

## COPING WITH MINI CRISIS AND PREPARING FOR DISASTER A case study

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### Abstract

Emergency planning is normally focused on the big unexpected events. A basic planning tool is the risk and vulnerability analysis (RAV) based on a top-down rational planning process. In this paper, we discuss a concept of mini risk analysis (MRA) as an additional strategy to cope with accidents and disasters in a local community. MRAs focus on daily risks and small incidents.

The MRA argument is that if the employees are accustomed to cope with daily incidents, this competence will enhance their capacity to cope with disasters. The idea is to avoid great comprehensive plans produced for the bookshelf. Instead, all employees should use the simplified MRAs in their daily work in order to integrate safety and security as a normal way of thinking. The problem discussed in this paper is if a strategy for coping with daily small risk issues could enhance the preparedness to meet accidents and disasters. Preliminary findings from the municipality Klepp indicate that the MRA strategy is a complementary tool in emergency planning, taking care of aspects poorly dealt with in a top-down rational planning process like the RAVs. The main challenge is to combine the two approaches in emergency planning.

### Introduction

Emergency planning is normally focused on the big unexpected events. A basic planning tool is the risk and vulnerability analysis (RAV) based on a top-down rational planning process. The rational planning approach may have some shortcomings in emergency planning. In this paper, we discuss a concept of mini risk analysis (MRA) as an additional strategy to cope with accidents and disasters in a local community. MRAs focus on daily risks and small incidents.

The MRA argument is that if the workers are accustomed to cope with daily incidents, this competence will enhance their capacity to cope with disasters. The idea is to avoid great comprehensive plans produced for the bookshelf. Instead, all employees should use the simplified MRAs in their daily work in order to integrate safety and security as a normal way of thinking. The problem discussed in this paper is if a strategy for coping with daily small risk issues could enhance the preparedness to meet accidents and disasters?

The concept of MRA has been developed in the municipal of Klepp. Klepp has recently been a member of the "Safe communities".<sup>2</sup> The MRA strategy is part of this engagement.

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<sup>2</sup> "The Safe Communities" concept was introduced at the First World Conference on Accident and Injury Prevention held in Stockholm in September 1989. The term Safe Community implies that the community aspires to safety in a structural approach, not that the community is already perfectly safe.



## The Context

In 1994, the Directorate for Civil Defence and Emergency Planning (DCDEP) in Norway distributed guidelines that local governments were supposed to follow in their mitigation and emergency planning. The guidelines for RAV analysis and crises management should equip local governments with the tools necessary to produce emergency plans and lay the foundation for resilient ways of organising the municipality. The guidelines rely on standardised planning tools and are attached to rational planning procedures. It represents a top-down approach focusing on more and less possible disasters. Up to 2002, about 9 of 10 municipalities had produced an emergency preparedness plan.<sup>3</sup>

The municipal Klepp has about 14 000 inhabitants. The landscape is flat and there is no risk for flood, avalanches or snow slides. In spite of this the municipal have chosen to work with subjects related to safety. In September 2002 the municipal became a member of “Safe communities”, and in May 2003 Klepp received “The Emergency Prize” from DCDEP in Norway. The local administration in Klepp regarded the DCDEP guidelines as too cumbersome, and based on planning procedures that was poorly adjusted to the daily routines in the municipal. As a consequence, the local government developed the concept of MRA as a simplified alternative to the RAV analysis. One objective was to cope with daily incidents and bring the planning process closer to the operators in the “Street Level Bureaucracy” (Lipsky 1980). The idea behind the MRAs is that daily risk handling can prevent small incidents to occur, and at the same time increase the organisational capacity to cope with bigger crises. Hence, another objective is that the precautionary principle should be incorporated in the daily work at all organisational levels.

## Method

In this study, 10 persons in the municipal of Klepp have been interviewed using an open-ended semi-structured interview guide. One of them was a politician. The others represent different positions in the administration, ranging from the top-level management to people working as street level bureaucrats in the departments for health, education and engineering. In addition, information has been collected through available documents, observations in meetings and telephone calls. An important concern has been to observe how strategies from the top management are implemented in the organization. The approach applied in this study, differs from former (Norwegian) surveys where the focus have been limited to the top level in the municipals (DCDEP 2001, 2002).

