

Educating and Preparing the Public for Disasters

Joint Centre for Disaster Research
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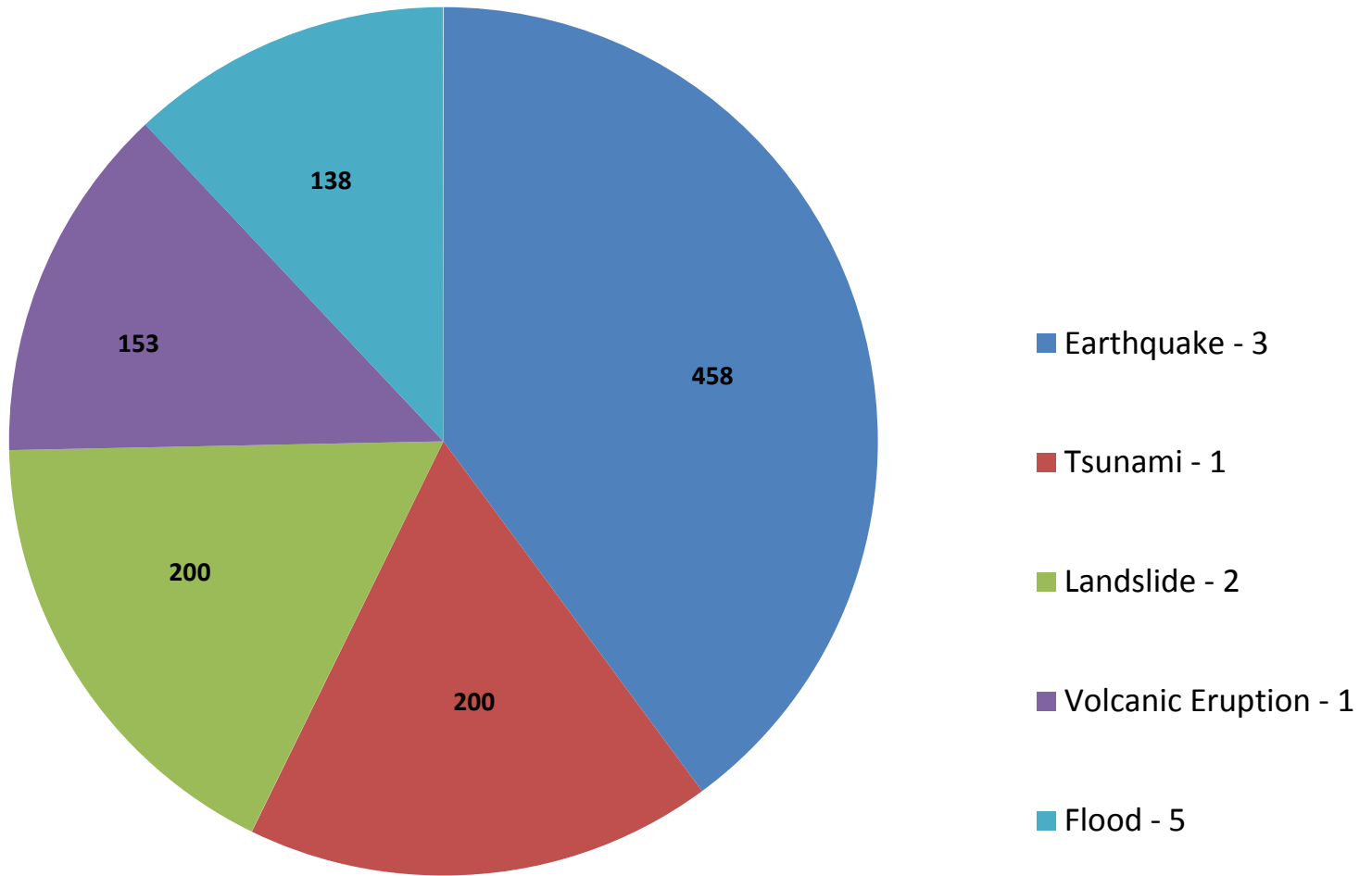
Program Objectives

- Describe why poor disaster literacy is a hidden barrier to disaster preparation and recovery
- Provide an overview of how health literacy in medical settings has improved patient outcomes with development, evaluation, and implementation of effective and novel communication strategies
- Explain how a disaster literacy model using plain language and social marketing could be applied to enhance existing systems

New Zealand Natural Disasters 1931 - present (84 years)

Number of disasters:	12
Total deaths:	1,141
Average killed per year:	14
Flood	5
Earthquake	3
Tsunami	1
Landslide	2
Volcanic eruption	1

