged to seek funding to increase the range of languages available.

In addition to language changes, small changes to the footage are also being investigated to make the films more familiar to particular settings. For example, a partner in a certain location might choose to

not only change the language, but change the warning or direction signs seen in some of the videos to locally used ones, or change some footage to show local volcanoes, communities and towns. Added familiarity will encourage the viewer to relate to the film and recognise that the hazards and impacts shown could affect them, helping to overcome the issue of viewing infrequent events as something that happens to 'them', not 'us'.

Finally we are currently in preliminary discussions with the Smithsonian Institution and USAid about creating an archive of film that can be used by organisations wishing to make their own films at no cost or low costs. This might enable Volcano Observatories around the world to make more specific and bespoke films on for example particular volcanoes.

ix. Additional Monitoring Data regarding Tool Uptake

a. Is your tool openly available to the broader user community? If yes, please provide the name of the platform.

As per (e) the films are available online to all with access to the internet. They are hosted on Vimeo.com and Youtube.com. They are free to access, view and download.

At Phase II we have produced films in English, French, Spanish and Indonesian. These language options make the films accessible to over 25% of the world's population[1] (native speakers and with these as second languages). This rises to over 35% when including those with English as a foreign language. English is an official language in 54 sovereign countries and an additional 27 non-sovereign states; French is an official language in 29 nations, Spanish in 20, and Indonesian in 1. However, Indonesia has an extremely large population exposed to volcanoes and their hazards, and alone accounts for 66% of the total global volcanic threat[2].

b. How many downloads of your tool have occurred throughout both Phase I and Phase II? How is this being measured?

The access of the films online is easily measured, as both Youtube and Vimeo track this and other analytics.

The Phase 1 films: Pyroclastic flows hazards and Impacts, and Lahars Hazards and Impacts have been publicly available online for a year. There have been a total of 33,458 plays of the videos on video hosting site, Vimeo, since the Phase 1 films were released 11 months ago, with 854 downloads. These views were in ~170 countries and territories. The countries with the most plays were France, including Martinique (with ~20,000 views), the United States, United Kingdom, Ecuador and Chile (all with >1,300 views each). The Phase 2 films have only been publicly accessible for <1 month, with the exception of the Living with Volcanic Gas film, which was made publicly accessible at the beginning of 2018. The Phase 2 films have now been viewed about 4,000 times, with the most watched video being the Living with Volcanic Gas film (in all languages).

The most watched film is the French version of the Lahars impacts film, with 17,544 views.

Mobile phones are the most common device used to watch the films (67%), followed by desktop computers (29%), and tablets (5%).

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[1] Population figures from Wikipedia.

[2]Brown, S.K., Sparks, R.S.J. & Jenkins, S.F. (2015) Global distribution of volcanic threat. In: S.C. Loughlin, R.S.J. Sparks, S.K. Brown, S.F. Jenkins & C. Vye-Brown (eds) Global Volcanic Hazards and Risk, Cambridge: Cambridge University Press.

The films have been linked to by over 169 websites. They have been linked to multiple times on Twitter and by monitoring institutions. During the Agung crisis they were used frequently on social media, and a popular risk communicator on Twitter *(@janinekrippner*) said that they were very useful to her. She became the voice of the Agung crisis, and was contacted by huge numbers of people asking questions about volcanic activity. She informed us that when she shared the films, the number of questions she received lessened, and particular questions she was frequently asked were covered in the films.

The Living with Volcanic Gas film was shared with stakeholder groups in Nicaragua in December 2017: the Nicaraguan natural hazards observatory volcanology and seismology departments (INETER); the Ministry the Environment and Tourism (MARENA) and Masaya volcano National Park authority (MARENA Parque Nacional Volcan Masaya); the Ministry of Health (MINSA); Civil Defence (Defensa Civil); the Water and Sewage authority (ENACAL); the University of UNAN-Leon; and the University of UNAN-Managua. The film was also shown to the community of El Panama los Amadores, the location of the filming. This community group included community leaders, men, women and children, with about 150 participants. This workshop and viewing was well-received, with comments from community members including *"Such a workshop was a first in our community and was a very important learning experience for us"*; *"This is the first time that scientists returned to tell us about their results"*; "*You have given me a real explanation to something I have felt all my life. Thank you*".

The Living with Volcanic Gas film is continuously shown at Masaya Volcano National Park visitor centre. This is one of the top tourist attractions in Nicaragua.

c. How many decision makers have accessed your tool throughout Phase I and Phase II? Of these, how many access your tool on a regular basis? How is this measured? (it can be through conversations, email, direct observation or another way)

All our partners have close contact with decision-makers. It is too early to make a full evaluation of the films' use since Phase II films are only now been released at the end of the project. These questions could be addressed and answered but would need additional funding.

d. Have any policies, plans or investments been informed/influenced by your tool? If yes, please provide a bit more detail on how your tool has informed/influenced investment/policy/plans; if possible, provide USD amounts of local budgetary changes or other investments. If the influence was policy-based, please describe the policy change your tool informed. If the influence was in planning, please provide detail.