## Emergency situations and planning needs

Efficient emergency planning needs to cover mitigation, preparedness, response and recovery (Rosenthal, Charles, and Hart 1989) In the pre-crisis stage (mitigation, preparedness), it is essential that the crisis management can have some ideas about future crisis (scenarios). The scenarios can then guide the planned design of the crisis organisation, the allocation of resources for mitigation and to meet a crisis, planned communication channels, training of personnel, the drilling for roles, responsibilities and cooperative channels.

Emergency planning for the pre-crisis stages often have some common features. First, it is normally very difficult to increase the interest of political and administrative leaders (Rosenthal, Charles, and Hart 1989). As a consequence, emergency planning receives low attention, resources and support. A next question is the inclination to focus on legal and technical aspects of emergency planning. This narrow focus tends to block for social and psychological aspects that are important to take into account in emergency planning. Turner (Turner 1978; Turner and Pidgeon 1997) puts the focus on the process leading up to the accident. According to Turner,

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([www.folkehelsa.no](http://www.folkehelsa.no)). Local governments qualify as members in the “safe Community” through plans and documented practice aiming to enhance safety in the local community.

<sup>3</sup> Status for the emergency and preparedness work in the municipals DCDEP 2002. The relevance of these plans are not known.



accidents develop over time through a long chain of events, and should be viewed as the outcome of interactions between the human and the socio-technical system. Turner refers to the period where chains of discrepancies develop and accumulate unnoticed as the “incubation period” leading up to the accidents. One reason why such dangerous discrepancies can pass unnoticed is that the flow and interpretation of information about hazards are hampered by poor communication, ambiguous messages and cultural differences. Another reason may be that belief and norms among actors do not comply with the existing regulations. Reason (Reason 1990; Reason 1995; Reason 1997) explains organisational accidents as the combination of latent conditions for accidents, work place factors triggering failures, and active failures done by people at the wrong time. Latent conditions could be poor planning, inconsistent procedures, unclear responsibilities, and unfortunate workplace factors etc.

All these perspectives direct attention towards organisational and psychological factors as core variables in emergency planning.

During a crisis period, crisis decision-making tends to be increasingly centralized, give way to informal processes and improvisation, and technical and political experts may advance into decisional positions. The volume and speed of the information flow increases, it becomes very difficult to control the information flow and decision makers tend to pay more attention to the information source than the information. It may be very difficult for the decisions makers to redefine the situation and they get victims of groupthink (Rosenthal, Charles, and Hart 1989) To reduce uncertainty, they may supplement sparse and confusing information with analogous data and other experiences. All these processes are basically organisational and psychological processes generated in a situation of extreme collective stress.

The crisis aftermath also contain some specific features making it difficult to go through a process of in-depth learning and evaluation. People may want to hide their own failures, conflicts of power may arise etc. Ideally, emergency planning should take all these factors into account. In practice, it is very difficult. Not only because of the complexity and uncertainty facing all emergency planning, but also because the crisis management fails to design a planning process able to improve preventive measures, preparedness, efficient response and recovery. The impacts of a plan will often depend more upon the planning process and the actors involved in the planning process, than the plan itself. Taking into consideration all the well-known characteristics of a crisis, it is relevant to ask whether a comprehensive and standardised planning procedure is able to catch all these elements.

### **The limits of rational planning in emergencies**

The DCDEP guidelines for RAV are based on a variant of the rational approach to planning (Banfield 1959; Amdam Jørgen 1990). One basic assumption in this theory is that the world is predictable. Another one is that it is possible to identify and agree upon clear and predictable ends and means, and that it is possible to get an overview over all alternatives and consequences. Hence, it is possible to choose the best solution to all problems based on total information and universal decision criteria. The instrumental planning may work in a stable and predictable environment, facing simple and clear-cut problems. The pre-conditions for such planning are difficult to grasp when dealing with extreme uncertainty as faced in emergency planning.

