DISASTER PLANNING THEORY

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ABSTRACT

Recent changes to federal legislation have reinforced the historical shift from a focus on planning for war to one of planning for natural or man-caused disasters. However, disaster planners have not adapted their approach to emergency preparedness and the para-military planning doctrine has led to a number of problems.

Disaster planners have focused on the product, the emergency response plan, rather than on the process of planning. They have failed to involve the community in the planning process and have seen themselves as planning for rather than with the community.

A search for a disaster planning solution leads to an examination of disaster planning literature, organizational development models and traditional planning theories. Disaster planning literature has tended to focus more on providing the disaster planner with concepts and principles to include in creating an emergency response plan, than an actual model or framework for incorporating a community plan.

While organizational development literature has contributed many problem solving techniques and processes to be utilized in order to maximize community input, it has not addressed the problem of working with a pluralistic community, often with incongruent goals.

The traditional planning theories are explored using the heuristic rubic of SITAR

as developed by Hudson (1979) and Christensen's (1985) theoretical model linking together Hudson's work with variable problem conditions. These theories are found to be lacking in a variety of ways.

The comprehensive approach, in the setting out of the master plan, does not allow for changes in knowledge, climate or priorities over time. An incremental approach is contingent upon experience for improvement and fails to provide for the shift in focus from emergency response to community education and participation. Transactive planning relies on intuition and experience and becomes a difficult model to use for disaster planners in areas which have had few disasters. While advocacy planning provides a means of elevating public awareness and creating positive public pressure on government bureaucracy, it is a reactionary planning process dependent upon negative circumstances to stimulate the formation of special interest groups. The fragmented approach of radical planning theory fails to provide for a co-ordinated and efficient emergency response. While Christensen's approach to linking planning approaches to different situations resolves some of the problems, it does not allow for a process by which the planner can engage with a changing community over a considerable amount of time.

As a means of providing for changes in both knowledge and community priorities, and incorporating a philosophical approach based on community participation, the author proposes leadership planning theory as a new paradigm and shows how the adoption of this theory by disaster planners leads to an anticipatory approach rather than a reactive one. The model is developed by examining the processes of goal selection and goal achievement. An argument is made for the selection of goals based on both the community and the planner's knowledge base and value system. Once the

goals are selected, the theory adapts the situational leadership model developed by Hersey and Blanchard (1982) to a community based model. This approach provides the disaster planner with a practical means of involving the community in a series of planning processes leading to a mitigative disaster approach.

The final chapter includes a Disaster Planner's Handbook, a step-by-step description of a planning process that can maximize the potential of the leadership planning theory. It is offered as a guide for practicing disaster planners, a means of incorporating the theoretical perpsective with the necessary practical considerations, and, therefore, be of assistance in developing their own community emergency plan.

The thesis concludes with a review of conclusions and suggests areas for further research.

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1. INTRODUCTION

Disaster planning in Canada has its roots in the civil defence days of the cold war following World War II. Following many years of peace for Canada, the concern has slowly focused towards natural disasters and yet the methodology, much of the legislation and theory have remained virtually unchanged. At the time of writing, changes in the Federal legislation have been recently proclaimed but Provincial legislation remains unchanged and, in many cases, disaster planners continue to operate in the same fashion, by writing large master emergency plans which remain unread, untested, out of date and devoid of community participation or input. This thesis will develop a critique of traditional practice and propose a new approach for disaster planners: an approach which stresses mitigation and community participation, as compared to response and isolation.

The thesis will first provide the reader with a historical overview of the development of disaster planning, or emergency preparedness in Canada. It will then focus on the role of the disaster planner, specifically in British Columbia, and then describe the way this role is executed. A critique of this approach, based on current literature and practice, will then be presented. In a search for solutions, traditional planning theories are reviewed and discussed, and this thesis will argue that these theories do not provide adequate answers.

In an attempt to provide a solution, a new planning theory paradigm is presented: leadership planning theory. This theory will be explored and developed as a

model for disaster preparedness. Leadership planning theory synthesizes the concepts of goal selection and goal achievement over time, and provides a path for disaster planners to move from a reactionary planning approach to an anticipatory and mitigative approach.

