

A GUIDE TO PUBLIC OUTREACH

J.M. Aylsworth

Geological Survey of Canada, Natural Resources Canada

INTRODUCTION

This paper is a brief summary of a workshop training guide (Aylsworth, 2008) that draws on the author's experiences with public outreach in general and landslide outreach in particular. Because the original workshop was designed for officials or landslide professionals who need to effectively communicate with and educate a non-technical population in order to reduce the risks associated with landslide hazard, the methods and examples that follow deal with landslides. However, these same methods can equally apply to other geohazards such as earthquakes, tsunamis, floods and volcanoes. Similar methods could also be adapted for public communications on a wide variety of topics, including environmental issues or mineral exploration and mine development.

WHAT IS OUTREACH?

Outreach is a collective term that encompasses all liaisons, communications and educational activities that are intended for a non-technical audience. A non-technical audience may include politicians, local government agencies, local businesses and industries, emergency response teams, educators and the general public. The basic rationale for outreach is that an informed population will be more aware of the issues and better able to make good decisions.

Outreach contributes to landslide risk reduction by increasing awareness of the hazard amongst the local population. Through outreach activities, easily understood information on landslide hazard can be distributed to the general population and non-technical decision-makers, on the principle that an informed population is often the best mitigative strategy. The outcome of successful outreach is an increased likelihood that the local populations will recognize early warning signs, that local government will initiate risk-reducing mitigation, and that the general public will accept this mitigation.

There are 3 audiences that hazard outreach, communication, and educational activities need to reach: local decision-makers, first responders, and the general public. The purpose for landslide outreach and the communication methods used to achieve these goals will differ for each of the above groups. The first two groups will be briefly discussed below, and the remainder of the paper will focus on outreach to the general public.

OUTREACH FOR LOCAL DECISION-MAKERS

This group includes local politicians, land use planners and senior engineering staff. The local decision-makers are the people ultimately responsible for local land use planning, zoning or design restrictions, emergency evacuations, and physical mitigation works. Local officials must become convinced of the seriousness of the local landslide hazard; they must then choose to assign a high priority to hazard preparedness; and finally they must be introduced to the methods and tools of mitigation. This group is best reached through initiatives from higher level regional and national governments and achieved through formal presentations and training sessions.

The local authorities must be shown that the costs (human, financial, and/or environmental) associated with the hazard and the potential savings of avoiding the risk are significant enough to justify allocation of scarce resources from their budget and instigation of potentially unpopular policies to address the problem. In the paper "Partnerships for Reducing Landslide Risk", the Board on Earth Sciences and

Resources (2004) suggests that “Well-prepared landslide risk analyses that relate to the geographic area of a jurisdiction are an excellent way of pointing out to decision makers the seriousness of a landslide hazard and the consequences of not taking appropriate mitigation steps.” and “Well-illustrated studies that describe the risk of financial and personal losses can also be an effective tool.”

Outreach strategies aimed at local government must be accompanied by all available maps and data and should include information on companies or agencies that offer professional services. Local cooperation can be enhanced by including local government participation in the hazard and risk assessments.

Of course, instead of needing convincing, the local authorities may be the first level of government to become aware of the hazard and they may be turning to senior governments for help in handling the risk. Local authorities also provide a direct link to the local population. Once convinced themselves, they can play a key role in communication with the public.

OUTREACH FOR FIRST RESPONDERS

These are the (generally) low-to-mid-level municipal personnel who may be the first people to receive notification and respond to a possible crisis or an actual landslide event. In emergencies, critical decisions are often made at this level. However, first responders are not restricted to emergency response teams. For our purpose, this category includes all local government workers who may receive notification and respond to a situation. The situation may entail a major landslide event that requires an emergency response team; a minor landslide that requires routine maintenance by a road crew; or a report of unusual conditions denoting potential instability which must be examined and evaluated. It is vitally important that the appropriate personnel are aware of the extent of landslide hazard in their area, that they are alert to degrading conditions, and that they know how to conduct their normal activities without unwittingly destabilizing a slope.

The responsibilities of this group vary widely and may or may not overlap. Outreach for this group consists of raising awareness of their responsibilities with respect to slope issues and training in their particular fields for appropriate response. This training is generally provided by higher level government programs or contracted to outside agencies and endorsed by local management. For this diverse category of personnel, education and training must be targeted at specific groups. For some, it entails raising their understanding of the landslide hazard and their awareness of the critical conditions (rainfall, snowmelt, runoff etc.) that may constitute a hazard alert. For others, it is training in slope inspection or proper maintenance methods. Other groups are trained in rescue techniques or evacuation methods.

