



Tools Training Strategy Facilitation

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Education for resilience

Community safety communication for natural hazards

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1) Emergency management is changing

Introduction

Emergency managers are in the midst of historic changes. The focus of expectations has changed dramatically, from a pure emergency response to a proactive 'risk management' approach involving disaster mitigation, prevention, and community safety. (Keys 1999a, Buckle 1998, Granger 1999)

These shifts involve:

- a whole of government approach that sees community safety as a total system;
- local level and integrated planning;
- the need for greater community participation;
- community-centric, rather than agency-centric approaches;
- risk management and multi-disciplinary approaches;
- improved use of technology;
- the need for greater cost effectiveness and public accountability;
- the need for partnerships and diffusing of organisational 'silos';
- the need for a sophisticated skills in risk management and communication.

(EMA 1999a, Hodges 1999)

The Hawkesbury-Nepean Flood Management Strategy is an exemplar of this emerging approach. This is a multi-million dollar, 6+year, multi-agency

strategy with major spending on local roads, warning systems, land use planning and community education.

The search for better communication

The shift from emergency service delivery to community safety alters the traditional top-down, 'command and control' relationship with the community.

In this new model, the community is seen as an active participant in its own safety, rather than passive recipient of services. This requires emergency agencies to become specialists, facilitators and supporters of the community, while maintaining their traditional disaster response functions. These are challenging roles which requiring flexibility, new skills, and new approaches. (AMEC 2002)

Fortunately, rather than re-inventing the wheel, we are able to borrow and adapt approaches and models which have been proven in other jurisdictions, notably health promotion, community safety, risk communication and adult education.

A changing public

At the same time as expectations of emergency services are changing, so is too the nature of the public is changing:

- increasing urbanisation and an increase in vulnerable communities;
- the changing nature of 'community', from communities-of-place to dispersed communities-of-interest;
- the demand for greater community participation; (EMA 1999a);
- increasingly low tolerance of risk;
- a declining level of trust in government and authorities;
- a community that is shifting its concerns from the public sphere to private and personal spheres (Quantum Market Research 2002)
- an increasingly complex and competitive communication environment;
- a community that is sophisticated in reading and interpreting communications.

These factors reinforce the need for innovation, rigorous planning, and an evidence-based culture in the design of education programs.

Traditional assumptions don't hold

Traditional educational assumptions are being questioned.

"One of the most puzzling findings ... was that many people did not implement strategies that would improve their safety, despite understanding the issues associated with safety and acknowledging that safety was their own responsibility." (Esmund et al 2000, p5)

"It is frequently assumed that providing the public with information on hazards and their mitigation will encourage preparation. This assumption is unfounded." (Paton et al, undated)

"It has been apparent for some time that creating community awareness of floods and storms is not easy, and that our various pamphlets and guides do not 'move' in large numbers. Most of the time, people are not particularly interested in them. (Keys 1999b)

(Salter, undated) criticised the "over simplistic, mechanistic causal postulation between information provision and behavioural change." (p1)

Clearly new strategies are needed.

New approaches are emerging

In response to these challenges, risk communicators are borrowing tools from related disciplines such as community safety and health promotion. These include:

- **Comprehensive systems-based analysis.** These see community behaviour as the outcomes of interactions between legislation, organisational policy and practice, social networks, and systems of knowledge, engineering solutions, and social norms. Systems-based intervention approaches have been widely applied in health promotion, notably in Community Safety and Injury Prevention work (Lindquist et al 2002, Cohen and Swift 2003, Jensen 1999, Esmund et al 2000).¹
- **Greater use of "bottom-up" (participative) strategies.** These focus on empowering and resourcing local groups and networks to identify problems, define solutions and initiate action plans. Examples in the emergency management field include: Community Fire Guard (Vic), Community Fire Units (NSW), and AWARE (WA) and the American Red Cross's Disaster Resistant Neighbourhood program.
- **Greater use of social marketing methods.** Mass persuasion methods originally developed in the commercial marketing field are now widely used to foster positive behaviours (e.g. road safety, Quit smoking, breast cancer screening, HIV). These are being applied to improving community resilience to natural hazards, e.g. FloodSafe (NSW), Floodline (UK).
- **Greater use of evidence-based approaches.** Social research is replacing gut feeling in ERM risk communication. The last few years have seen a dramatic increase in the commissioning of quantitative and qualitative social research. For instance, FESA's Community Safety Survey 2000, the Queensland Department of Emergency Services' focus group

¹ The Procede-Precede model is a widely used tool for the development of such approaches.

research (ACNeislen 2003), and the NSW SES's post-flood interviews in Grafton and Lismore.

2) The need for a conceptual framework

There remains a lack of clarity about what approaches are appropriate in different situations.

"...there is currently no nationally accepted theory which provides the basis for determining 'good practice' and programs and activities have been developed from a basis of intuition, past experience or adoption and adaption of activities from other areas..." (AMEC 2002 p7)

There is also a terminological pile-up as ideas are appropriated willy-nilly from many different disciplines - terms such as social marketing, education, awareness, community development, community resilience, capacity-building, participation, consultation, self-reliance. (AMEC 2002, p11)

The purpose of his paper is to present a coherent conceptual framework for communicating and involving the public, focusing on the pre-disaster phase.

To start with: we propose RESILIENCE as the core concept in pre-disaster communications.

Resilience - a core concept

"The size of the disaster, coupled with the intensified impact on services and infrastructure meant that most of the impacted people were on their own. This is probably the most critical issue in a natural hazard. The whole population has to understand precisely what to do in a disaster situation because the services and infrastructure of the community will inevitably be overwhelmed." (Goudie and King 1999 p54)

Vulnerability and resilience have emerged as key concepts in ERM. In some ways, they are two sides of the same coin. (Buckle 1995 p14)

Vulnerability is a measure of the potential for events to damage the resources of a community. Resilience is a measure of the capacity to recover. These reflect "a situation...whether the people affected can prevent and resist the damage and whether, if the damage does occur, they can recover successfully". (Buckle 1995 p11)

In this paper we propose to extend the use of the term 'resilience' beyond a measure of recovery - to cover the entire adaptive capacity of a community.

We propose resilience as the positive side of vulnerability: the capacity to prevent or resist damage, as well as to recover. This usage of resilience is becoming more widespread. (for example Esmund et al 2000 p5, Jensen 1999, Paton 2001 quoted in AMEC 2002, Pooley et al 2003)

Pooley et al 2003 considered the components of resilience to include:

- Individual factors:
 - perceived self-efficacy
 - coping styles
 - social connections
- Community factors
 - sense of belonging
 - community competence (collaboration skills)

A key element is an inter-connected community. (AEMC 2002, p8) The term 'community resilience' recognises that communities operate as networks and groups, rather than as discrete individuals. This is especially so in times of disaster. But it is also true in normal times.

Communities therefore need to be considered as systems: interconnected networks of individuals, groups and institutions, linked by shared experiences, values, norms and beliefs. These systems enable or disable a community's response in times of disaster. This idea is identical to the concept of 'social capital'. (AMEC 202, p8) Pro-resilience programs should therefore aim to foster and resource connection-building between members of communities.

Resilience is intended to replace ill-defined terms such as capacity and self-reliance which suggest an undue emphasis on individual responsibility.

Actions which build resilience would include:

- fostering local coalitions and networks;
- fostering local leadership;
- fostering local ownership of problems and solutions through participative planning;
- developing individual competency (esp. disaster survival knowledge and skills):
 - individual preparations
 - confidence in selves (self-efficacy)
 - confidence in emergency services;
- building the credibility of emergency agencies;
- building awareness of potential hazards.

3) The purposes of public ERM communication

The five ERM situations

ERM communications happen in five situations: (American Red Cross 1996, p45)

Before disasters	Warning phase	During Disasters	Immediately after	Recovery
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Each situation has different purposes:

Before disasters	Warning phase	During Disasters	Immediately after	Recovery
<ul style="list-style-type: none"> • Build resilience • Build the authority of emergency agencies 	<ul style="list-style-type: none"> • Warnings • Add value to flood warnings 	<ul style="list-style-type: none"> • Warnings • What to do/not to do • Compliance with authority 	<ul style="list-style-type: none"> • Emergency announcements 	<ul style="list-style-type: none"> • Recovery knowledge (mainly through DOCS) • PLUS: This phase is also offers vital "teachable moments" for resilience-building. (Keys 1999b)

Table 1: The purposes of ERM communications.

Different purposes require different approaches

To be implemented, these different purposes require a range of different *approaches*.

The system proposed by Arnstein is in widespread use today as a way to logically categorise the different types of communication and public involvement programs. (Arnstein 1969, IAP2 www.iap2.org)

Arnstein's 'ladder' involves successively stronger degrees of public empowerment and transparency in the communication process. Applied to the ERM sector, the ladder might look like this:

<i>Arnstein 1969</i>	<i>ERM approaches</i>
Empowerment	Resourcing local organisation for self-reliance
Collaboration	Problem-solving: community-level (two-way) e.g. participation in planning
Consultation	Problem-solving: individual or small group (two-way) e.g. face-to-face learning
Information	Education (one-way)
manipulation/therapy	Social marketing (one-way)
non-participation	Emergency announcements (mandatory)

Table 2: Arnstein's ladder of public participation applied to emergency risk management.

<i>ERM Approaches</i>	<i>Examples</i>
Resourcing local organisation for self-reliance	<ul style="list-style-type: none"> • Community Fire Units, Community Fire Guard • Resourcing community organisations during recovery phase
Problem-solving: community-level (two-way)	<ul style="list-style-type: none"> • Reconstruction advisory committees • Collaborative disaster planning committees
Problem-solving: individual or small group (two-way)	Workshops, stalls demonstrations, small public meetings, training
Education (one-way information)	Info centres, hotline, newsletters, leaflet-drops, media stories, public meetings, exercises and drills

Social marketing (one-way persuasion)	Advertising campaigns
Emergency announcements (one-way mandatory directions)	Flood warnings What to do / not to do Evacuation announcements

Table 3: The spectrum of ERM public communication and involvement.

These different approaches are likely to be appropriate for different phases of the disaster cycle.


	BEFORE	WARNING	DURING	IMMEDIATE LY AFTER	RECOVERY
 <p>Greater levels of empowerment and transparency</p>	Resourcing local organisation for self-reliance				Resourcing local organisation for self-reliance
	Problem solving: community-level				Problem solving: community-level
	Problem solving: individual / small group				Problem solving: individual / small group
	Education	Education		Education	Education
	Social marketing	Social marketing		Social marketing	Social marketing
		Emergency Announcements	Emergency Announcements	Emergency Announcements	

Table 4: Where different communication types fit into the ERM cycle.