The Rational planning ideal applied in emergency preparedness is only possible to some extent (Clarke 1999). A rational planning process may contribute to a well-prepared map of a crisis management organisation, the acquisition of physical resources, a plan for communication and information, and some training of staff. Clarke however, found that some emergency plans were pure fantasy documents with poor linkages to a real emergency situation. The plans were rhetorical documents only useful to convince decision makers and the public that everything was under control. They suffered from weaknesses such as widespread use of analogous data and irrelevant experiences to describe a potential crisis, the misuse of calculations, focus on



irrelevant but controllable factors as conditions for the planning, and doubtful assumptions about the functionality of a complex crisis organisation (Clarke 1999).

It should be obvious that a pure rational approach to emergency planning as described by Banfield, will have some important shortcomings in the case of a real crisis. Furthermore (Gherardi Silvia 2000), found that different communities of practice in the same organisation make their own interpretation of safety matters. They found that the “technical route to safety” containing rules and regulations, formal risk analysis, c/b analyses etc. did not include social factors contributing to the understanding of safety matters. Thus emergency planning seemingly require some alternative planning strategies to increase the preparedness.

### **Some aspects of safety and learning in organisations**

Some organisations are known for their ability to avoid serious accidents, and effectively contain consequences of a dangerous situation. Such high reliability organisations (HROs) have usually been studied within the nuclear industry, armed forces (aircraft carriers) and other high hazard industries (Rochlin 1993; LaPorte and Consolini 1991; Schulman 1993). (Weick, Sutcliffe, and Obstfeld 1999, Weick 1995) have tried to adjust the theory of HROs to other organisations with a “normal” exposure to hazards and risks. The concept of “collective mindfulness”(Weick, 1999) is used as the key to describe processes and characteristics possible to transfer from HROs to “normal” organisations.

Within a concept of mindfulness, members of the organisations are constantly worried about failures, not about their successes. Therefore they encourage the reporting of failures and near misses and a collective analysis of the incidents in order to learn from them. This perspective is familiar to the “pyramid perspective”, postulating a more and less fixed ratio between near misses, small accidents and big disasters (Bird and Germain 1996). If it is possible to reduce near misses, the number of small incidents will be reduced and consequently the number of big accidents will also be reduced (Reason 1997).

Multi-skilled personal looks upon complex problems together to get a broader view on possible solutions. People talk together to get different interpretations and to avoid automatic action. This learning process may enhance the capacity to have sensitivity to operations.

The HROs also have a strong commitment towards resilience. The best-qualified employees handle a crisis if it occurs, whatever formal position they may have (LaPorte and Consolini 1991). It is important to respond adequately, not to follow procedures in a mindless way. Westrum have used the phrase “license to think” to illustrate this point (Westrum 1992 p 405). The workers are empowered to contribute to practical solutions if a crisis occurs.

The theory of mindfulness has similarities with organisational learning. The MRA approach also relies on ideas very closed to “mindfulness” and organisational learning. The collective learning processes presuppose that people can contribute with different perspectives to get a broader view of problems, and learn about relevant solutions through direct or indirect experience transfer (Dixon 1994, 1997). If a culture of mindfulness should flourish, it is important to establish systems of reporting, analysis and discussion of incidents, and to make all employees responsible for safety aspects in the organisation. Collective learning processes are normally presented in stepwise “learning cycles” inspired by the logic derived from the “Deming circle”. Deming, as the father of the “total quality” movement, focused on the basic elements planning, doing, checking and acting as an ongoing process in any organisation aiming to improve quality (French and Bell 1995). Since the mid 1970s the quality movement, socio-technical management principles and OHS management has gradually been merged (Lindøe and Olsen 2003) In that respect, the MRA approach could be regarded as a continuation of a long development path within quality and safety management.



MRAs however, may also suffer from shortcomings in emergency planning aiming to increase the preparedness and capacity to handle potential crisis in complex and multi-purpose organisations.

### Comparing RAV and MRA analysis

Based on DCDEP's own guidelines, we will assume that RAV analysis are based on rational planning theory, and the MRA perspective is closely linked to organisation and process orientated learning.