The municipality should have a hazard response plan that includes the procedure to trigger both emergency alerts and emergency responses and ensure that all personnel are aware of the correct procedure. The public should be provided an easily accessible, emergency contact.

OUTREACH TO THE GENERAL PUBLIC

The public are the ones most affected by the hazard and also they may be the first people to recognize signs of an incipient failure. It is also important to remember that pressure applied by this group towards the local decision-makers can lead to improved mitigation

WHERE DOES THE PUBLIC NEED INFORMATION?

The public need for information is relatively specific and local. Landslides occur in many environments and are triggered by diverse causes, but the type of failure will reflect the local conditions. The public need to be aware of the type that can occur in the area of their homes and business and along their transportation routes.

WHAT DO THE PUBLIC NEED TO KNOW?

If their home region is susceptible to landslide hazard, the public need to know what to expect and why; they need to know where it may happen; and they need to know what to do. The following is a simple checklist of key information.

- Type of hazard (e.g. mudslides, rock falls, rockslides, etc.) It should include some general information on the likely size of landslides, speed, retrogression or runout distances, and recurrence possibilities.
- Where. Identify the regions considered to be hazardous in their environment.
- Why – a simple explanation of why their area is at risk. Understanding the problem helps people to remember the hazard.
- What natural conditions and/or human activities will trigger an event in their area,
- What are possible early warning signs (if any),
- What to do – what personal mitigation is possible, and
- Who to contact.

HOW TO REACH THE PUBLIC

In actual or incipient emergency situations, communications are urgent, official, and targeted at the people most at risk. In these situations, emergency alerts are issued through public service announcements in local media, alarm systems and door-to-door alerts, and are handled by government officials and police. If the threat is less imminent, but still localized, addressed flyers or mail, delivered to specific households might be issued by local officials, or warning signs posted in hazardous situations.

In most cases, public outreach is broader, seeking to educate the local population. Some educational outreach may be targeted (i.e. school curriculum, local presentations and media events). Other outreach products are more widely available and obvious. They include public service announcements, media stories, posters in public area, flyers, and web-based information.

The population is particularly receptive to educational information for some period following a local landslide or an event that received intensive media coverage. This is a window of opportunity for outreach activities. The anniversary date of past disasters is another opportune time to reach the public.

OUTREACH THROUGH THE MEDIA

Engaging the media in your product or message is important. Because the news is usually very time restricted, with stories generally receiving less than one minute and written and delivered by a non-technical person, there are several techniques for achieving maximum results.

A succinct text with a clear message should be prepared in advance, suitable to the media form. For example, newspaper and magazine articles generally carry more information than radio. Although the story is likely to be written by a non-technical person, experts can influence the quality of the final product by actually providing the reporter with a brief written synopsis of the problem, avoiding technical terminology and offering further background information if desired. Often the busy reporter will quote part or all of that synopsis. Radio and television interviews are much briefer and must be carefully handled, as the message must be delivered in very short ‘sound-bites’. Again, this brief text could be offered to the reporter in advance, or it could be used simply to prepare the responses of the landslide spokesperson. In all cases, the spokesperson should restrict themselves to their field of knowledge; introduce their main message immediately and reinforce it throughout the interview; and rigorously avoid being diverted or drawn into making conjectures.

The choice of the proper “spokesperson” is vital. In an emergency, the message should be delivered by a high ranking government official, giving credibility to the urgency of the response. However, when discussing a landslide event or in any story concerning mitigation of a hazard, an explanation coming from a landslide expert may be accepted by the public as more credible than would be a message coming from a government official. This expert may be a geologist or engineer from government, academia or private industry, so long as they are not associated with any vested interests. In any long term hazard plan, the potential spokespersons should be identified well in advance and undertake training on making public

presentations and speaking to the media. The success of your spokesperson can strongly impact the amount of media coverage that landslide hazard will receive.

It can be useful to cultivate a relationship with specific reporters, which may lead to longer features or more frequent media coverage.

OUTREACH THROUGH PUBLIC PRESENTATIONS

Talks to clubs, organizations and service groups, or at public meetings are an excellent way of raising local awareness of landslide hazard. Unlike media stories, these presentations can be much longer and inclusive, but should still focus mainly on local hazard. Again, the choice of spokesperson is important – technical knowledge combined with the ability to easily speak in public is paramount. The use of pictures in the presentation will further engage as well as educate the audience.