A decision support tool

The wide range of approaches suggests that fostering preparedness and resilience may be amongst the most challenging communication tasks facing

emergency services. It's therefore vital for educators to be able to make rational decisions about the best mix of approaches for a given need.

Building on the work of McArdle 1999 and Robinson 2002 the appropriateness of different communication types can be determined by *inherent complexity* of the desired action versus the *inherent certainty* of the desired action. The desired action is the discrete action which the ERM agency hopes members of the public will carry out as a result from the communication (e.g. prepare an emergency disaster kit, become acquainted with local evacuation routes etc...)

This allows the creation of a simple decision support tool.

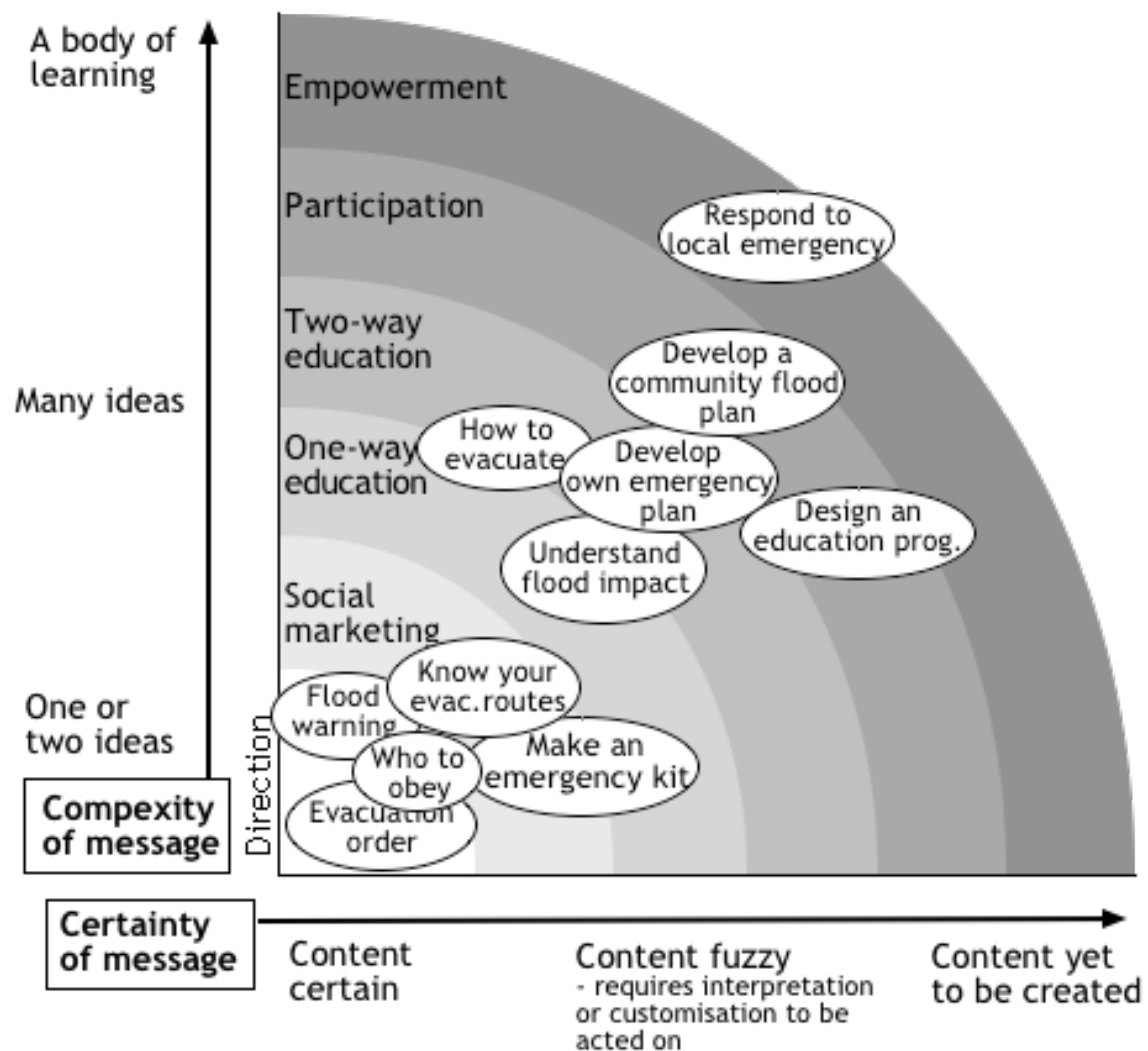


Figure 1: A Decision Support Tool for ERM communication

This decision support tool is intended to allow communicators to choose the appropriate level of approach, or suite of approaches, which is appropriate for a specific communication challenge. The tool also helps explain why traditional one-way education is inappropriate in many cases.

4) Different audiences require different content

A perennial challenge in communication is how to target the right message to the right audience. There is a related question of cost effectiveness - there is no point in spending time and effort on audiences which are unlikely to respond to any message.

Audience segmentation is therefore an important issue in program design. A proposed 'triage' approach to ERM audience segmentation is discussed in Appendix 2.

AT this stage it's important to note simply that the effect of most segmentation approaches is the divide an audience into:

- 'risk managers': people who are sufficiently 'risk averse', and have sufficient self-efficacy, to take personal action to reduce their risk. These consist of two groups:
 - those who are concerned about the same hazard as the ERM agency; and
 - those concerned about other specific hazards, or about the general safety of their family, household or business. This group is likely to perceive the agency-defined threat as remote or of such low probability that it is effectively zero for the purposes of daily life. Possible solutions to the problem of low probability events are discussed in Appendix 3.
- 'risk deniers': people who are unlikely to take any form of action until an emergency occurs, either because they are in denial, lack self-efficacy, or have high independence from authority.

A well designed communication program should have messages and tools for all three audiences. We suggest the following approach.

Risk managers	Concerned with same hazard as the agency	Target this group with <u>hazard-specific</u> messages (ie. what to do in a <i>flood</i>).
	Concerned about different hazards to the agency	Target this group with <u>non-hazard specific</u> safety initiatives (ie. what to do in <i>an emergency</i>). (Potential for joint agency partnerships)
Risk deniers		Target this group with messages which build the credibility and authority of the agency.

Table 5: A proposed triage approach to segmenting ERM audiences, for BEFORE-disaster communications.

5) An integrated communication framework

The challenge for risk educators is to devise programs which both alter perceptions of risk and foster protective behaviours in target audiences.

This requires a holistic risk education framework which builds on established insights into the processes of personal and social change.

A starting point: The Diffusion of Innovations

As a starting point, we propose a framework based upon Everett Rogers' *The Diffusion of Innovations* (1962-1995). This theory is widely used to explain the adoption of technological innovations, especially in the rural sector and in commercial product marketing. It has been widely applied to the adoption of new farming practices in Australia. (Dunn et al 2000)

The Diffusion of Innovations offers two advantages over social cognitive models derived from the health sector. Firstly, it predicts the behaviour of large populations, whereas the social cognitive models focus on the behaviours of individuals, usually in a clinical setting. Secondly it offers guidance on the design of the actions which people are supposed to adopt, rather than focusing solely on the psychology of persuasion and decision-making.

The outline of Rogers' theory is well known. It assumes that a successful innovation is adopted by successive groups across a population, dependent on their openness to new ideas and willingness to experiment - beginning with innovators, then early adopters, early majority, late majority, and finally laggards.

The propensity to adopt a particular behaviour across a population at a given time, as well as the temporal process of adoption, is illustrated by the standard distribution curve, or 'Bell-curve', where the coloured areas approximate proportions of a population in the different adoption classes. This shape - especially the left-hand 'take-off' part of the curve, has been empirically verified in numerous studies of the take up of new behaviours and technologies. (Rogers 1995)

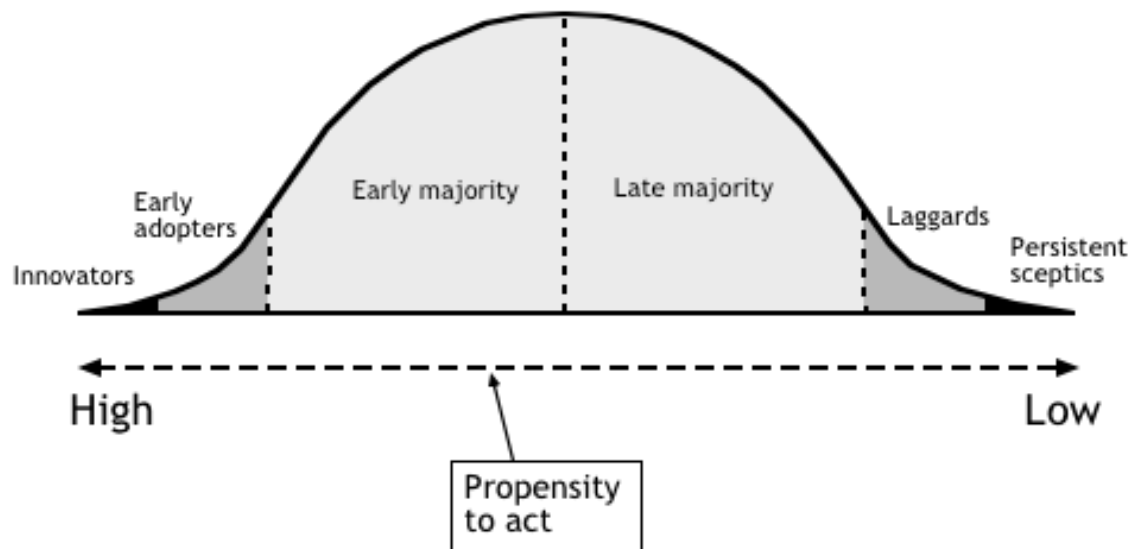


Figure 2: The stages of change from the Diffusion of Innovations theory.

Developing the model

Kent et al 2000 developed the Diffusion model further by assuming a different *motivation level* for each of Rogers' five adoption stages. These motivation levels notionally represent the different amounts of time and energy that members of the public are likely to invest in adopting a particular innovation. To illustrate, an additional axis is added to the diagram, producing a vortex shape.²

². The vortex shape has no mathematical basis. It's purpose is to illustrate the point.