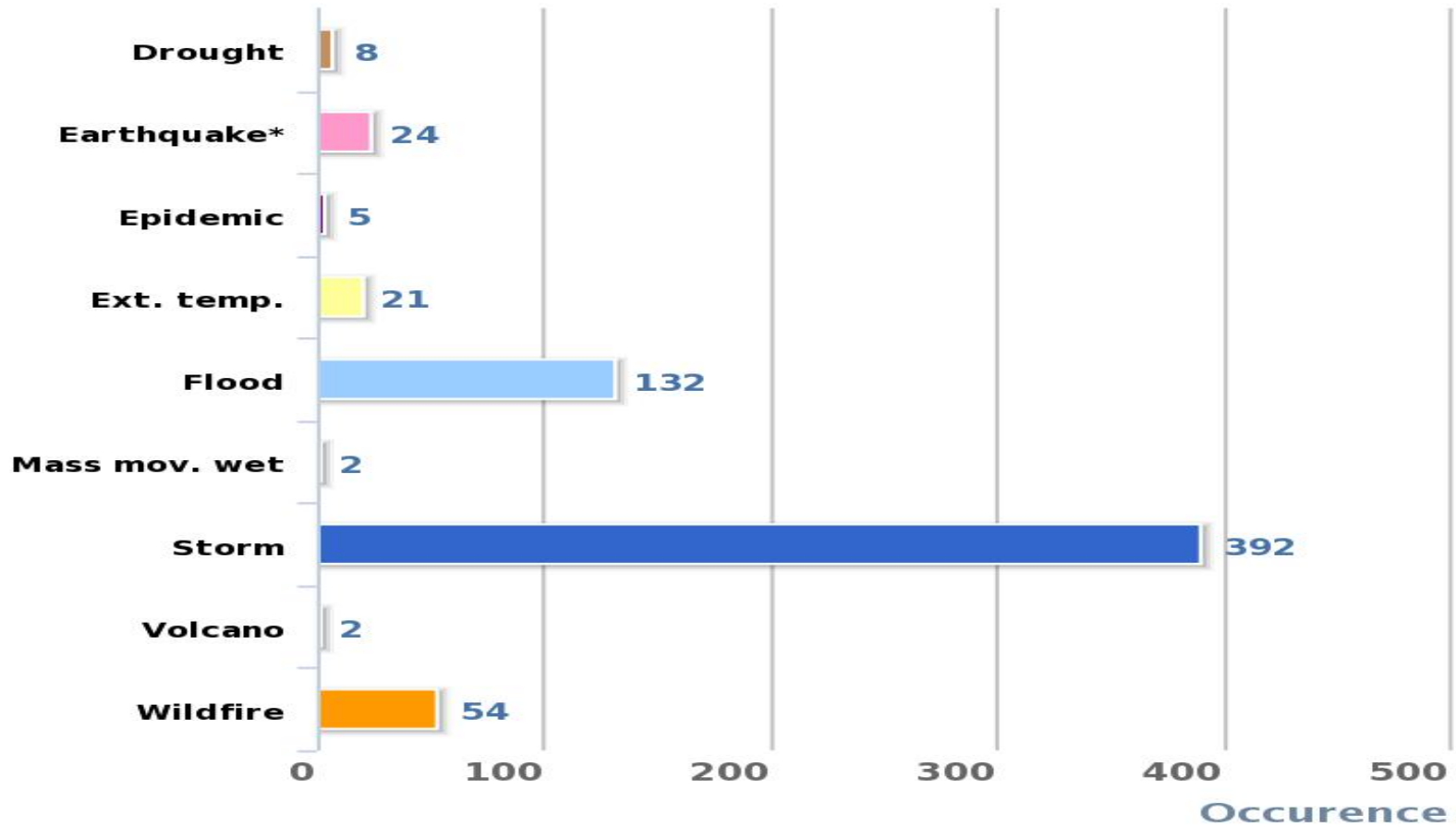
New Zealand Deaths from Natural Disasters 1931 - Present



US Natural Disasters 1980 – 2010 (30 years)

Number of disasters:	640
Total deaths:	12,366
Average killed per year:	412
No of people affected:	26,889,582
Average affected per year:	867,406
Economic Damage (US\$ X 1,000):	544,287,010
Economic Damage per year (US\$ X 1,000):	17,557,645