This form of outreach is particularly effective in local venues in response to a perceived hazard that requires mitigative action. Local officials may hold a “town-hall meeting” in which, in an open dialogue between landslide experts, government officials, and the public, all information on the hazard including alternative solutions is presented and the rationale behind the ultimate choice of mitigation is justified. In this way, public fears are addressed and questions answered, helping the local population accept the mitigation needed to reduce risk. Such was the example in the District of North Vancouver, Canada, following a fatal debris flow in 2005, when the city brought in geotechnical consultants to address a town-hall meeting. Minutes of the meeting and copies of the PowerPoint presentations were then posted on the city website where they could be accessed by people who did not attend the public meeting.

OUTREACH THROUGH PUBLIC DISPLAYS

Information displays are an effective way of raising public awareness of landslide hazard in their communities. Displays can range from a simple poster hanging in a public area, such as a market, town-hall, bus shelter etc., to an information kiosk with an attendant present. Kiosks are usually temporary displays that are set up in shopping plazas, market places, fairs, or other public places. The kiosk may contain posters, videos, handouts, instructional manuals or other reference materials. These displays are particularly effective when an attendant is present to answer questions and handout information is available to give to the public.

The style and content of posters vary to suit the purpose – some carry simple warnings or reminders of the hazard; others are intended as educational posters carrying much more information (Fig. 1). The guidelines for effective graphic design, usually applied to commercial advertisements, – simple designs, bright attractive colours, and a clear and prominent message – apply to hazard posters as well. Posters that are intended more for educational purposes carry much more text than graphic designers would prefer, but basic rules still apply – clear messages, simple language, catchy sub-titles, and lots of images.

In Canada, the Geological Survey of Canada developed the “*Geoscape*” series – large posters and web information designed to raise awareness within the general public and, in particular, among secondary and senior elementary school students, of the geological heritage of major urban centres (Fig. 1). Each *Geoscape* focuses on an individual city and its hinterland. These colourful, graphic-rich, multi-theme products present local geoscience issues in plain language, using local examples. The local context is vital; this specialized focus engages the local audience. *Geoscape* goes beyond a traditional map. Three-dimensional illustrations and easy-to-read information “tell the story” of the resources, issues and hazards of a community or region. It is believed that a better understanding of the local *geoscape* will help the population to make better decisions about how they use their land. Where landslides present a significant hazard, the *geoscape* features a succinct description of the local conditions and triggers responsible for the hazard as well as briefly introducing public safety and mitigation activities. In order to reach as many people as possible, all information on the poster is also available on the web. The posters are also distributed free to teachers for use in their classrooms. The material is also posted on the web, where several of the *Geoscares* are accompanied by extensive teacher resources (<http://geoscape.nrcan.gc.ca/>).



Figure 1. Examples of landslide posters. Left: a poster with a simple message. Product is graphic. Right: Example of a poster for educational purposes. Retrogressive earthflows are a hazard in this region, and the landslide panel is circled. This product contains extensive text, although written in simple language. (Geoscape Ottawa-Gatineau poster, Natural Resources Canada, <http://geoscape.nrcan.gc.ca/>)

OUTREACH THROUGH PUBLICATIONS FOR THE PUBLIC

Outreach publications are similar in content to educational posters, but pamphlets and flyers can be distributed to the public and left for public access in libraries, municipal offices, and display kiosks. Easy accessibility, widespread distribution and permanent record are some of the benefits of these publications, but there are also several drawbacks. There is some question as to how long these products will survive before being lost, discarded, or forgotten. Printing costs may be prohibitive.

One solution to production costs would be to post the product as a downloadable file on the municipal or regional government website. Good examples of such downloadable brochures include “Layman’s Guide to Slope Maintenance” by the Hong Kong Geotechnical Engineering Office (<http://hkss.cedd.gov.hk/hkss/eng/whatsnew/index.htm>); “Landslides” at Geosciences Australia (<http://www.ga.gov.au/urban/factsheets/landslide.jsp>) or “Landslides and Debris Flows (Mudslides)” produced by the National Disaster Education Coalition and available on the American Red Cross site (http://www.redcross.org/static/file_cont211_lang0_96.pdf).

OUTREACH THROUGH THE INTERNET

Material posted on internet websites is an excellent way of conveying information to the public (Fig. 2). Much more information can be posted on websites than can be included in products such as posters, pamphlets, displays etc., and most importantly, contact information is easily accessible. The ability to link to other websites is also an asset. Websites can also carry or link to on-line videos. These are effective in engaging public interest.