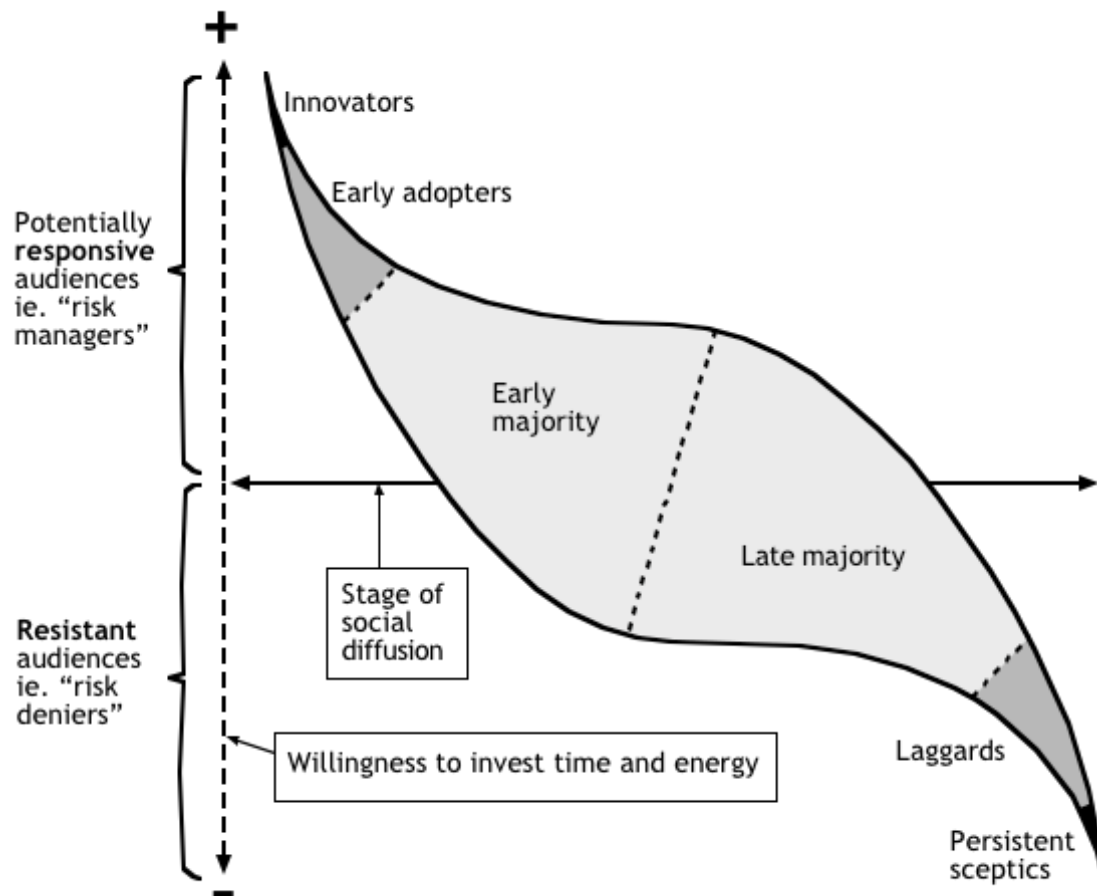


Figure 3: The Diffusion vortex, after Kent et al 2002.

An explanation of the five involvement levels is given in the table below.

<i>Adoption stage</i>	<i>Involvement level</i>	<i>Explanation</i>
Innovators	High involvement	'Global visionaries': May invest a high level of learning, time and creativity in innovating new solutions to community safety issues
Early adopters	Medium involvement	'Private visionaries': May engage in significant learning as they adopt lifestyle improvements to enhance personal and family safety
Early majority	Low involvement	Pragmatists open to better safety practices: they want simple guaranteed 'products' with minimum learning and investment of personal time.
Late majority	Resistance	Pragmatists in denial about safety issues - but will follow mainstream trends.

Laggards and sceptics	Strong resistance	Those resistant to the need for safety from natural emergencies. They will require regulatory and enforcement solutions.

Table 6: The meaning of the different adoption segments in the ERM context.

The advantage of focusing on desired levels of involvement is that it is possible to match Rogers' adoption stages with Arnstein's typology of participation methods, which also imply a scale of audience commitment. The following figure illustrates the relation between the two models. The result is a direct correlation between the different audience segments and a different communication approaches.

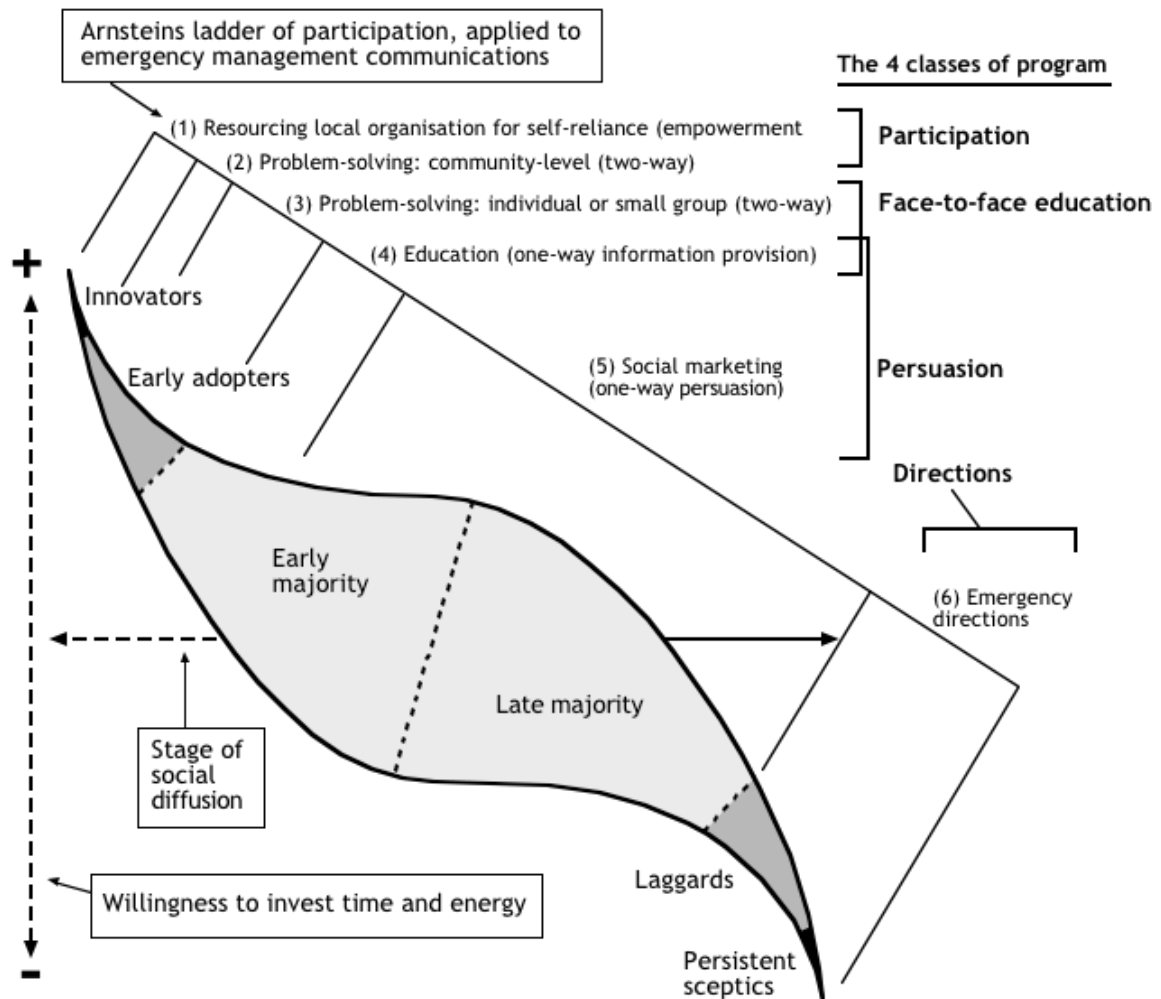


Figure 4: Mapping different communication approaches against desired involvement level.

Mapping recent programs

Recent education programs can be sketched onto the vortex model as follows:

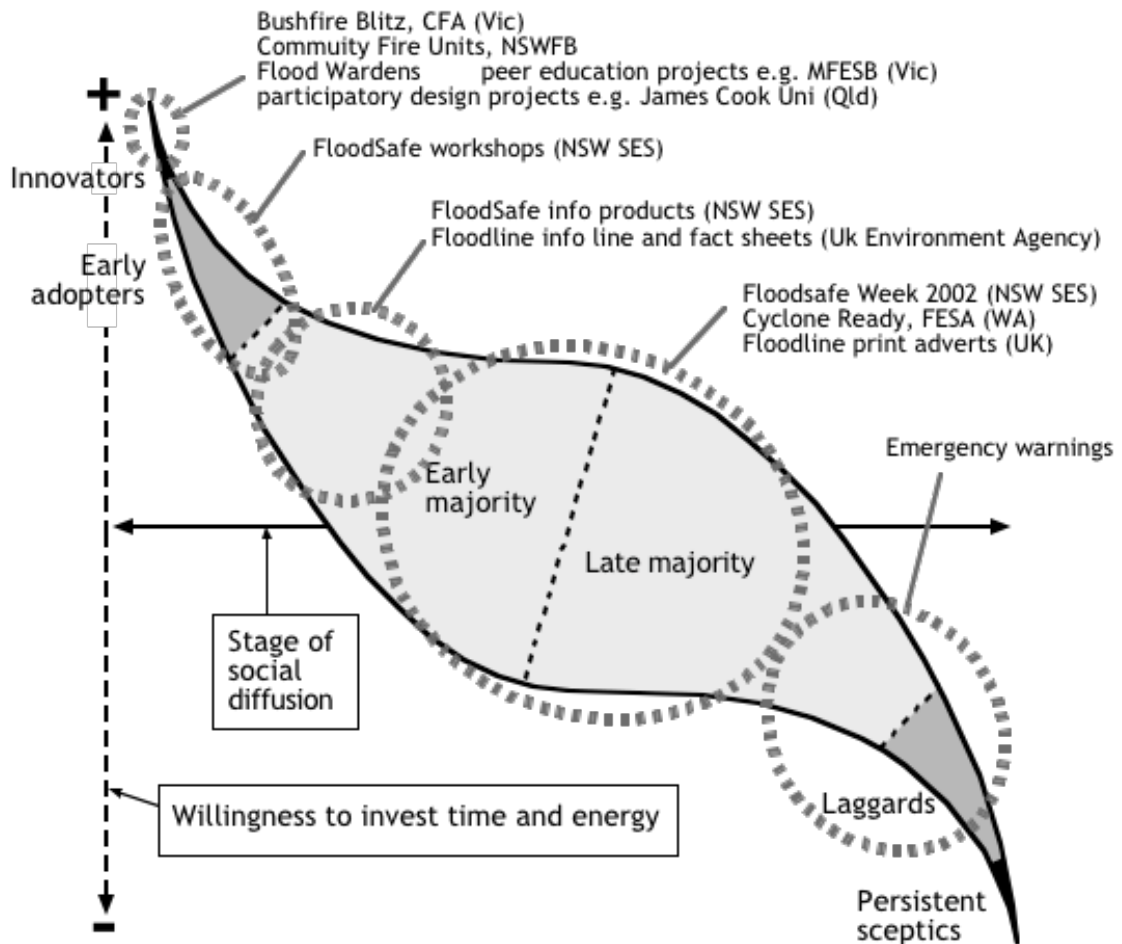


Figure 5: Examples of recent hazard education programs

Example of an integrated program: FloodSafe (NSW SES)

FloodSafe (NSW SES) is an example of a program which has consciously attempted an integrated approach.