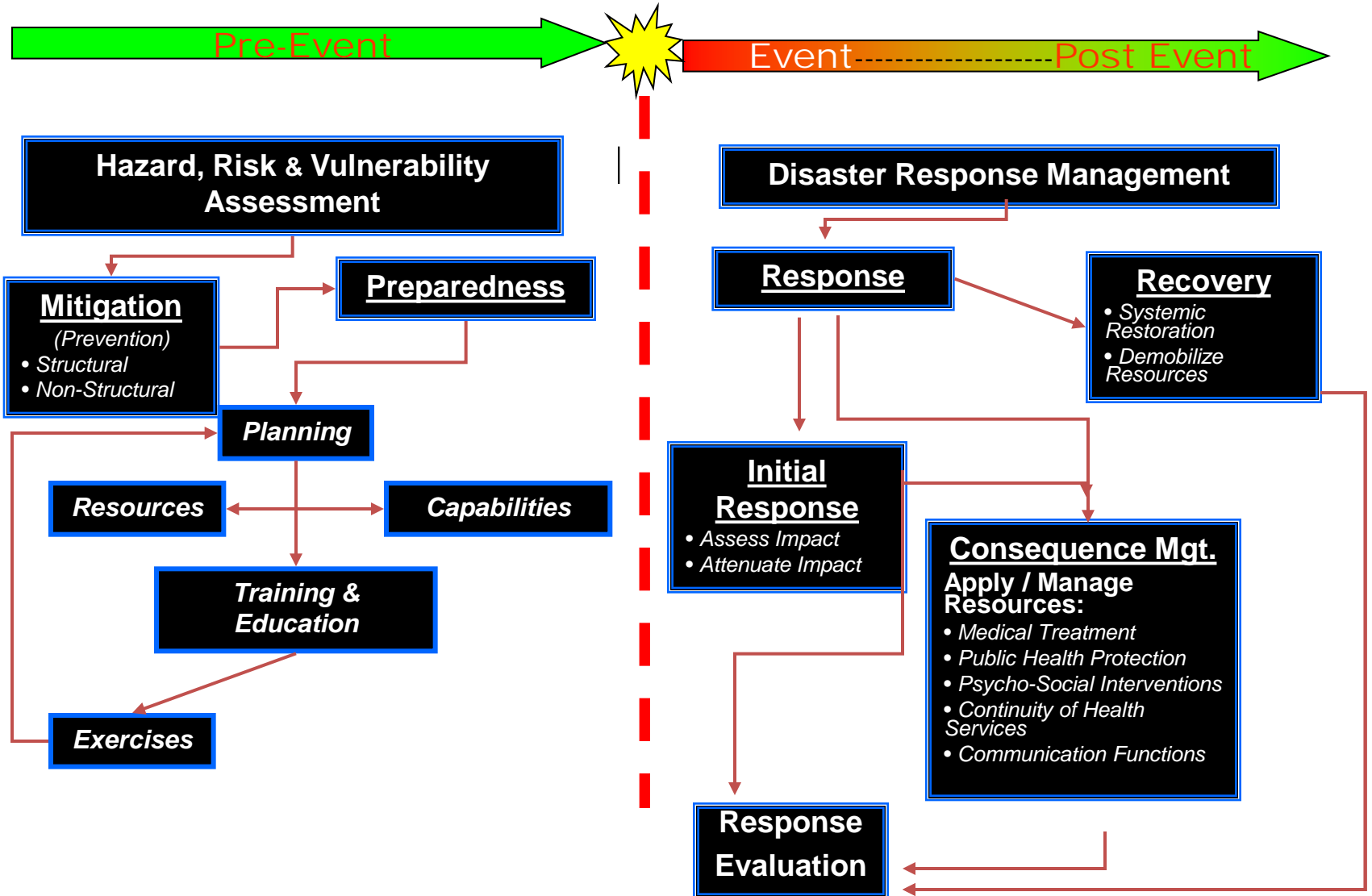
US Natural Disasters 1980 - 2010



The Disaster Cycle

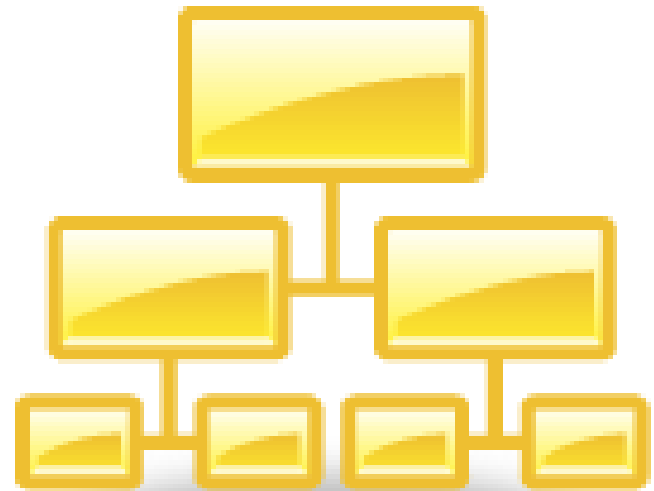


The Disaster Cycle



Barriers at all Levels and Phases of a Disaster

- Personal Level
- System Level
- Provider Level



Disaster Literacy

Organizations responsible for disaster planning routinely publish and disseminate instructions describing how to mitigate, prepare for disasters, obtain safe shelter, cope with adverse events, initiate the recovery process.....and so on!

Despite the growing number of messages and programs delivered by traditional mass media as well as newer social media venues people remain complacent and poorly prepared for disasters

Disaster Literacy

Considerable scientific effort has focused on examining the consequences of disasters and comparatively little attention has been devoted to developing and evaluating methods for enhancing disaster preparedness and recovery.

Inadequate disaster preparation compromises the ability of people to remain safe and obtain food, water, electricity or access standard medical care post-disaster.

Risk Communication

- Although disaster preparedness remains the same, risk communication has improved
- Cone of Uncertainty for Hurricane forecasting and warning
- Confusion about the color terrorism warning system – replaced in April 2011





New Zealand school dropout rate is 34%

*Organisation for Economic Co-operation and Development
(OECD)*

New Zealand Literacy

1. The distribution of literacy skills within the New Zealand population is similar to that of Australia, the United States and the United Kingdom.
2. Approximately **one in five** New Zealanders is operating at a **highly effective** level of literacy.
3. New Zealanders do less well at document and quantitative literacy than at prose literacy.
4. The **majority** of Māori, Pacific Islands people and those from other ethnic minority groups are functioning **below the level of competence** in literacy required to effectively meet the demands of everyday life.

New Zealand Literacy

20% of New Zealand's adult population was found have very poor literacy skills (level 1).

70% Maori and about three-quarters of Pacific Islands people failed to meet the minimum level of competence (ie; level 3 or higher).

Between 40% and 45% of Pacific Islands adults were at the very lowest level of literacy (level 1) in each domain, although 70% of Pacific Islands people at level 1 were born outside of New Zealand which may account for this.

Disaster Literacy

- Groups demographically identified as having a higher rate of low literacy include people with fewer years of education, lower cognitive ability, compromised health status, advanced age, or low financial status.
- Also at risk of low literacy are non-native English speakers, certain racial/ethnic groups, and those who have been incarcerated.

Lessons Learned from Health Literacy

- Research conducted in **medical settings** consistently reveals that race/ethnicity, low level of attained education, and lower socioeconomic status **adversely affects** the ability of adults to read, understand, and act on **traditional written materials** (e.g., consent forms, insurance information, health care instructions).
- People who lack necessary skills to obtain, understand, and appropriately use basic healthcare information are unable to effectively manage their care and experience **worse health outcomes**, such as increased hospitalization rates and higher healthcare costs than their health literate counterparts.

Disaster Literacy

Disaster Literacy is defined as an individual's capacity to **read**, **understand**, and **use information** to make informed decisions and follow instructions in the context of mitigating, preparing, responding, and recovering from a disaster.

Disaster Literacy

- Existing disaster preparedness materials are usually comprehensive and accurate, but many require a high reading level to understand the dense and sometimes complex text or skills to carry out the activities
- The mismatch between the literacy demands of existing print materials and the literacy skills of many adults limits their ability to understand and effectively use potentially life-saving information

Disaster Literacy

For both health and disaster literacy several factors have to be evaluated:

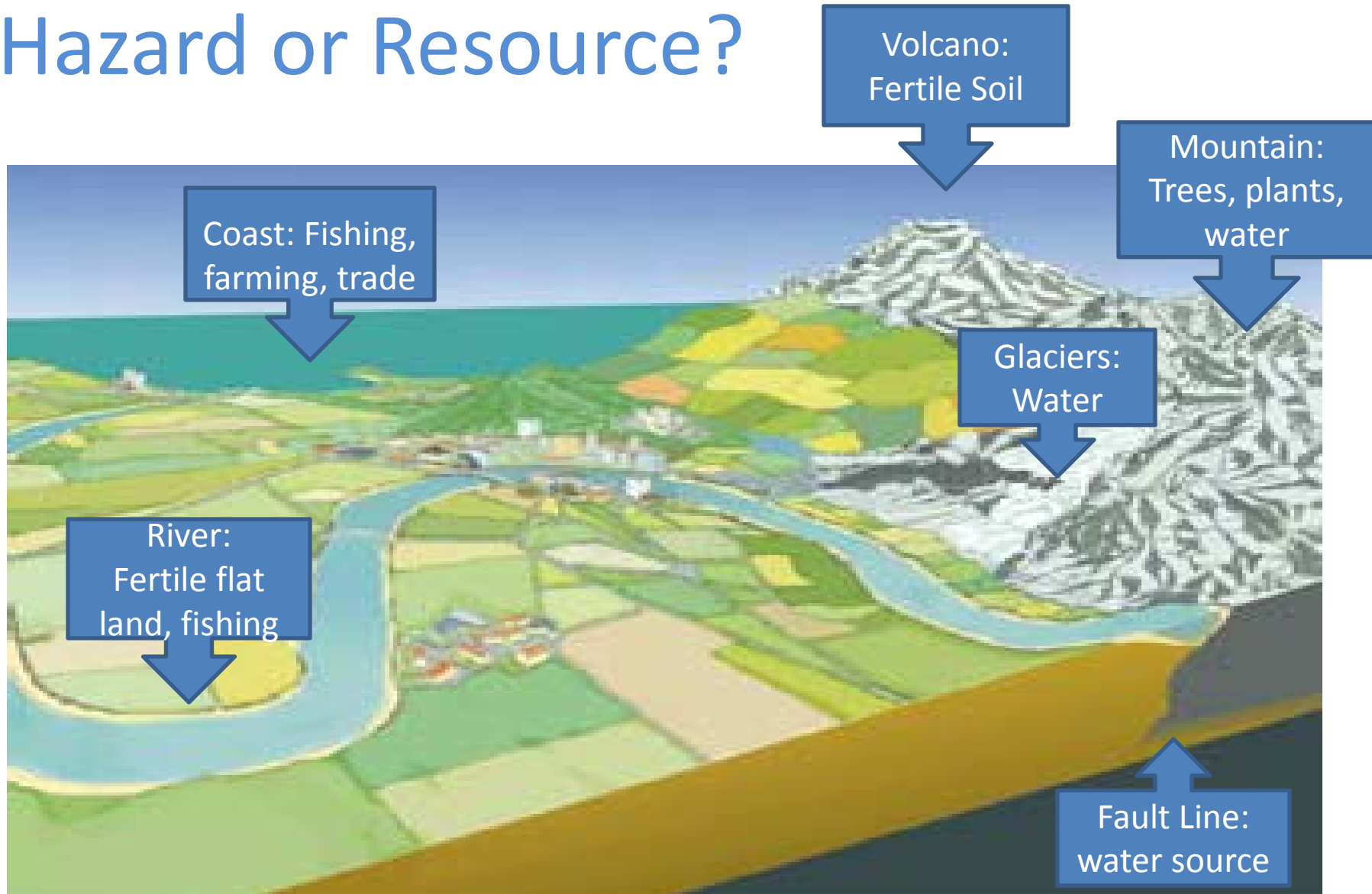
- (1) the abilities of the individual in the situation to understand and use information to make well informed choices
- (2) the setting/timing/culture in which the demands are made (e.g. rural/immediate post-disaster/older adult community dwelling)
- (3) the messages/content and materials/medium being used to convey information

Culture and Disaster Preparedness

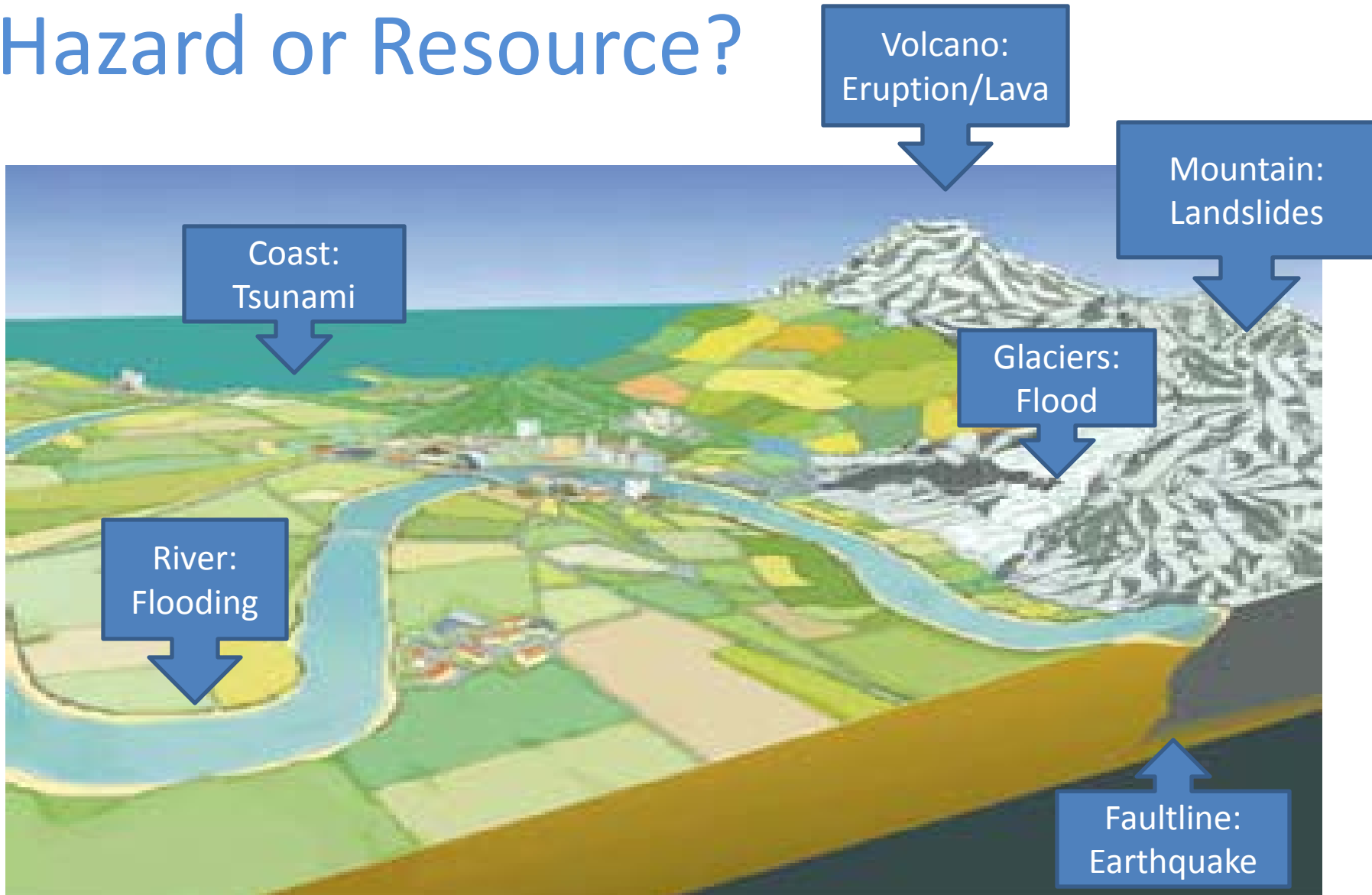
<http://momik.de/world-disasters-report-2014-culture-and-risk/>