The Challenge Fund seeks to achieve "…policies, plans or investments informed by project-funded risk information data/tools/approaches There are a number of ways that these aims have been either met by VolFilm who are expected to be met in the future.

The project has stimulated additional plans and investments in improvements and additional films. New language versions of the films have been produced in Italian and are expected to be produced in Turkish. A film produced as part of the UNRESP project at Leeds University on the experiences of people living with volcanic gas hazard around Masaya volcano, Nicaragua, has been produced. A further three films in Indonesian on the topic of health hazards from volcanic ash are to be made this year (2018), again supported by another funding agency led at Durham University. In each case the films are part of the VolFilm series and both Leeds and Durham have become VolFilm partners. These new films are adopting the approach and house style used in the VolFilm experiential films.

The other impact is in the use of the films in volcanic emergency management. The English language version of the films were used extensively during the recent activity of Mount Agung in Indonesia

through social media. It is expected that now Indonesian language versions are available the use of films will increase markedly. An outstanding example of the films impact comes from the recent lahar activity on Mont Pelée, Martinque (French West Indies). In only one month there have been over 19,000 views of the lahar hazard and impact films in French, based on the local Observatory alerting the community to the films. We anticipate more occurrences of this kind when particular volcanoes start to threaten with particular hazards.

We think it is too early to get a full picture of the impact of the films and suggest that a full evaluation should be made in about a year from now. In this we will analyse the number of views the films have received, their use by communities and authorities and seek to understand their effectiveness in developing emergencies.

e. Was your sustainability goal for the project achieved? Please provide the metric used and explain the results achieved.

f. Do you have an exit strategy for your project? If yes, please explain.

We answer e and f together. We have expectations to continue VolFilm. As indicated above there is much more that can be done. However, the project will only be continued at a low level for now until more funds arise. One option for continuing that is already being realised is where VolFilm partners are able to secure funds for particular kinds of film. In the case of the Italian language versions of the films the Istituto Nazionale Geofisica e Vulcanolgia (INGV) has obtained their own funds. Our new partners from Durham University are going to make films in Indonesia as part of the VolFilm series on health hazards of volcanic ash, again using their own funds. Our Turkish partners (MTA) are going to produce Turkish language versions of the films from their own funding. We anticipate more initiatives of this kind to keep VolFilm going. Thus, at least in the short term VolFilm is sustainable. We will continue to monitor the use of the films through our partners and by downloads and views.

x. Please detail how the budget was spent through the course of phase II?

	GFDRR Funding	**In Kind Funding**	**Other Funding**	**Total Funding**
CONSULTING SERVICES (fees, travel, per diem)				
Travel (inc. attendance at conferences, World Bank meeting and team meeting in Norwich)	$5,800	-	-	**$5,800**
Travel (Aditya Andreas – UK)	$3,000		$1,500	**$4,500**
TASK TEAM SUPERVISION (list key personnel and related expenditure)				
S.Brown	$15,300	$33,900	-	**$49,200**
S.Sparks	-	$14,500	$5,500	**$20,000**
A.Hicks	$12,900	$19,700	$25,000	**$57,600**
J.Barclay	-	$13,400	$8,300	**$21,700**
T.Armijos	-	$5,300	$9,700	**$15,000**
Advisory team members	-	$68,500	-	**$68,500**
Evgenia Ilyinskaya	-	$5,000	-	**$5,000**
CVGHM	-	$3,000	-	**$3,000**

MVO	-	$5,000	-	**$5,000**
DISSEMINATION (translation, editing, publication etc)				
Film translations	-	$3,000	-	**$3,000**
English voiceover	-	$5,000	-	**$5,000**
LOGISTICS (Training, workshops, consultations etc)				
Review sessions time included in staff time				
GOODS AND WORKS				
Archive footage	$14,000	$20,000	-	**$34,000**
Aspect Film & Video	$38,200	-	$13,800	**$52,000**
Lambda Films	$60,700	$26,000	$21,400	**$108,100**
Calé Producciones	-	-	$13,800	**$13,800**
OTHER				
TOTAL	$149,900	$222,300	$99,000	**$471,200**

Note that further leverage is anticipated: new films will be added to the VolFilm suite by IVHHN, and an Italian version of the existing films is currently in production in collaboration with INGV using additional funds they have sourced.

xi. Please attach any additional project related documents you may have to the final report.

Appendix

- Evaluation report
- Community survey
- Partner survey

Our Vimeo site: https://vimeo.com/volfilm

Our YouTube site: VolFilm: https://www.youtube.com/channel/UC0vfryv5R_Aixl8U6M4lAAg

Our Twitter handle: @VolFilms (https://twitter.com/VolFilms)

Our Website: http://globalvolcanomodel.org/volfilm/