A thesis should make a contribution to existing practice and for many some of the concepts will seem to be a radical departure from current disaster planning. The final chapter is presented as a disaster planner's handbook or an annotated check-list, a means of bridging the gap between the theoretical implications and the practical realities.

The conclusion will summarize the implications of leadership planning for disaster planners and suggest further areas for study.

2. DISASTER PLANNING IN BRITISH COLUMBIA

Disaster Planning is a relatively recent profession. While urban planners have been recognized for a much longer period of time, the two professions have not followed the same theoretical development. In order to understand the basis for the approach used in current practice, it is important to understand the historical development of the municipal disaster planner today.

To accomplish this, the chapter will review the beginnings of disaster planning at the federal level, and then focus on the way in which British Columbia and its municipalities have developed the disaster planner position.

This chapter will then examine the way in which disaster planners have developed and implemented the emergency plan. It will be shown that the planning process, unlike many community planning processes, is unilaterally developed without the involvement of the community.

Whereas the planning department is an acknowledged, important department in every municipal governing structure, the disaster planner is most often a low paid employee, with little or no political power or status. This situation can be directly linked to the historical evolution of disaster planning. The next chapter will examine why this approach has been unsatisfactory.

2.1. DISASTER PLANNING AT THE FEDERAL LEVEL

The roots of the disaster planner are in 1938 when Canada's Defence Committee decided to prepare for an attack on native soil and created the Air Raid Precautions Sub-Committee. This Committee provided "...clothing, gas masks and helmets for civilian personnel, fire fighting equipment and sirens to communities" (Scanlon, 1982). This committee eventually disappeared with the end of World War II; however, with the emergence of the "cold war" in 1948, civil defence again became of concern and Major-General Frederick Worthington was appointed civil defence co-ordinator for Canada. That he was appointed to deal with preparedness for war was made clear.

> ...the primary purpose of civil defence is to defend the population of Canada and the property of the Canadian people against enemy action in time of war...Civil defence is concerned with sabotage and the overt actions of enemy agents (Hansard, May 1951:2929).

It was also acknowledged that there was an important though secondary purpose to deal with natural disasters (Hansard, November 1951). Both the Minister of National Defence, Brooke Claxton, and the Minister of National Health and Welfare, Paul Martin, said that the provinces must be involved in civil defence planning (Scanlon, 1982). When Worthington toured in the provinces in 1951 he found that while the provinces were receptive to the idea of planning for war they had a higher priority. They wanted civil defence to be responsive to peacetime disasters rather than those solely arising from the threat of war. It was an argument that would occupy the next thirty years (Scanlon, 1982).

An initial separation of responsibilities between the Privy Council and National

Health and Welfare led to a further assignment of tasks in 1959 which included the Royal Canadian Mounted Police and the Army. A final decentralization took place in 1965 when each federal ministry was given civil defence responsibilities, but the Emergency Measures Organization (derived from the Privy Council) was given overall co-ordination responsibilities. The mandate was still clearly based on the need to be prepared for war.

> ...the federal government does not support emergency measures which are designated solely to meet peacetime disaster....It is accepted that the wartime measures we develop...will be used...in peacetime disasters (EMO Digest, June 1968:1).

Over the years, the policy of the Federal Government subtly changed to become more in line with the concerns of the provinces and municipalities.

> The planning to meet a war emergency will be based on the national state of preparedness which will be achieved through implementation of the policies related to peacetime emergencies...a peacetime disaster response capability which would be augmented...in the event of war (Press release by Pinard 1980).

In 1981 the Emergency Planning Order, P.C. 1981 was passed, revoking the Civil Emergency Measures Planning Order, C.R.C. c.1334. Under this Order, "emergency" was defined as an

> ...abnormal situation that requires prompt action beyond normal procedures to prevent or limit injury to persons or damage to property or the environment; and ...
> ...emergency planning includes the preparation of plans and arrangements to those exceptional measures to be put into effect that have as their purpose the mitigation of the adverse effects of an imminent or actual emergency.