Website information can be given on more than one level. For example, the opening pages can be intended to provide basic information to the general public, but optional links may be provided to more technical pages or websites, including published papers, technical reports, official codes, zoning bylaws, professional organizations, etc.

In addition to background information on landsliding, the website can offer ways to reduce personal risk, including descriptions of the physical signs that may indicate incipient slope failure or the weather conditions likely to trigger landslides. Possible mitigation methods, such as improved drainage conditions, revegetation, diversion chutes or berms to protect building, etc., can also be explained.



Figure 2. The Hong Kong Geotechnical Engineering Office offers an excellent website, providing detailed information on slope maintenance and improvement, landslide warning messages and personal safety measures, and government policies. This site also offers interactive training courses, games, and downloadable forms and information. (<http://hkss.cedd.gov.hk/hkss/eng/whatsnew/index.htm>)

A search of the internet will discover landslide websites offering a range of information. Some sites are very comprehensive, providing information on most or all types of slope instability and are national or global in scope. They may contain information on failure mechanisms, triggers, geological materials and climatic conditions, what to do and how to protect ourselves, maps and databases, current research activities, technical reports, links to other sites, and educational and outreach resources. They are usually provided by national geological surveys or other government departments with responsibility for emergency preparedness, or by universities and research organizations. (Examples: Geological Survey of Canada, United States Geological Survey.) Other websites are more specialized and focus on a limited area (usually municipal, county or district) and concentrate on a local problem, sometimes on a property-by property basis. Because these websites sit on the local government website, links to other municipal services that the user may require are easily accessible (i.e. bylaws, building codes, property inspection, road maintenance, etc.). An excellent example would be the Hong Kong Slope Safety website illustrated in Figure 2.

Lists of both comprehensive 'global' websites and specialized, local websites are provided in Aylsworth (2008). If a website is being created to address a local hazard, it is best to emulate the models in list B and link to the websites in list A for background information or access to relevant videos.

OUTREACH THROUGH THE SCHOOLS

Hazard information included in the school curriculum has a double effect – educating the next generation and reaching the present adult population through their children. Natural hazard topics, including landslides, can be found in school curricula of geography and science subjects at several grade levels in

middle-elementary to secondary schools. Outreach to schools can entail presentations by landslide experts in the classroom, educational videos, and prepared lesson plans freely available to all teachers.

Presentations by experienced landslide experts can easily engage student interest, however, in most cases, such visits are difficult to arrange. Videos, on the other hand, are easily accessible on the internet or through library loans, and a dynamic video can rivet the attention of a student. A list of educational videos can be found in Aylsworth (2008).

Ultimately, the best resource may be specialized lesson plans to be used by the class teacher. Teachers know that including local problems and examples in a lesson plan can help to raise the topic from an academic exercise to practical interest, but they may not have the knowledge, time, or resources to develop the topic fully, nor to enhance their lesson with local phenomena. If landslide experts, in collaboration with teachers, develop landslide lesson plans and resources, advertise the product to school boards and teacher organizations, and make it freely accessible to teachers, it would be more likely to be adopted in the classroom. It behoves national geological and geotechnical organizations and government departments to ensure that these lesson plans are available on their websites and on teaching websites.

Although subjects are commonly taught in an inclusive manner in education, if a local area is susceptible to landsliding, it can be most beneficial to make the local conditions the main emphasis of the lesson plan. Local data could be substituted into some of the lessons presently on the internet. Students are intensely interested in local danger and ways of avoiding or controlling the consequences. It makes the subject "come alive". They are also likely to talk to their parents about it, thereby conveying vital information to the local population and contributing towards risk reduction locally.

OTHER OUTREACH PRODUCTS

In order to reach children, landslide hazard may be introduced first through stories, games, and movies in which landslides feature prominently. These may be difficult to find, and one option is to create your own story or game. A story could feature a child who learns about landslides in school and then, recognizing the warning signs of ground about to move, alerts his neighbours in time for them to safely evacuate the area. A game could be based on matching cards in a deck of landslide facts and pictures, or based on a simple board game in which chance rolls of dice lead the players through a maze of hazardous conditions.

REFERENCES

- Aylsworth, J.M. 2008. Public Outreach: A guide to providing public information on landslide hazard. Geological Survey of Canada Open File, CD in press.
- Board on Earth Sciences and Resources. 2004. Partnerships for Reducing Landslide Risk: Assessment of the National Landslide Hazards Mitigation Strategy. National Research Council of the National Academies. National Academies Press. p. 130.