AF8

There I was, Arthurs Pass, Edwards- Hawdon route. Day 2 of a 3 day Tramp. Bomber weather, eight engaged students, Silver Duke of Edinburgh qualifying tramp. All going great guns.. nek minute- the alpine fault ruptures- “unpredictable but entirely foreseeable”.

What are the chances?... To be precise. An 80 percent chance it was going to be a magnitude 8 or more and 75 percent chance it was going to happen in the next 50 years.

More or less right on cue. It started with someone thinking they heard a train coming.. that became loud enough to be a plane.. maybe a jet. For a nano second I thought it might be a land slide, then all hell broke loose.. We were all violently thrown to the dirt as the first of many ground waves smashed through the landscape. For two and a half straight minutes, the mountains felt like a violent heaving ocean. The sound was deafening, the dust blinding, everything was moving. Entire mountain sides slid to the valley floor, rock fall tore through my group, the land beneath us fell away.
When the shaking subsided, two of my students had vanished in an un-survivable rock fall. Concussions, blood, broken bones we all had significant but survivable injuries. We had less than a minute to comprehend our situation before the first of many aftershocks had us clinging uselessly to anything that might offer support.

The next 2 days were straight out of a survival horror movie, shock, hunger, field first aid on injuries that warranted heli evacuation, more aftershocks and more close calls.. When we finally got out to anticipated help, our helpers were in a worse state than us. Despite our ordeal, we were, for the time being the rescue party.

This sombre but realistic scene technically should fall under the scope of ‘managing natural hazards in the workplace’ The injuries were a result of rock fall or landslides. Treating a land slide as a natural hazard in isolation makes it a more digestible hazard to manage, but if your serious about preparing yourself or your staff for natural hazards, there is value in considering landslides in the context of an Alpine Fault rupture (AF8)... the context being:

- The land slide your exposed to will be part of thousands of other landslides- entire mountain sides shaking to the valley floor will be the norm, not the exception.
- Destruction of numerous parts of the roading network

- Destruction of numerous parts of the power network
- Overloading of the emergency services system. Fire/ ambulance/ police/ rescue chopper are likely to be 3-4 days or longer.
- Fatalities will be wide spread/ not isolated to your place of work
- Aftershocks will mean land slide occurrence probability will remain extremely high
- Landslides will block water ways resulting in flash flooding and mud slides/ debris flows.
- Tsunami and flash floods may well have affected areas not subject to the land slide hazard.
- The rest of the country is having similar or worse problems than you are.

For those working in South Island Outdoor Education or Adventure Tourism, other than Lumsden or Waimate, treating a landslide as a hazard in isolation paints an unrealistic scenario for a likely event. Three quarters of the South Island has a medium to high probability of landslides during an AF8 rupture- If you're lucky enough to be on the flat lands, keep your eyes peeled for tsunamis- either from the ocean or as result of landslides into lakes.
Your minimising, eliminating and reducing strategies may seem impotent, the nod to landslides in your Safety Management System may appear tokenistic.

So what can you do?
NZOIA and Outdoor Education in NZ is doing positive things towards developing attributes and skills in our communities that will be valuable in a post AF8 world.

- Build Community. Plan to be isolated and help or be helped by those around you. The overwhelming situation you find yourself in may be less than your neighbour. You may find yourself unable to access your primary community, in which case your community is where you are… join it and try to be useful.

- Have an AF8 emergency plan that can function without outside help. Emergency plans generally start with 'call for help'. Post AF8, this call may not be heard, or the recipient my not have the capacity to act upon it.

- Build resilience. Dealing with fatigue, hunger, pain and sorrow will be a normal part of post AF8 life. Practise and celebrate a little hardship now and then.

- Resourcefulness. Fix things, find things, make things, butcher things, cook things, hunt things. Foster those skills and that mindset.

- Shit in the woods, live in the dirt, conserve. Get good at living in the wilderness. There may not be a town to go back to, there may not be a home to go back to.

- First aid training with a survival spin. Hospitals are not accessible and resources are limited. Triage and enforced long term patient care.

- Your local LandSAR group and civil defence is likely made up of community members who work with emergency services and train for emergencies. Look for opportunities to work with and understand how these organisations function. You may be on the giving or receiving end of a rescue response.

- Talk through scenarios during staff training. Given everything is broken, how would you try and communicate? Is this where an In-Reach could be far more useful than a PLB. Will the standard plan A for field teams be to stay put and camp, or try and get out to the nearest road.

The plausible scenarios resulting from an alpine fault rupture are unprecedented and so varied that a systems approach may be too many pages long to add value. A Principled approach and arming staff with the above attributes may have meaningful impact when attempting to manage the AF8 hazard. Keep this in mind when dividing time energy and resources into your safety management system.

The overt nature of hazards present when stepping onto an active volcano are wholly disguised when stepping onto an active fault line, the title “South Island” gives little away as to the inherent, foreseeable risk. The Tourism NZ website highlights volcanoes as a NZ hazard yet offers no earthquake risk disclosure. This leaves South Island tourists blissfully unaware of the main hazard they face when first stepping onto the island.
If as a nation, if we are serious about legislating risk disclosure then surely disclosing the AF8 hazard should be happening at a national level for all NZ visitors.

Being blissfully unaware may in fact be a preferable way to enjoy the South Island. And having foreign home may also be preferable after an AF8 event. If

Te Wai Pounamu is your home, and its inhabitants your community, then you'll be inclined to stick around and deal with the change, pick up the pieces, rebuild, heal. In being mentally prepared for the horrific but realistic prospect of an Alpine Fault Rupture, we can help ourselves comprehend and better deal with our new reality.
Keith Riley

Insights from the experts.

For those that were in Christchurch on 22nd February 2011, you know what a large earthquake feels like. You may have even seen some of the rock avalanches and landslides that were caused by it. For those that weren't there you will no doubt have seen images of the Red Cliffs or Sumner hills collapsing. Now try to picture an earthquake releasing 350 times more energy than the fatal Christchurch earthquake…Remember, the rocks of the Southern Alps have been raised from below sea level by successive giant earthquakes. Without the associated landslides, the southern alps would be 20 km high. The landslides that happen during those events choke the river valleys with rock, which gets washed out onto the flood plains in a series of catastrophic flood and debris flow events for years after the ground has stopped shaking. This isn't going to be a big earthquake. It's going to be a great earthquake; brutally resetting many of the natural and build systems of Te Wai Pounamu.

Kev England, MSc. Landslide expert.