Hazard or Resource?



Hazard or Resource?



Disaster Literacy

- Difficulties associated with disaster preparation and access to services post-disaster can arise from an **institutional “top-down” design** (i.e., content developed by experts) and implementation of programs where the needs, wants, abilities, culture, and resources of the **target audience** are not fully considered.
- Timelines, budgets, and program priorities typically do not include resources to formally evaluate whether the information was understood and whether the desired outcomes (i.e., increased preparedness or ability to access services) can be achieved by the target audience.


Disaster Literacy

What can be done to better educate and prepare the public for disasters?

- Structure the delivery of information as if everyone has limited disaster literacy
 - You cannot tell literacy level by looking at a person
 - Higher reading skills \neq understanding or ability to take action
 - Anxiety/stress can reduce ability to understand and use disaster information
 - Everyone benefits from clear communications

Examples of Plain Language

Plain Language

- Annually
 - Additional
 - Apply 
 - Communicate
 - Contain
 - Decrease
- Yearly or once a year
 - Extra, added, more
 - Use, put on, rub onto, sign up
 - Tell, say, call, write, talk to
 - Have, keep together
 - Take less, cut back, drop, lower, fall

The Plain Language Thesaurus for Health Communications

http://depts.washington.edu/respcare/public/info/Plain_Language_Thesaurus_for_Health_Communications.pdf

Visuals Improve Understanding/Recall

- ✓ Pictographs and demonstrations are most helpful to people with low literacy and people who are visual learners
- ✓ Most drawings and photos in print materials are used to beautify and not to further the understanding of the key messages

Pictographs

24b

737-600/700

Safety On Board



1386-24b



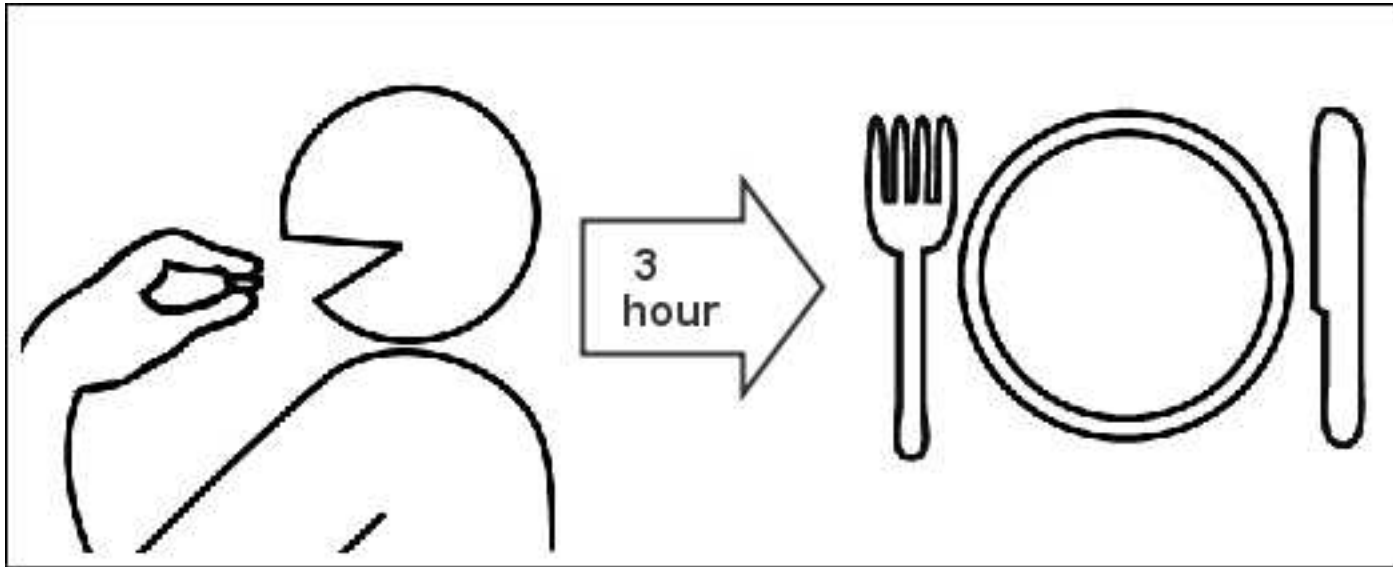
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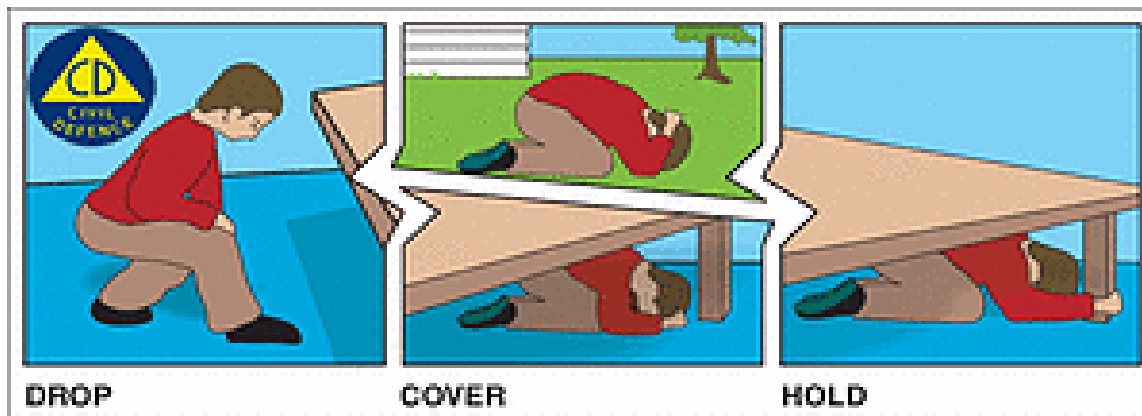
Safety On Board