The different components of FloodSafe can be mapped onto the Diffusion vortex as follows:

The FloodSafe model (NSW SES)

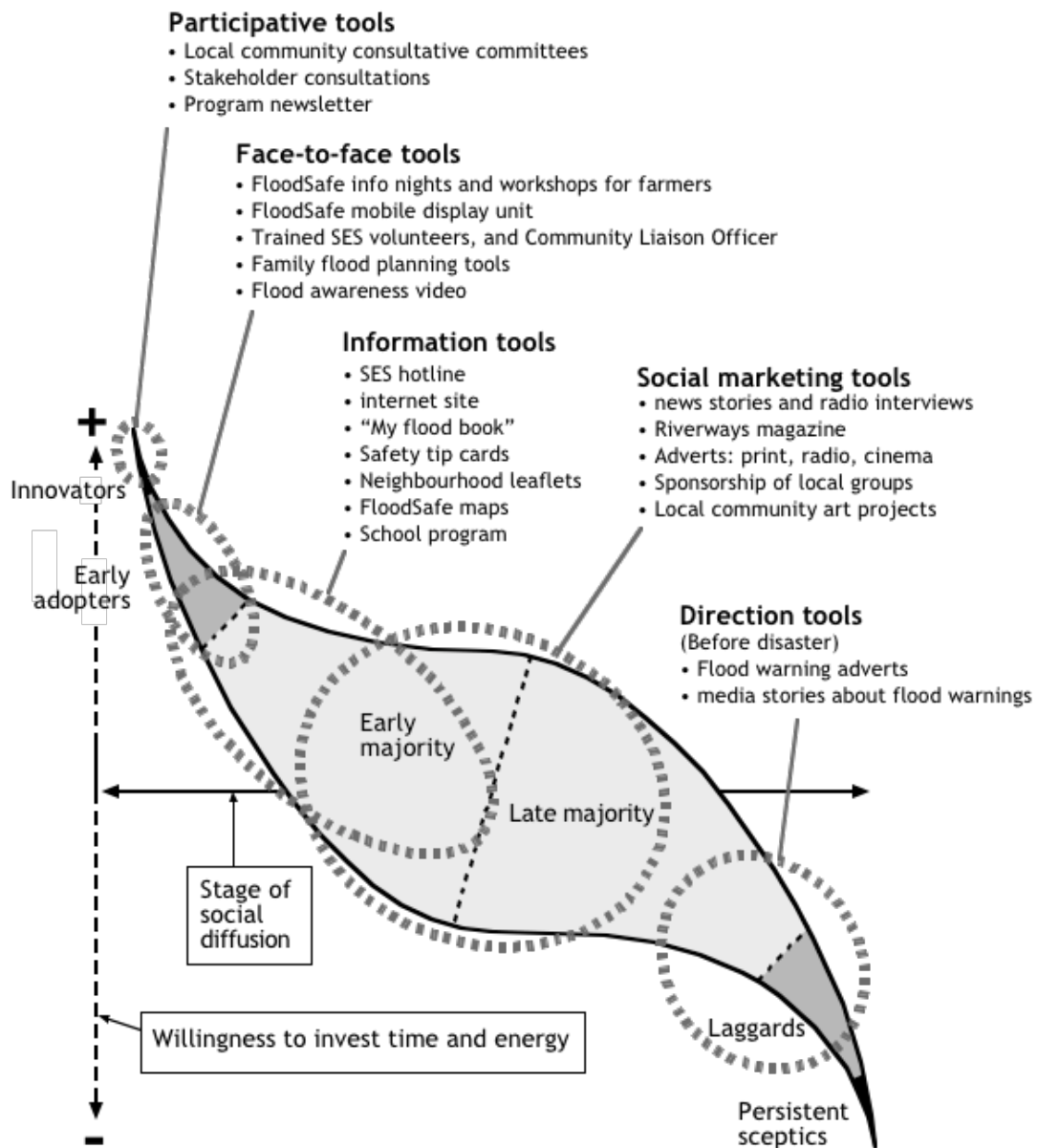


Figure 6: Mapping initiatives under the FloodSafe program (NSW SES).

6) Elements of an integrated program

This model suggests that programs which target whole populations should ideally to consist of an integrated mix of quite different approaches.

The Diffusion model suggests four general classes of programs, each targeting a different level of interest in the public. These classes are close to Grunig's four models of public relations. (Grunig and Hunt 1984)

Note that, in practice, objective how-to information tools (ie. traditional educational products) are needed to support all classes of approach. They are therefore no longer seen as stand-alone elements, but as support items for different approaches. Hence 'one-way information' is not suggested as a separate class of approach.

The four classes are:

- A) Community participation
- B) Face-to-face, or two-way education
- C) Social marketing, or one-way persuasion
- D) Mandatory directions

A) Community participation

This targets keen, active members of the public, often with many years of involvement in community issues.

Tools include planning workshops, reference committees, various 'action research' methodologies.

Experienced members of the public are closely or creatively involved developing or managing programs (e.g. community reference committees, volunteer programs). These audiences, though relatively tiny in number, are important because they bring local knowledge, enthusiasm, energy, and creativity to the program.

The approach is sometimes called 'capacity-building'. It draws on theories and practices from the fields of community development, adult learning and health promotion. (Minkler 1991)

This participation phase could be called the 'keystone' phase, because it is fundamental to ensuring that the project is genuinely sensitive to the needs and perceptions of it's target audience.

Emerging best practice suggests that the participation phase lasts throughout a project, with participants taking a fundamental 'ownership' role in program design and evaluation, meanwhile other 'high participation' individuals are recruited to act as peer educators. (AMEC 2002, p8, p12)

B) Face-to-face, or two-way education

This approach targets early adopters (typically 10-15% of a given population). They are risk averse individuals who are quick to make the connection between a program's offering and their personal, family or business needs.

Tools include workshops, small public meetings, demonstration events, field days, open days. Media stories are used to promote events and build credibility. Print products are used to support 'how-to' explanations.

Peer educators (e.g. trained SES volunteers, community liaison officers) are important intermediaries in this phase, which requires extensive face-to-face interaction.

This approach involves face-to-face learning, experiential learning, and two-way interactions between experts and individuals.

Face-to-face learning is the most powerful form of learning:

"In a trusting relationship with a person who is perceived to have expertise or authority, even brief comments have a lasting impact, particularly when reinforced over time through community norms and practices." (Cohen and Swift 1999)

Face-to-face learning is strongly recommended in the ERM situation, where individuals are able to actively explore the nature of the risk and understand how to accommodate different practices to their daily lives.

"The more face-to-face activities you use, the more effective your community disaster education outreach will be." (American Red Cross, 1996, p29)

A goal in this phase is to develop a dispersed mass of informed, capable, risk managers in the community, whose role may be critical in a disaster.

In his study of Grafton residents following the 2001 flood, Pfister reported that the three quarters of the survey respondents who did not evacuate did not believe their homes were under threat.

Significantly, all of the people interviewed had spoken to neighbours, friends and relatives about the flood and evacuation warnings. Often these were older, long-term residents with experience of floods. (p8)

Pfister concluded: "If a critical mass of people believed the seriousness of the flood threat and decided to evacuate during a flood in the future, then a cumulative 'snow-ball effect' could result, and the number choosing to evacuate could increase markedly." (p14)

C) Social marketing, or one-way persuasion

This targets majority audiences, typically 60-70% of the population. These audiences are likely to be in denial of natural hazard risks - sometimes strongly so.

In this phase, commercial marketing approaches are used to raise awareness of risks, and to persuade mainstream members of the public to trial behaviours or products with credible personal benefits.

As the target is a mass audience, this phase necessarily relies on a social marketing approach. Social marketing can be defined as one-way, persuasive communications which use commercial marketing techniques to encourage socially-desirable or healthy behaviours.

Tools include coordinated campaigns involving advertising, media stories, staged events, and print materials. High profile 'early adopters' act as endorsers and 'voices' for the campaign.

A rigorous process of development of these campaigns is vital, with a strong reliance on qualitative research, pre-testing, evaluation and an audience-centred approach. (Andreasen 1995, p14)

The National Flood Warning Centre (Environment Agency, UK) is an example of an flood agency which has adopted a conscious social marketing approach, with a 10 year plan. (Proudley and Handmer 2002, also see www.environment-agency.gov.uk/subjects/flood)

The key features of the social marketing approach are:

- 1) Consumer behaviour is the bottom line (ie. the measure of success)
- 2) Programs must be cost-effective
- 3) All strategies begin with the consumer (rather than the agency)
- 4) Interventions involve the *Four P's*: Product, Price, Place, and Promotion
- 5) Market research is essential to designing, pre-testing, and evaluating intervention programs.
- 6) Markets are carefully segmented.
- 7) Competition is always recognised. (Andreasen 1995, p14)

Some of the theoretical foundations of social marketing, and evidence for its effectiveness are discussed at Appendix 4.

D) Mandatory directions

Mandatory directions are issued in an emergency situation. As these are not the subject of this paper, warnings and directions are not discussed further here.

7) Fostering social change

A sequential process

The model suggests that the adoption of new behaviours across a population is a *process* which begins with small *participatory* projects. These are as much about the process of program design as they are about changing the behaviour of individual participants (and the program managers!).

This high-participation groundwork makes possible the confident design of initial outreach programs which rely on relatively high investment, two-way *face-to-face* processes. In this stage 'early adopters' negotiate the problems of adoption with experts, discovering how to implement relatively untested behavioural prescriptions into their own lives.

Careful monitoring and evaluation of this two-way phase teaches program managers how to customise and transform their behavioural prescriptions, messages, and tools to meet the demanding needs of mainstream audiences in the following phase.