Table 1: The RAV and MRA compared

	<b>Risk and Vulnerability Analyses (RAV)</b>	<b>Mini Risk analyses (MRA)</b>
Objective	Preparedness for big accidents/catastrophes	Consciousness in daily work, mindfulness
Level	Strategic	Operational
Perspective	Catastrophes	Small events, daily incidents
Focus	Superior Universal	Detailed Contextual
Planning	Linear, Plan Mapping	Circular, Process, catch signals
Information processing	Scientific, calculations	Contingency, context specific
Timeframe	Long term, there and then	Short term, here and now
Management	Top-down	Self sustained
Participation	Experts	Users
Preparedness	Calculations as a decision tool for prioritising risks	The precarious principle in all working processes
Learning	Exercises, textbooks and rules of behaviour	Practice in daily work Learning-by-doing

The Risk and Vulnerability analysis guidelines<sup>4</sup> are to a large extent based on a rational planning perspective. The guidelines suggest that the planning process should be organised by the top management in the organisation. Participants should be decision makers and experts to ensure ownership to the plan in the top management. DCDEP wants the municipal to make an overview over all possible risks within their area. The risk and vulnerability analyses should describe causes, probabilities and consequences. These factors should be systematized and proposals for the best countermeasures should be decided. The assumption is that all factors can be considered and described in a precise and objective way, and thereby provide a complete overview over threats, preventive measures and actions to be taken in all situations. The examples of crises used as illustrations in the RAV-guidelines include floods, avalanches, hurricanes, pollution of the drinking water, explosions and breakdown in electricity supplies. They are all big accidents, supposed to be handled in a rational way based on a rational plan. This could be a doubtful assumption, due to the unpredictable character of risks and crisis.

The Mini Risk Analyses<sup>5</sup> is a simple mapping of everyday risks and vulnerability situations. The use of MRAs is closely linked to the daily work or leisure activities. The planning process is adjusted to the local context and daily operations. The main participants are the users and the

<sup>4</sup> The Risk and Vulnerability analyses is based on the guidelines from 1994 made by The Directorate for Civil Defence and Emergency planning (DCDEP).

<sup>5</sup> The MRA is presented in a brochure from DCDEP 2002.



operators close to the potential hazard. Safety should be considered in all operations. The aim is that users and operators should improve the organisational awareness, follow the precautionary principle and implement preventive measures as an integrated part of their daily work. The MRA is partly a guideline for analysis, partly a tool capable to structure reporting and prioritise actions. It is an attempt to combine activities aiming to increase awareness and contain everyday risk sources with the systematic approach to emergency planning embedded in the Risk and Vulnerability analyses.

### **Practical use of MRAs**

On the individual level, the MRAs are used for instance when the nursery is visiting elderly people in the local community. The nursery has to analyse potential risks and prioritise actions. Using the MRA as a guideline, they have to ask themselves what can be done to reduce the chances for incidents and how they can reduce the consequences if an incident occurs. The employees are forced to think and plan in advance. If possible, they have to implement preventive measures. If not, the operators have to report the problem back to their organisation.

The health sector has used MRA analysis to document a need for increased staffing to prevent violence from patients. The Engineering sector has for instance used the MRA when rebuilding a creamery. The risk factors identified were linked to increased traffic and preventive measures implemented were based on the MRA.

The Mini Risk Analysis is also used as a simplified tool in cross-sector planning sessions in the municipal. The sectors of education, health and engineering use it on a regular basis to develop different views on area planning and other cross sector problems. The strength is that the MRAs represent a common language making it easier to communicate across sectors and professional boundaries.

### **Experiences and implications**

The RAVs and MRA approach have some similarities. Both approaches go through similar phases, their main focus is on identifying risks and vulnerabilities, and to implement preventive measures. It is also emphasised that the analysis process should be a collaborative effort.

But the MRA approach is context specific and oriented towards practical solutions to small problems (operational), whereas the RAVs have a universal focus based on scientific analysis and calculations. The combination of two different planning approaches and tools, seemingly lead to a better integration of safety thinking in the municipal.