Pictographs



Pictographs



Strategies to Enhance Disaster Literacy

“Need to know” and “Need to do”

What do people need to know and do to survive before, during, and after a disaster?

- What do they need to know about?
 - Steps to mitigate adverse outcomes (strap water heater, TV, bookshelves and collectables)
 - How to stay safe during a quake
 - How to fill out forms and where to file them
- Consider using a bite, snack, meal approach

Bite, Snack, Meal approach

- Disaster planning is often presented and perceived as an all or nothing activity.
- Disaster planners always present the meal which may be expensive to assemble, challenging to maintain (e.g., monitoring perishable food), and difficult to store.
- In reality, there are some items on an emergency list that are highly critical to survival whereas others are intended to provide comfort.

This is a Meal – Minus the Fire Extinguisher and Nonelectric Can Opener

HOUSEHOLD EMERGENCY CHECKLIST

WHAT YOU WILL NEED TO GET THROUGH

EMERGENCY SURVIVAL ITEMS

- Torch with spare batteries or a self-charging torch
- Radio with spare batteries
- Wind and waterproof clothing, sun hats, and strong outdoor shoes
- First aid kit and essential medicines
- Blankets or sleeping bags
- Pet supplies
- Emergency toilet - toilet paper and large rubbish bags
- Face and dust masks

Check all batteries every 3 months.

FOOD AND WATER FOR 3 DAYS OR MORE

- Non-perishable food (canned or dried food)
- Food, formula and drinks for babies and small children
- Water (at least 3 litres per person, per day) for drinking
- Water for washing and cooking
- A primus or gas barbeque to cook on
- A can opener

Consider stocking a two-week supply of food and water for prolonged emergencies such as a pandemic. Check and replace food and water every twelve months.

HOW TO STORE WATER

- Wash bottles thoroughly in hot water. Fill each bottle with tap water until it overflows. Add five drops of household bleach per litre of water (or half a teaspoon for 10 litres)
- Store in a cool dark place and replace the water every 12 months

GETAWAY KITS

Everyone in the house should have a packed getaway kit in an easily accessible place which includes:

- Torch and radio with spare batteries
- Hearing aids and spare batteries, glasses or mobility aids
- Emergency water and easy-to-carry food rations
- Extra supplies of special dietary items
- First aid kit and essential medicines
- For infants or young children – formula and food, nappies
- Change of clothes (wind/waterproof clothing and strong outdoor shoes)
- Toiletries – towel, soap, toothbrush, sanitary items, toilet paper
- Blankets or sleeping bags
- Face and dust masks
- Pet supplies
- Important documents:
 - Identification (birth and marriage certificates/driver's licences and passports)
 - Financial (insurance policies and mortgage)
 - precious family photos

IF WE HAVE TO EVACUATE WE WILL:

- Take our Getaway Kit
- Turn off electricity and water
- Turn off gas only if we suspect a leak or if asked to do so by the authorities
- Take our pets with us

For more information visit the Civil Defence Emergency Management Office at your nearest council or

www.getthru.govt.nz



This is What a “Meal” Costs for a Family of Six – NZ \$1,937.00



NZ \$935.00



Grab 'n' Carry
NZ \$156.00 x 6 = \$936.00



NZ \$66.00

Is it Possible to Suggest 3 Options for Disaster Preparedness?

MEAL: If you want to have all possible supplies to maximize survival and comfort

SNACK: If you want to have most important supplies to maximize survival

- water
- canned food
- nonelectric can opener
- first aid kit
- fire extinguisher
-etc

BITE: If you want to have only the key supplies to maximize survival

- water
- canned food
- nonelectric can opener
-etc

Whether you're just starting out or a preparedness pro, gathering your emergency supplies is easy. A good rule of thumb is to have supplies for about 3 days, or 72 hours. You'll be surprised at how much you already have.



You're more
prepared than
you think.

[Essentials](#)[Useful](#)[Personal](#)[Download
full supply list](#)

In addition to the standard supplies, certain things will help you—and only you—manage

Essentials: Bite Useful: Snack Personal: Meal

Checklist

Circle what you have!

ESSENTIALS



Water



First Aid kit



Flashlight



Fire Extinguisher



Manual Can Opener



Food

USEFUL



Warm Clothing and Sturdy Shoes



Knife (utility, pocket, or hand saw)



Cash



Sleeping Bag or Blanket



Cellphone Charger



Tent

PERSONAL



Prescriptions



Treats



Personal Hygiene + Sanitation Items



Personal Documents



Children's Toys



Pet Items

<http://www.sf72.org/supplies>

Offer a Yearly Sales Tax Holiday to Promote Disaster Preparedness

- Implementing the Hurricane Preparedness tax holiday and its list of 10 exempted items will cost the Florida Department of Revenue nearly \$281,000.
- Supplies include flashlights, batteries (not including car and boat), tarps and other flexible waterproof sheeting, portable generators, radios, first aid kits, and food coolers.