The step from early face-to-face programs with relatively small numbers of self-motivated 'early adopters' to mainstream mass audiences been called a 'chasm'. It is the most difficult phase in program delivery. The 'product' must be endorsed by credible people. It must have proven benefits and known costs. It must be simple, easy to understand and use. It must be 'plug-and-play' and compatible with established lifestyles and business practices. In most cases the key to bridging this chasm is the quality of program evaluation and re-design during the 'face-to-face' stage. (Moore 2002)

In the mainstream phase the strategy shifts primarily to social marketing methods. The purpose is to 'sell' the benefits of proven behaviours and to reinforce social norms.

Finally, once the desired behaviours have been accepted as norms by a majority of the population, stronger regulatory and enforcement approaches are appropriate. In the ERM context, this phase matches the emergency situation, where 'laggards' must be left in no doubt of the willingness of agencies to enforce emergency directions.

This integrated 'behaviour change' framework is a phased process of transition through these 4 different approaches. Each approach is matched to a different stage of the social adoption process. In practice of course, where bundles of behaviours, some innovative and some normalised, are

being simultaneously promoted, more than one approach would be mobilised at once.

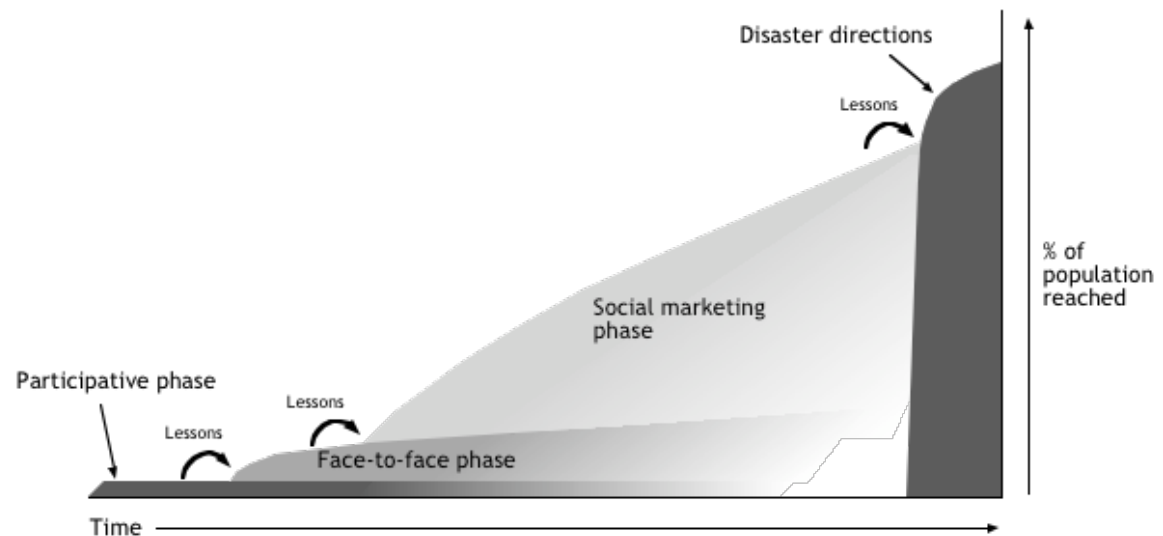


Figure 8: Sequencing of the four phases.

Implications for program design

Many authorities speak of the need for multi-faceted communication programs. This model suggests an integrated communication program is one which responds to the spectrum of motivational levels in the community.

Quite different communication strategies and tools are needed to target quite different levels of interest amongst the public. Hence there is not one catch-all educational style.

Instead a holistic risk education program would involve a number of quite different sub-programs under one brand or banner. They would require quite different approaches, skill sets, outcomes, and investment considerations (e.g. number of people reached per dollar). All however need to be integrated to ensure a coherent 'behaviour change' strategy across the community.

The theoretical framework suggests a number of related goals, which could be integrated into future risk education programs.

Goals for high involvement audiences

- 1) Harness their local knowledge, commitment, and innovative thinking to develop effective local education programs e.g. Community Fire Guard (CFA Vic) and the participatory appraisal methodology recently trialed by James Cook University in rural Qld (AMEC 2002);
- 2) Harness their energy and commitment as peer educators to spread messages to the broader community;

3) Establish community-based hazard response units, such as Community Fire Guard (CFA Vic) and Community Fire Units (NSWFB).

Goals for medium involvement audiences

3) Harness their willingness to be early adopters of safe living actions as test beds to identify better ways of promoting those concepts.

4) Harness their desire for recognition by promoting them as credible endorsers of new ideas and products (open days, recognition programs);

Goal for low involvement audiences

5) Harness their aspirations and pragmatism as the drivers for the mainstream adoption of new practices (through social marketing);

Goal for resistant audiences

6) Listen to their criticisms in order to adapt, improve and diversify ideas and products.

These goals can support each other, forming an integrated 'engine' with the capacity to develop, test, and market original safe living concepts and practices.

8) Community participation in ERM

"the principal resource available for mitigating or responding to disasters is people themselves and their local knowledge and expertise."

(Twigg 2001 p6)

An emerging paradigm

The keystone of this new framework, and one which remains controversial in ERM, is public participation in planning.

Many ERM communicators and professionals regard community participation as a key element in successful program design. (for example Young E, 1997, Lambley 1997, Scobie 1997, Paton et al, undated)

"an underpinning principle of emergency risk management is that the solution to a problem that affects the community will be found with their active participation at all stages of the process." (Boughton 1997, quoted in AMEC 2002)

"Listen to people's concerns. Don't assume you know what they are, and don't assume it doesn't matter what they are. Share power. Set up community advisory boards and other vehicles for giving affected communities increased control over the risk." (Sandman 1994, p620)

Community participation refers to the top two rungs of Arnstein's Ladder of Participation (discussed above). It means "active involvement of people in decisions about the implementation of processes, programs and projects which affect them." (Slocum et al 1995)

Well designed participative approaches are said to increase the competence of risk managers by liberating local knowledge. They can build local capacity. They can strengthen local organisation. They can make possible sustained programs. They can allow complex programs to be 'reality-tested', refined and adaptively managed. They can provide managers with unique insights into the communities they serve. They can build local trust. (Twigg 2001, p6). They may also build local constituencies to lobby for better resourcing of hazard mitigation programs. (Burby 1999)

There is a growing appreciation of community participation amongst ERM professionals:

"Increasingly, emergency services recognise that the solution to realising...community safety is found in developing partnerships with the community, promoting community involvement in the identification of needs, in recognising risks, determining risk acceptance levels and in developing solutions. The aim is to create community self-reliance, in other words, empowering the community to take action." (Hodges 1999a, p1)

"It has been well demonstrated and documented that the most successful programs are those which are designed, implemented and managed in formal partnership arrangements, whereby there is an accepted degree of ownership by the community for the end product." (EMA 1999b)

A question of competence

Participative approaches, although requiring time and special skills, offer a potential solution to some seemingly intractable problems facing ERM communication.

For example, 2001 Grafton and 1997 Cloncurry floods exposed a serious credibility gap for flood managers, where the majority of people simply did not believe flood warnings, despite many years of community education (Pfister 2001, p1, Goudie and King 1999, p54)

Research by both the CFA (Vic) and the SES (NSW) points to the serious discrepancies between the views of emergency managers and those of the public about appropriate information needs and disaster responses. (AMEC 2002 p18, Pfister 2001, p1).

Participative approaches, where both sides learn from each other, are likely to offer a better solution than simplistic calls for more conventional community education (for example Pfister p13).

Leading examples of participation

The Victoria Country Fire Authority is at the leading edge of developing community participation methods with its Community Fireguard and Bushfire Blitz programs which involve coordination and consultation with vulnerable communities.

AMEC 2002 described Community Fire Guard as "a model that in some areas has become a "highly developed processes of community interaction resulting in neighbourhoods developing bushfire survival plans." (AMEC 2002, p10)

The Fire and Emergency Services Authority (WA) has adopted a more ambitious community participation approach with its AWARE program. This actively engages communities in identifying and planning responses to all forms of hazard.

The American Red Cross Disaster Resistant Neighbourhood Program adopts an even stronger community development approach:

"The American Red Cross is the initiator and facilitator of the Disaster Resistant Neighbourhood Program, however, to be effective, it is absolutely essential that the neighbourhood take ownership of the

program (ie. led by neighbourhood volunteers and designed and implemented by volunteers within the neighbourhood)."
(American Red Cross 2003)

Other Australian examples of public participation in disaster planning are given in AMEC 2002 pp9.

Professional resistance

Nevertheless there is considerable resistance to participatory approaches in a profession where the technocratic paradigm reigns supreme. (for instance Lambley 1997)

"Disaster specialists have been slower to take to participatory approaches than their colleagues in development. This is largely due to the history, character and culture of disaster work, with its command-and-control mentality, blueprint planning, technocratic bias and disregard for vulnerable communities' knowledge and expertise regarding hazards and their mitigation." (Twigg 2001 p11)

"The prevailing approach to development and disaster management remains a top-down one. People in positions of power, be it political, institutional or professional, are reluctant to hand over authority to the grass roots. Many organisations have called their work 'participatory' but have not changed the substance of their approach." (Twigg 2001 p5)

The practice of participation remains a challenge for government agencies:

"The skills - and especially the attitudes - it requires from its practitioners are not easily acquired. The flexibility and openness to change what are innate to good participation mean that the approach does not fit comfortably within the operational agencies' more rigid timetables and programs." (Twigg 2001 p5)

Unfounded fears

Can the public cope with technicalities? The evidence suggests that the fears of technical experts may be exaggerated:

"When the general public has felt it was exercising real influence on the decision, it has shown a surprising ability to master the technical details." (Sandman 1986)

"Contrary to expert fears, it is evident that when scientific uncertainty or lack of expertise is openly acknowledged, and when management mechanisms to deal with the situation are explained, demands for zero-risk options are not forthcoming from the majority, and experts are not rebuked. Members of the public who have an opportunity to address issues in an informed manner are willing and able to balance risk and benefits."

(Petts 1997, p 378)

The acid test: agency commitment

A number of commentators have pointed to agency commitment as the acid test of successful community participation programs. (For example Beirele and Konisky 2000, Buchy et al 2000).

One health promotion professional offers this warning.

"An agency that intends to initiate a community-based health promotion project should first critically examine its own capacity and determination not only to introduce, but also to support, its community initiatives. If such a self assessment points out weaknesses, these should be corrected, or the project should be discontinued. An agency that is neither prepared nor willing to provide serious support withdraw from the arena of community-based health promotion." (Mittlemark 1996)

9) Unfinished business

"...it is evident that more and more programs are being developed for an increasing number of target groups with no 'real' evidence that the safety levels, knowledge levels or participation levels are improving."