At first glance, the MRA seems to be so simple that the whole exercise could be a little bit naïve. It is easily perceived as normal common sense. It is very detailed, and even the smallest incident could be analysed as a potential threat. Evaluations however, show that the use of MRA has systemised the safety work at all levels in the organisation, and increased the consciousness about safety matters (Aanestad 2002). The continuous use of MRAs also gives employees knowledge about resources and persons available in a crisis situation. In addition, the use of MRAs make employees feeling more secure in the performance of work tasks and decisions related to operational problems at work. When used by almost all employees dealing with potential risks, and also used at a sector or even a cross sector level, the MRAs appear as bits-and-pieces risk and vulnerability analysis. They become a partial emergency plan for the municipality. In comparison with the ordinary RAV, the MRAs seem to be narrow-minded with a limited focus. The major pitfall is that MRAs may lose the comprehensive perspective necessary in a crisis situation.

The traditional RAV analysis seemingly has its strengths where the MRAs have their weaknesses – and vice versa. The MRA perspective does not focus on the top-level organisation and the preparation of a crisis management team. Street level bureaucrats in Klepp



who are familiar with the MRA, had a limited knowledge about crisis management and resource mobilisation in case of a real disaster. The RAV analysis has its strength in the description of a centralised crisis management, standardised procedures to be followed and the distribution of tasks and duties in case of a disaster. It also contains a plan for warning, mobilisation of team members and information. The problem with the RAVs is that the plan is mainly theory, hardly tested in practice. The planned crisis management members are too busy with their daily work and rarely involved in crisis management.

On the contrary, the MRA approach has got the precarious principle as the main guideline in all daily work operation. The prevention of accidents is a continuous process. The MRA approach requires that persons responsible for daily operations have to think through potential risks and make a plan for how to handle it - if it occurs.

After a crisis, evaluations should be conducted to improve the learning effects. Within the MRA approach, this is a continuously ongoing process. The lessons learnt should be brought back to the organisational level with the hands-on-experience, because the people responsibility for daily operations should have the best opportunities to solve new problems.

In Klepp, this has seemingly developed into something like an ideology ignoring the importance of overall plans in case of an emergency. Klepp did not want to produce a comprehensive plan analysing all kind of scenarios as recommended in the ordinary RAV analysis. The local government regarded it as irrelevant to spend too much time on hypothetical issues. As a consequence, the MRA approach has maybe been applied in situations, or used as an alternative to RAVs, in situations where the two approaches are incompatible. This remains to be tested.

The local government in Klepp is seemingly committed to the safety work as long as they have become a member of “Safe Communities”. The slogan “active and safe” has been introduced as a heading for planning activities in the municipality. Despite a high profile in safety work, the MRA approach totally relies on external funding from DCDEP.

## Conclusion

The RAV and MRA approaches provide different contributions to emergency planning and safety. The traditional RAV analysis seemingly has its strengths where the MRAs have their weaknesses – and vice versa. If only one perspective is applied, important factors contributing to the reduction of risks and the containment of hazards may get lost.

The concept of “collective mindfulness” seems to be familiar with the basic ideas behind the MRAs. It is process oriented, focused on context specific analysis and participation from the employees with hands-on experience. Furthermore, it relies on collaboration within a framework of respect for different specialities and perspectives. MRAs contribute to mitigation, the increase of awareness and motivation among employees. The MRA concept, however, misses the overview and the centralised planning of crisis management necessary to prepare for disasters.

On the contrary, the traditional RAV applies a top-down approach underestimating the importance of contextual knowledge, participation and personal experience in crisis situations. In a RAV approach, experts and technicians are supposed to solve the problems. The RAV approach does not give much room for interpretation of local contexts.

The main challenge is to combine the two approaches and methods. The problems faced are among other things to maintain the interest and engagement for safety work, and resource allocations to conduct MRA and RAV analysis as parallel exercises. Furthermore, it is important to develop better strategies for mutual exploitation of the benefits from the engagement, awareness and participation mobilised through the MRAs, with the strengths of



comprehensive strategies produced in RAVs. Instead of using time on “fantasy documents”, the combination of RAV and MRA give an opportunity to utilise the resources already present in the organisation.

### Author Biography

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### Internet addresses

The Internet address to DCDEP is [www.beredskapsnett.no](http://www.beredskapsnett.no) and it is possible to get an English version of MRA and RAV under the icon publications.

The website, [www.safecommunity.net](http://www.safecommunity.net), is about Safe Communities work.