Educational Materials

- Written materials, when used alone, will not adequately inform and change behaviors
- People prefer receiving **key messages from a person (neighbor, official) with accompanying pamphlets**
- Focus needs to be “need-to-know” & “need-to do”
- People with low literacy tend to ask fewer questions
- Flesch-Kincaid Grade Level and Flesch Reading Ease can be used to evaluate readability and grade level

Terrific New Zealand Campaign

The screenshot shows a web browser window displaying the EQC website. The browser's address bar shows the URL <http://www.eqc.govt.nz/fixfasten>. The page features a large header image of a living room with a sofa and a coffee table, overlaid with the text "FIX. FASTEN. DON'T FORGET." in white and orange. Below the header, there are four main navigation options: "BEHIND THE CAMPAIGN SEE THE ADS STORIES FROM THE QUAKE", "HOW TO FIX & FASTEN" (highlighted in an orange circle), "GET THROUGH AN EARTHQUAKE DOWNLOAD THE QUAKE SAFE GUIDE SHARE YOUR STORY", and "5 IMPORTANT THINGS TO FIX & FASTEN (CHOOSE ONE OR KEEP SCROLLING)". A "Scroll to top" link is visible in the bottom right corner. The Windows taskbar at the bottom shows various application icons and the system clock indicating 3:15 p.m. on 31/07/2015.

<http://www.eqc.govt.nz/fixfasten>

Pictographs and Plain Language

deprive you of your largest source of drinking water... as well as causing water damage. Securing a hot water cylinder is surprisingly easy.

HOW TO DO IT **WHAT YOU'LL NEED**



1. Screw or nail the timber blocks to the floor or shelving (make sure shelf is fastened). Cut timber blocks to size so they fit snugly between the top of the cylinder and walls and glue them into place. Ensure blocks are against wall framing.
2. Screw two 8mm screw hooks into studs on either side at the same level as the blocks.
3. Attach a 6mm turnbuckle to one hook and the end of the strap. Cut the strap to the length required, connect it to the other hook and use turnbuckle to make it tight.

USING YOUR CYLINDER AS A WATER SUPPLY:

1. Shut water supply off at the "toby" i.e. the tap or valve on the water supply pipe to the house, to stop dirty water (from any broken street pipes) flowing back into your house.
2. If any pipeline between the toby and your house is broken you should clamp the pipe or improvise in some way.
3. Turn off the electricity before you start draining. Open the drain valve at the bottom of the cylinder and collect from the drainage point outside and near the cylinder.

Find out more: [Download the brochure](#)

Proudly supported by **BUNNINGS warehouse**

[DOWNLOAD GUIDE](#)

[BEHIND THE CAMPAIGN](#)

[REAL LIFE - TRACY'S STORY](#)

Scroll to top

3:16 p.m. 31/07/2015

Given these Innovative Approaches

Why are people still unprepared?????

- Disasters are a low base rate event
- It is something that happens to other people
- Too expensive to prepare for
- I'll do it tomorrow
- Women were more likely to want to prepare/evacuate and men more likely to hinder their efforts
- Female named hurricanes resulted in less preparedness and more deaths compared to male named hurricanes – female threat not taken seriously

Social Marketing

- Social marketing offers a valuable planning framework for planning new or improving existing programs and services. Social marketing differs from other approaches in its:
 - commitment to understand and respond to the wants and needs of consumers
 - recognition of the need to segment target populations into distinct audience segments and develop services and outreach approaches for each
 - reliance on marketing's conceptual framework to design or improve products and services
 - continuous monitoring, evaluation, and revision of products and services

Social Marketing

- Marketing of disaster services can be divided into phases.
- This process includes:
 - formative research
 - strategic program planning and implementation
 - program development and testing
 - program monitoring, evaluation and modification

Social Marketing Case Study 1

Disaster Preparedness

- The Rhode Island Department of Health, US, used a social marketing approach to enhance residents' level of disaster preparedness for bioterrorism events (Marshall et al., 2007).
- The program was implemented over the course of several years "...in three distinct phases: **initial planning and formative research**—focus groups and key informant interviews; **strategy development and program implementation**—emergency preparedness product; and finally, **tracking, monitoring, and evaluation.**"

Social Marketing Case Study 1

Disaster Preparedness

- Formative research revealed that people felt **overwhelmed** by the number of directives, **desired less technical language** in messaging, and wanted **more emphasis placed on the availability of free services** regardless of ability to pay.
- To generate awareness and break through the direct mail clutter, postcard-size announcements were distributed by the Boy Scouts at **high-volume grocery stores** the weekend prior to the bulk mailing of preparedness kit information.

Social Marketing Case Study 1

Disaster Preparedness

- A pre- and post-intervention evaluation was conducted by telephone survey to measure key behavioral change outcomes:
 - knowledge of assembling an emergency kit
 - activities to assemble an emergency kit
 - knowledge of developing a plan to stay in contact with family and friends
 - activities to develop a plan to stay in contact with family and friends
 - establishing a way to stay informed by the media during an emergency.

Social Marketing Case Study 1

Disaster Preparedness

- Though there was no significant change in residents' self-reported knowledge about biological, chemical, or radiological emergencies, the percentage of participants who reported **being aware** of emergency kits and **number of emergency plans increased** significantly post-intervention.
- The number of people who indicated they **assembled partial or complete emergency kits** increased significantly as well.