(Esmond and Odgers 2000)

The pace of cultural change in ERM remains slow, and, generally, communication practices lag well behind fields like health promotion.

The following gaps deserve particular attention:

The partnership gap

Though widely recommended in ERM (for example, Keys 1999c) partnership programs remain thin on the ground, either because both parties are not firmly committed, or because agencies and council are unwilling to resource non-core programs.

Partnerships with community organisations - arguably an equally important goal - are rare.

The social research gap

We have hardly begun to develop a research base for fostering community resilience. Well-designed social research is slowly proving itself to agency managers, but there is still a reluctance to commission proactive social research to support the design of education programs. Recent work by FESA (WA) and the Department of Emergency Services (Qld) are notable exceptions to this tendency.

An experimental approach to social research, with the use of control audiences, or split audiences, where different cohorts are involved in

differently designed initiatives, has been widely used in other sectors, and should be applied to ERM.

More, and more rigorous, pre-testing of messages and materials in focus groups is also needed. (e.g. Rohrmann 1991's study of different bushfire info materials for the CFA, Vic).

The participation gap

As discussed above, genuine community participation in program planning and design is remarkably weak, and progress is slow. It is vital that trial projects are commenced, evaluated, and promoted so that agencies can gradually develop the confidence and competence to mainstream these techniques.

The skills gap

ERM is a field dominated by disaster management and civil engineering professionals. These skill sets, and their associated values, are poorly suited to the work of building community resilience. The sector needs to recruit more staff with social science backgrounds who are comfortable with social marketing and public participation work.

The process gap

We need to understand that sound programs depend on sound processes of policy formation, formative research, development, implementation and evaluation and re-design. Conscious attention to process is more important than a single-minded focus on outputs. Outputs come and go, but processes need to continue and improve

The honesty gap

We need to understand that, in the business of fostering social resilience, there can never be such a thing as failure and never such a thing as success - there is only learning. However a learning culture requires a fundamental change in the 'do-or-die' ERM mind set. Without honest discussion about what works and what doesn't, lessons cannot be disseminated and improvement is impossible.

To quote the National Good Practice Review:

"It seems clear that in the emergency management sector...the pressure to implement probably mitigates against spending much time and effort on reflection/evaluation. In addition, there is an understandable reluctance to either recognise failure or shortcomings in programs and/or to share that recognition with others. Given that situation, many people and organisations can be expected to repeat the experiences of others, and a public process of sharing of all experiences and learnings from which an accepted best practice could emerge, is not sufficiently in evidence at present."

(AMEC 2002, p4)

10) Summary: the proposed model

The proposed model consists of:

1) A strong process orientation, with emphasis on community participation, especially in the formative stages, social research, critical evaluation and adaptive management. Models such as action learning, and PROCEDE- PRECEDE are valuable here.

2) Audience-focused content. The program begins with an understanding of audience needs and perceptions, not simply so these can be manipulated, but so that the program can be adapted to the audience's reality. Participative methods, focus groups, interviews, and quantitative research are used.

3) A sequential process of deepening public engagement. An integrated sequence of approaches are used, each catering for different segments of the population, each having different goals and using different methods:

1. Community participation phase

The participants: selected for their expertise on their community and its environment, and commitment to safety issues.

Goal: utilise their expertise and commitment to guide the design and adaptive evaluation of the project, including the design and interpretation of formative research.

Methods: various participative methodologies adapted from those widely used in adult learning, health planning and rural assessment.

2. Face-to-face phase

The participants: 'early adopters', risk averse, motivated to improve the safety of their family, business or neighbourhood.

Goals: Develop a diffuse network of informed, competent individuals capable of influencing community resilience in a disaster. Monitor the experiences and responses of this group to refine the program for the next phase. *Information collected, and impressions gained by the program managers in this phase will be vital for the design of the social marketing stage.*

Methods: various face-to-face methods, such as workshops and demonstrations where participants can formulate individual solutions to their needs through interaction with experts and trained educators.

3. Social marketing phase

The audience: a mass audience of less motivated or more distracted individuals - many in denial about natural hazard risks.

Goals: awareness of risks; carry out simple protective actions; reinforce the authority of the combat agencies.

Methods: mass marketing: advertising, media stories, public events.

4. Mandatory directions during emergencies

The audience: the whole community, including highly resistant individuals.

Goals: compliance with authority, safe evacuation, protection of property.

Methods: media announcements, news stories, door-to-door sweeps.

The following diagram sets out the key features of the model.

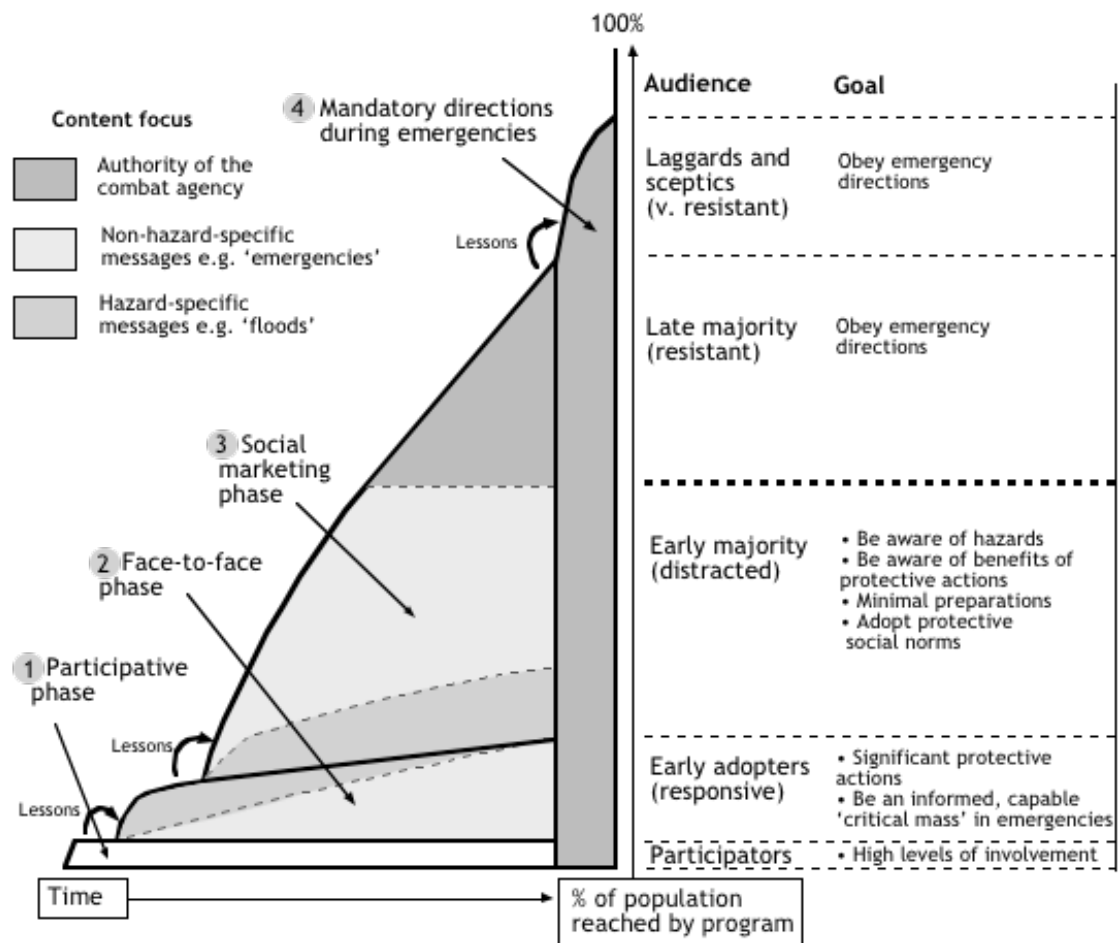


Figure 9: An integrated model of ERM communication.

Appendix 1: Some definitions

Capability building: any action that builds the strength, flexibility or sustainability of whole human systems to adapt to change. Typical capacity-building strategies involve networking, training, organisational reform, devolution of responsibilities, and improved information flow.

Community capacity-building typically involves networking and training community leaders and change agents, resourcing community organisations, and supporting communication activities.

Community capacity is said to consist of:

- Leadership capacity - the capacity to create inclusive visions and set clear goals;
- Strategic capacity - the knowledge, experience and skills to plan effective activities;
- Organizing capacity - the capacity to organize people to achieve goals and activities e.g. the development of membership base and community support/credibility;
- Delivery capacity - resources such as staff, lists, equipment, budget, membership base, internet access, web pages, email, and GIS mapping capability;
- Communications capacity - the ability to communicate strategically.

(The Biodiversity Project 1999)

Community safety: the product of collaborative community, government and non-government efforts towards a vision of safety, societal well-being, harmony and stability. The benefits of community safety include social cohesion, security, cooperation, self-reliance and an improved physical environment.

A safer community should be locally organised and resourced, well informed about the hazards in the local area, positive in prevention, risk averse, motivated and able to manage the majority of issues through effective planning and action. (EMA 1999a, p4)

Empowerment: A process through which individuals, as well as local groups and communities, identify and shape their lives and the kind of society in which they live. Empowerment means that people are able to organise and influence change on the basis of their access to knowledge, to political processes and to financial, social, and natural resources. (Slocum et al, p4)

Norms: widely accepted ideas or rules indicating how people should behave in certain situations. (Baron and Byrne 1991)

Resilience: the capacity of human systems to prevent, resist and recover from damage.

The components of resilience are said to include:

- Individual factors:
 - perceived self-efficacy
 - coping styles
 - social connections
- Community factors
 - sense of belonging
 - community competence (collaboration skills). (Pooley et al 2003)

Social marketing: One-way, persuasive communications which use commercial marketing techniques to encourage socially-desirable or healthy behaviours.

The key features are:

- 1) Consumer behaviour is the bottom line
- 2) Programs must be cost-effective
- 3) All strategies begin with the consumer (rather than the agency)
- 4) Interventions involve the *Four P's*: Product, Price, Place, and Promotion
- 5) Market research is essential to designing, pretesting, and evaluating intervention programs.
- 6) Markets are carefully segmented.
- 7) Competition is always recognised. (Andreasen 1995, p14)

Appendix 2: A triage approach to segmenting audiences in ERM communications

A perennial challenge in communication is how to target the right message to the right audience. There is a related question of cost effectiveness - there is no point in spending time and effort on audiences which are unlikely to respond to any message.

Audience segmentation is therefore an important issue in program design.

Potential segmentation criteria are: demographic factors, psychological traits, and degree of personal experience of the hazard.

1) Demographic factors

Women have been noted to be somewhat more risk averse than men. (Goulter and Myska 1987, p300)

Millar et al 1999 noted that vulnerability is commonly considered to increase with age, however in his study of volcanic risks in New Zealand, the 50+ age group appeared less vulnerable. They speculated that this was due to this group having more financial security than younger groups. (Millar et al 1999, p352)

The white male effect. This refers to the well-established tendency of certain white males with both individualist and hierarchical (ie. trust for institutions and authority) traits, to have low risk perceptions (Flynn et al 1994, Solvic 1997, Palmer 2003)

Though often discussed, demographic variables do not appear to be often used as primary criteria for segmenting audiences in ERM marketing campaigns.

2) Psychological traits

People's reactions to hazards are said to be mediated by their perceptions, notably their perception of the risks involved in a particular hazard and their perception of their self-efficacy in dealing with those risks. (Esmund et al 2000, p3, Granger 1996 p14)

Psychologists have tried to explain predispositions to act on the basis of psychological traits such as perceived self-efficacy, anxiety, and independence.

A typical example of this approach is the recent ACNeilsen social research project exploring disaster preparedness in Brisbane, Cairns and Charleville. (ACNeilsen 2003)

In analysing the results of 6 focus groups the researchers proposed two underlying psychological traits: level of anxiety, ³ and level of personal independence.

The result was a matrix which aimed to predict both likely responses in a flood and differing communication needs of the audiences.

Low anxiety	<p>"Warriors"</p> <ul style="list-style-type: none"> - Feel disasters are a rare occurrence - Believe they can handle any situation - Don't believe preparation will make a difference <p>Young 1999: 32%</p>	<p>"Minimisers"</p> <ul style="list-style-type: none"> - Feel disasters are low key / an experience - Believe a disaster won't be that bad - Don't believe it will interfere with their lives <p>Young 1999: 16%</p>
	<p>Higher anxiety</p> <p>"Controllers"</p> <ul style="list-style-type: none"> - Feel disasters are powerful - believe their own actions can make a difference - believe that preparation can prevent further damage, save cost and time <p>Young 1999: 19%</p>	<p>"Boy scouts"</p> <ul style="list-style-type: none"> - felt disasters are dangerous and scary - focus on ensuring family and community safety - believe being prepared will mean less chance of damage or injury <p>Young 1999: 33%</p>
Self-efficacy:	Independent (make own decisions: self-empowering, confident)	(Affiliative) (socially connected - await decisions by authorities)

Table 7: An audience segmentation matrix. (ACNielsen 2003)

Notes:

- 1) Self-efficacy was also used as primary variable in Millar and Paton's analysis of community vulnerability to volcanic hazards in New Zealand. (Millar and Paton 1999)
- 2) Elsewhere Paton has noted that anxiety can reduce the likelihood people will prepare. (Paton, undated)

³ The relevance of anxiety in risk perception has been subject to critical research, with results that generally support the idea that individuals with more chronic anxiety (as opposed to passing fears) are more likely to perceive higher risks. (Simpson-Housley and De Man 1986, Goulter and Myska 1987). The anxiety trait may also be a correlate of the well-known concept of self-efficacy of Albert Bandura (Bandura 1982) "People avoid activities that they believe exceed their coping capabilities, but they undertake and perform assuredly those they judge themselves capable of managing." (p123)

These categories are very similar to the dynamics proposed by Young in her Hawkesbury-Nepean segmentation study (Young 1999). The ACNielsen study did not include quantitative data, however Young attempted to allocate population percentages to these groups on the basis of 604 telephone interviews in Windsor and Richmond.⁴ For interest, her figures are included in the above matrix.

The practical effect of such an approach is to divide the population into *risk deniers* and *risk managers*.

Risk managers tend to be risk averse. Pfister 2001 surveyed Grafton residents after the 2001 floods and concluded that about one third of respondents were 'risk averse'.

"they described themselves as cautious people, or used phrase such as 'you're better safe than sorry'. This conforms with the expectation that personal risk aversion is a critical factor in the decision to evacuate." (Pfister 2001, p7)

3) Personal exposure to the hazard

Several studies have highlighted the role of personal experience of disasters as a driver of heightened risk perception (for instance Kunreuther 2001, Penning-Rowsell 1994, Berry and King 1998, Goulter and Myska 1987, AMEC 2002 p16).

In 1999 Mountford and Davidson asked residents of four Sydney councils, unprompted, to nominate ways to minimise property damage from storms.

An extraordinary 72% of Kuring-gai residents correctly nominated 3 or more techniques, compared to 32% in Sutherland, 12% in Blacktown and 10% in Liverpool. The authors concluded:

"the high response rate for Kuring-gai and Sutherland Shires is due in part to the residents' recent experience with major storms. Many respondents mentioned their personal experiences - clearly experience is a good teacher." (Mountford and Davidson 1999, p9)

Recent Queensland research into disaster preparedness (ACNielsen 2003) concluded that personal experience was a decisive factor in shaping both people's perception of risk and the likelihood of preparations.

" People who have experienced a disaster are much more likely to have things in place in case a disaster happens because they may:
- have experienced a disaster before;

⁴ Two flood vulnerable communities in western Sydney. Both are relatively established communities with strong sense of place and a living memory of major flooding.

- have lived in the same area for a long period of time and are familiar with what to expect;
- have experienced 'severe' damage either personally or to property (especially if the disaster has been recent);
- have more to lose ie. their own house and furnishings." (ACNielsen 2003, p20)

A possible criticism of the importance of experience is that people may have had personal experience of low intensity floods or storms and therefore not appreciate the potential danger of future high intensity events. However those with no experience of the power of major floods or storms, nor of their own self-efficacy in these situations, are unlikely to respond meaningfully to any kind of communications about floods or storms. People with some experience can at least be worked with.

Surrogates of exposure

Although direct personal experience is likely to be the best teacher, people may also have surrogate exposures in a number of ways:

- 1) Through social norms of the place. This can be particularly seen in northern Australia, where cyclone warnings are taken seriously by the entire community - including recent arrivals and visitors with no experience of tropical weather. The power of such 'normative social pressure' is well recognised in the literature. (for example Boehm et al 1992)
- 2) Through vicarious experiences. For instance flood commemorations, including a chance to view historic flood photos, may help build increased risk awareness (Keys 1999a ⁵), as well as reinforce local social norms.
- 3) A personal connections, e.g. family stories, and the experiences of other family members.

A triage approach to audience segmentation

This review of the literature (though by no means exhaustive) therefore suggests two stand-out characteristics as determinants of behaviour:

- risk managers vs. risk deniers;
- and
- past exposure to the particular hazard.

⁵ "In all probability there are only a few moments in any particular community in, say, a decade when people might be genuinely receptive to flood information. These are:

- when drought-breaking rains have just occurred.
- When a flood is rising
- when the clean-up is under way
- during a period when flooding is on the political agenda
- at the time of the anniversary of a significant and well-remembered event." (Keys 1999b)

Risk deniers are those who would agree to the proposition: "There is very little chance of a severe flood or storm affecting me."

Those with past exposure would answer 'yes' to: "Past severe floods or storms have had an influence on my life or thinking."

We propose that the following rule-of-thumb *triage* approach be used in targeting future flood and storm preparation programs, as illustrated by the following diagram.

<p>Past exposure to the specific hazard (e.g. flood);</p> <p>or</p> <p>Influenced by strong local norms</p> <p>ie. a high risk perception of this particular hazard: but it to be a specific hazard e.g. not just 'flooding' but 'overtopping levee'</p>	<p>Risk deniers (exposed)</p> <p>It's unlikely to be cost-effective to target this group until a flood warning occurs</p> <p>Asserting agency authority and credibility is an important goal for these messages</p>	<p>Focused risk managers</p> <p>A high priority audience: Target this group with <u>hazard-specific</u> messages (ie. what to do in a <i>flood</i>).</p> <p>Carry out resilience-building initiatives.</p> <p>In the warning phase, messages include: "activate your flood plan".</p>
<p>No past exposure to the specific hazard (low perception of this particular risk)</p>	<p>Risk deniers (unexposed)</p> <p>Unlikely to respond to pre-communications</p>	<p>Unfocused risk managers</p> <p>Target this group with <u>non-hazard specific</u> safety initiatives (ie. what to do in an <i>emergency</i>).</p> <p>e.g.</p> <ul style="list-style-type: none"> - Safe Communities partnerships - household and family safety marketing
	<p>Risk deniers (ie. risk complacent) Either not receptive</p>	<p>Risk managers (ie. risk averse) Want to limit their personal risk.</p>

Figure 8: A triage approach to audience segmentation in the BEFORE phase.

This approach suggests three types of BEFORE content:

A) Specific hazard programs

These focus on preparation for a specific hazard e.g. flash floods.

This approach is indicated where:

a) The particular community has a recent-memory of damaging floods (e.g. suburbs hit by flash flooding in Wollongong in 1998);

or

b) The 'teachable moments' identified by Keys:

Purpose: resilience-building.

Tools: the full spectrum of methods, customised to the particular community.

B) Non-specific hazard programs

These are indicated where communities have no recent exposure of damaging events. They focus on preparation for non-specific 'emergencies'. This approach would facilitate partnerships between diverse agencies, as well as insurance company sponsorship.

Purpose: resilience-building.

Tools: the full spectrum of methods, customised to the particular community.

C) Authority-building programs

These target all communities considered to be vulnerable.

Purpose: building the authority of emergency agencies, and the credibility of local leadership.

Tools: primarily social marketing (media and advertising)

Appendix 3: The problem of low probability hazards

"Arguably, the flood threat is neither frequent enough in its impact nor severe enough in its usual consequences for experience of it to generate deliberate protective behaviour in most people." (Keys 1999b)

Probably the greatest dilemma in flood and storm communication is: how do you alert the public to the risk of low probability, high consequence events such as severe floods?

Or to put the same question from the point of view of the public: Why should I concern myself with risks that are known, rare, usually low-intensity, and which government agencies are practiced at managing?

The risk of severe floods is perceived as a major problem for ERM professionals. There is evidence, however, that the public may not agree with this assessment.

Recent survey of Queenslanders showed that floods are generally perceived as less risky than severe storms or cyclones.

"Flooding:

- It is low risk unless you live near a river
- You can do little to prepare until you receive a flood warning
- A lot of clean-up time but little damage." (ACNeilsen 2003)

The conventional ERM wisdom is that people need to be convinced of the risks. But conventional wisdom runs into a wall of public indifference - an indifference with it's own inner logic.