Social Marketing Case Study 1

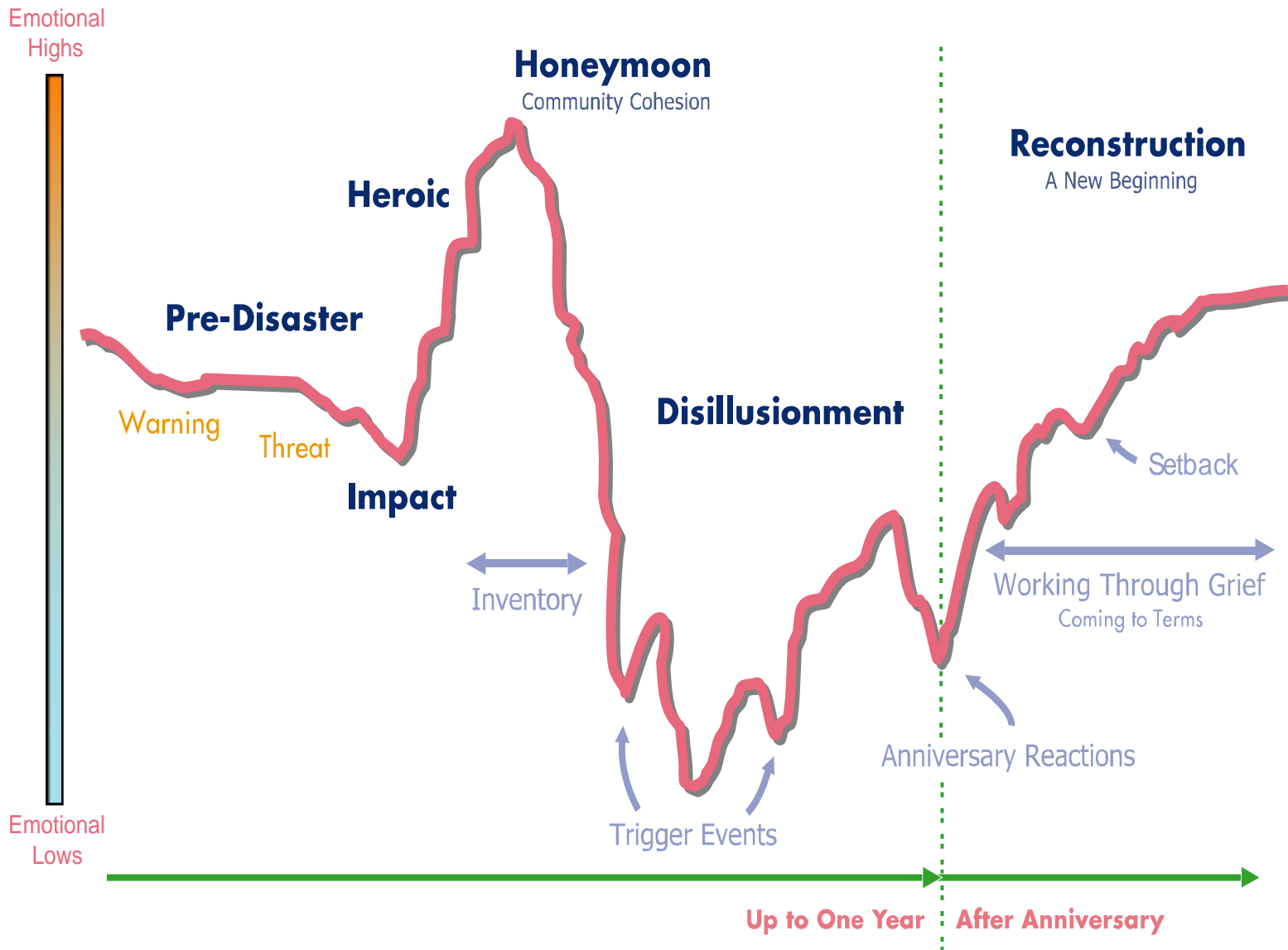
Disaster Preparedness

- Two limitations were that the project relied primarily on 1) focus groups and that 2) adults were grouped into a single audience segment
- An approach including both quantitative and qualitative data would have better targeted their efforts and products.
- By grouping all adults as a single audience they were unable to identify potential “...differences in the factors that influence emergency behaviors between younger adults with small children compared to older adults with grown children or grandchildren...”.

Social Marketing Case Study 2

Disasters and Crisis Counseling

- Program evaluations of crisis counseling services conducted throughout the US revealed that only a small proportion of people who reported significant emotional and mental distress obtained free counseling services during the recovery phase.
- Why does this happen? How can this be avoided in the future?



Adapted from CMHS, 2000.

Why is this so?

- Disaster survivors have been called “accidental clients,” because an external event as opposed to an intra- or inter-personal issue resulted in their use of services.
- Most people with serious psychiatric illness prior to a disaster share few characteristics with those without a history of mental illness who are currently experiencing disaster-related distress

A Poor Match Between What is Offered and how Crisis Counseling is Marketed

Assumes people possess knowledge about what crisis counseling services can and cannot do to help them recover

Poor literacy/mental health literacy/disaster literacy

Language barriers

Stigma

Social comparison

People identify as having disaster-related distress, not as having a mental health problem

Why is this so?

Is Social Marketing the Answer?

- The low rate of service utilization and the high number of people who reported enduring disaster-related psychological distress, indicates that the current treatment services paradigm does not work post-disaster

Field of Dreams



Social Marketing Recommendations

- Move from a top-down approach to one that understands consumers' wants and needs.
- Base planning decisions (e.g., what to offer, how to structure provider-client interaction, plans for promoting services) on information about consumers' values, expectations, beliefs, and perceptions.
- Unfortunately, it also makes social marketing more difficult to apply than expert-driven planning approaches in which a small number of people make decisions based on their experience, expertise, and intuition.



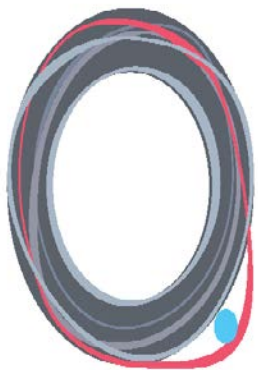
Social Marketing Recommendations

- Move from a one size fits all approach to one that recognizes that each segment has distinct needs and preferences.
- Either 1) plan for the highest priority segments or 2) offer service options to meet multiple segments' needs and expectations.
- Costs for services have to be “priced” correctly. Even people who value treatment may consider services too expensive to use.
- Service could be devalued if priced too low. “Free” could be equated with a poor product and service users stigmatized for accepting help.

9 Tips for Educating and Preparing the Public for Disasters

- Select a target audience – one size does not fit all
- Consider culture – your organization's and that of your target audience
- Use plain language
- Limit information (3-5 key points) on handouts
- Be specific and concrete - not general (manual can opener)
- Use pictographs
- Evaluate – pilot test materials prior to publication/dissemination
- Social marketing - measure program outcomes (know what success looks like – what are your outcome variables?)
- Be positive, hopeful, empowering

Thank You



ASSOCIATION FOR
TRAUMA STUDIES
AT PALO ALTO UNIVERSITY

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