The fact is, we may be asking the public to act on someone else's (the ERM managers') problem. (It may of course be possible to also make it the public's problem with a high profile fear campaign akin to the 'Grim Reaper' HIV campaign, however such campaigns are considered politically unpalatable.)

Research suggests two possible solutions to this problem.

Solution 1: the non-specific hazard program

The inner logic of low-probability risk perception has been studied over many years by risk communicators - and the answers provides little comfort for the flood-risk communicator. The fact is - people are notoriously reluctant to insure against low probability events. The decision not to act in the case of low probability risks has been explained in terms of risk balancing, or trade-offs. (e.g. Fordham 1999)

The idea of trade-offs is explained in the following way: There are *low probability* risks involved in natural hazards, but there are *perceived high*

probability risks in admitting to, or responding to natural hazards. These include:

- fear of stigma
- fear of reduced property prices
- costs of preparedness
- the costs of relocating
- the psychological costs (damage to perceived status; cognitive dissonance).

When these risks are mentally traded off against each other, the latter high probability risks are more salient. The result is that people are notoriously unwilling to act to protect themselves against low probability natural hazards, even when the consequences may be catastrophic.

Slovic et al 1977 studied this perennial problem for the US insurance industry. They hypothesised that people may have a limited amount of concern to devote to different hazards. Below a certain threshold, people treat the hazard as effectively zero. They carried out a number of experiments to confirm this hypothesis.

Their recommended remedy was to "Combine low-probability hazards with higher probability threats in one insurance package" - an answer that deserves attention by risk educators.

In other words, if a particular hazard does not motivate the public, then the solution may be not to focus on it, but instead to devise programs which develop community resourcefulness in the face of a range of hazards.

Such non-specific education programs are typically undertaken by multi-hazard agencies. They focus on householder *actions* which increase resilience to unspecified emergencies or disasters.

The American Red Cross begins its "Your Family Disaster Plan" web page with "Disaster can strike quickly and without warning", conjuring up a host of fears, more potent for being unspecified.

It then goes on to list a range of protective actions, including a "Home Hazard Hunt" which is an annual inspection to spot "anything that can move, fall, break, or cause a fire." (American Red Cross "Your Family Disaster Plan" www.redcross.org/disaster/safety/displan.html)

A New Zealand Civil Defence advertising campaign "Helping You help yourself", funded by AMP insurance, included the following texts: (Sullivan 1990)

Advert 1:
How well prepared are you for an emergency?" Are you one of those people who thinks it's never going to happen? Or have you stocked up on the basics?"

Advert 2:

"What would you do if you can't use your toilet (as is the case in most emergencies)?

Advert 3:

Let's assume you can't get back into the house because it's too dangerous. The first thing to do is keep yourself warm and dry.

Advert 4: Let's look at how culinary delights can be prepared in the absence of gas and electricity.

The benefit of this approach is that it leaves it to the mind of the audience to insert their own salient hazards into their risk assessment - hazards that are likely to invoke more dread than mere floods or storms.

The advantage is that, without mentioning floods at all, people are likely to carry out actions which nevertheless constitute flood preparedness - for example: knowing how to evacuate, making emergency kits, looking after neighbours, trusting emergency services, cleaning up yards etc...

Solution 2: Fit resilience-building within the ambit of perceived hazards

The work of Buckle et al 2003 suggests another solution.

This research program looked into risk perception in local communities in Victoria and the UK over 4 years. The research team found, to their surprise, that communities perceive the saliency of risks quite differently to emergency agencies. It is worth quoting their conclusion at length:

"Agencies focussed on threats from hazards which they had a mandate to deal with....

"Local people, however, had a much broader appreciation of risk and vulnerability...These hazards included broader social, environmental and economic processes such as population decline, a diminishing and contracting economic base to the community, loss of young people, unemployment, illiteracy as issues that posed what was perceived to be a significant threat.

"The traditional natural hazards were not ignored or devalued but were put into a hierarchy of risks confronting the community. This indicated a different awareness of the totality of risks facing the community and therefore of the overall, collective vulnerability. It also indicated a lack of correspondence between official or agency assessment of risk and vulnerability and local community assessment.

"This is significant because it indicates that risk awareness and risk reduction programs implemented by agencies may not be accurately targeted at local priorities and may therefore fail in their efforts to engage local people whose "risk attention" was elsewhere." (p2)

This suggests a solution which involves focusing education work within the ambit of those risks which are judged most salient by a particular community. Such an approach requires considerable flexibility and responsiveness from the ERM agency.

This approach is taken by the AWARE program (All West Australians Reducing Emergencies), co-ordinated by Fire and Emergency Services Authority of Western Australia (FESA) and funded by Emergency Management Australia. (McKechnie and Edwards 2003)

The AWARE Program funds local governments to identify emergency risks or hazards within their community and develop appropriate treatment options through the emergency risk management process.

"This approach is strongly process-orientated, focusing on consensus, cooperation and building community capacity to define and solve community issues. The program assists Local Government to facilitate and engage their community in the process of community development. This ensures that the community comes together to take action and generate solutions to make their community safer through the tool of emergency risk management." (p1)

Round one projects in Bunbury-Wellington, Shire of York, City of Bayswater, and Shire of Northam involved extensive community consultation to effectively set an agenda for hazard mitigation. This resulting strategies responded to community perceptions and included issues outside the traditional narrow focus of ERM agencies eg. street numbering and Swan River pollution, as well as fires, cyclones etc.

We acknowledge that for hazard-specific agencies such as NSW SES, such programs may nevertheless be administratively hard to justify.

Appendix 4: Social marketing - theoretical foundations and effectiveness

Theoretical foundations

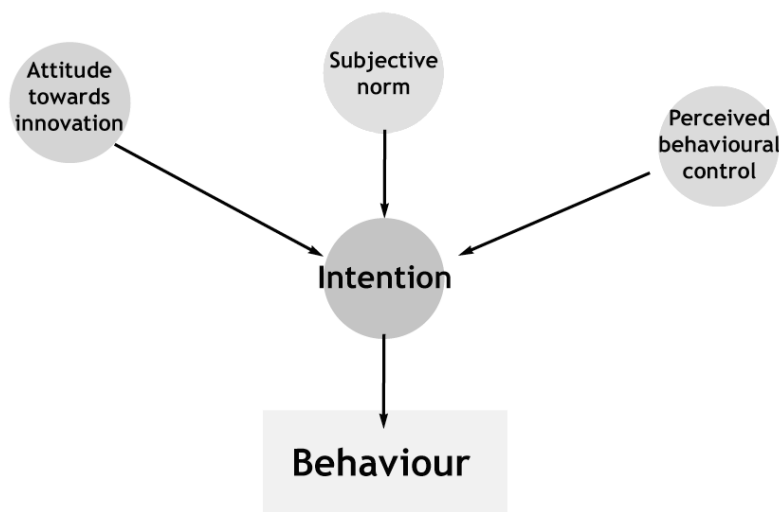
Social marketing draws its theoretical foundations from social cognitive models of human behaviour, notably the work of Ajzen and Fishbein, culminating in the Theory of Planned Behaviour (eg. Ajzen 1988), and that of Prochaska and DiClemente: The Transtheoretical Model (e.g. Prochaska and DiClemente 1984).

These (and other) social cognition theories position social behaviour as a function of people's perceptions of reality. They focus on the role of personal beliefs, attitudes and knowledge in intervening between external stimuli and responses to specific world situations. Behaviour is assumed to be the result of inherently rational decision-making processes based upon available information. Most theories assume that decisions are based on elaborate but subjective cost-benefit analysis of the likely outcomes of different courses of action. (Conner and Norman 1995, p5-7)

The Theory of Planned Behaviour is one of the most influential of these theories and its predictive ability has been confirmed by numerous studies, mainly in the area of health behaviours. (Conner and Norman p129)

It proposes that people form an intention to behaviour as a result of three factors:

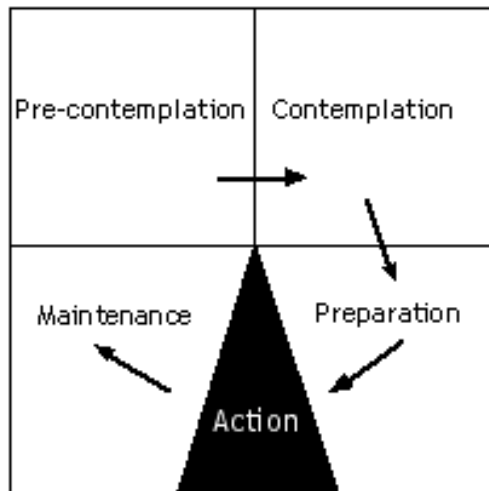
- attitude towards the behaviour (ie. like/dislike)
- subjective norm (the perceived expectations of 'significant others')
- perceived behavioural control (self-efficacy).



Social marketing programs are claimed to promote behaviour change by influencing people's assessments these three factors.

The second model is the Transtheoretical Model (TTM) of Prochaska and DiClemente. (Prochaska and DiClemente 1984)

This proposes that people go through a change process with 5 stages.



The educational tasks for each phase are as follows:

Pre-contemplation

- Education

Contemplation

- Increase benefits (esp. immediate short-term, personal benefits)
- Decrease costs (benefits must outweigh costs in minds of audience)
- Increase the positive influence of trusted others
- Increase self-efficacy (skills and confidence)
- Decrease influence of competing messages
- Clarify your promise: ie. "If you do this, you'll get these immediate benefits, and we'll be there to support you."

Preparation

- Facilitate the action

Trial action

- Reward the action
- Improve the ability to act (convenience, gaps in skills)

Maintenance

- Reward action
- Reduce negative consequences
- Remind

Alan Andreasen has convincingly popularised TTM as a strategic framework for social marketing (Andreasen 1995). TTM was adopted by Young as an analytic tool for her recommendations for the Hawkesbury-Nepean Flood Communication Strategy. (Young 1999)

Effectiveness

Social marketing programs are widely proven to elicit changes in awareness. (Katcher 1987, Macarthur 2001)

However, the capacity of mass media and advertising campaigns, alone, to elicit mass changes in community behaviour is less clear.

An evaluation of a national media campaign (hot water burns like fire) in New Zealand showed that the proportion of homes with tap water temperatures under 60°C increased from 33% at baseline to 47% at follow-up. (Waller et al 1982)

On the other hand 'Project Burn Prevention' in Boston, showed no change in burn incidence rates in the 12 months after the campaign.

Although the capacity of social marketing to reliably elicit *behaviour* change is contentious, the capacity of well executed mass media campaigns to achieve changes in awareness (ie. to educate), to influence *attitudes*, and to promote *norms* of behaviour, has been established by numerous evaluations.

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