Aside from dealing with situations that could invoke the declaration of the War Act, when dealing with situations arising from a natural hazard disaster (e.g.

earthquake) or a man-created disaster (e.g. toxic chemical spill) the federal government had responsibility for:

> (a) the provision of emergency planning assistance and advice to the governments of the provinces and, through such governments, the provision of emergency planning assistance and advice to the governments of the municipalities of those provinces;
> (b) the provision of assistance in any joint federal-provincial development of regional emergency plans and arrangements (Emergency Order, 1981)

On June 26th, 1987 the Honourable Perrin Beatty, Minister responsible for emergency preparedness, presented new emergency legislation to the House of Commons: the Emergency Act and the Emergency Preparedness Act.

The Emergency Act has repealed the War Measures Act and defines four types of national emergencies:

> *Public Welfare Emergency* means an emergency that is caused by a real or imminent
> (a) fire, flood, drought, storm earthquake or other natural phenomemon,
> (b) disease in human beings, animals or plants,
> (c) accident of pollution, or
> (d) breakdown in the flow of essential goods, services or resources and that results ...in a danger to life or property, or social disruption...
>
> *Public Order Emergency* means an emergency that arises from threats to the security of Canada...
>
> *International Emergency* means an emergency involving Canada and one or more countries that arises from acts of intimidation or coercion ...that directly threatens the sovereignty ...of Canada or any of its allies...
>
> *War Emergency* means war or other armed conflict ...involving Canada or any of its allies...(Emergency Act, Bill C-77, 1987)

This legislation requires the government to answer to Parliament for the use of

its powers and clearly states first and foremost that planning for public welfare is a requirement and priority. The Emergencies Act begins the preamble by stating "Whereas the safety and security of the individual...are fundamental obligations of the government."

The Emergency Preparedness Act revoked the Emergency Planning Order, which had been criticized for its content, which was considered ambiguous and legally unsound. Now for the first time the mandate, role and responsibilities of Emergency Preparedness Canada (EPC) were perceived to be separate from those of DND.

> "The proposal to make EPC an independent agency is another indication of the federal government's desire to be ready and able to respond more appropriately to the needs of Canadians in emergency situations in an environment of increasing complexity." (Honourable Perrin Beatty, House of Commons, June 26th, 1987)

The goals of EPC will be to improve co-ordination of emergency preparedness and response between the federal departments and provincial governments (Janson, 1987).

2.2. THE PROVINCIAL MANDATE

The provinces began to develop legislation to deal with civil defence following World War II. In British Columbia, the Civil Defence Act, (now known as the Emergency Program Act) was passed in 1951. This Act interprets "civil defence" to include both enemy action and civil disaster. During a state of emergency by reason of enemy attack or anticipated attack, this Act supercedes every other provincial Act, allows for acquistion of property and the right to draft any person between the ages of

eighteen and sixty.

Under the Act, municipalities are authorized to:

(i) organize, establish and put into operation a plan or scheme for civil defence;

(ii) cooperate with and make grants of money to any committee set up to undertake the organization and operation of civil defence; (iii) authorize an employee of the municipality to perform any services that the council thinks will further a plan or scheme of civil defence; (iv) acquire by purchase or otherwise...equipment or materials that the council thinks necessary and useful...; (v) authorize the use of land or any equipment or chattels belonging to the municipality to further the plan or scheme...; (viii) expend money for any of the purposes of this Act either from general revenue or from any tax levy made under this Act; (Emergency Program Act, RSBC, 1960)

It is important to realize that the thrust of this legislation was to place the operational responsibilities of coping with civil disaster at the municipal level. The province, in essence had two roles: first it had a role in providing emergency response during an emergency and could declare a particular area a disaster area; however, its second and main role was to assist the municipalities in developing their own emergency plans, and to serve as a co-ordinating body.

In order to be able to fulfil this mandate, the Act provides for the appointment of a Director of the Provincial Emergency Program (PEP). PEP currently has twenty-nine full-time staff and they are responsible to provide: advice and assistance to one hundred and fifty municipal co-ordinators; co-ordination of federal, provincial and municipal disaster planning; training; administration of the Flood Relief Act; co-ordination of Search and Rescue over land, and the Coast Guard over sea; and information to the public regarding hazards.

Of current concern is that legislation and accompanying regulations have not been updated since their creation over twenty years ago and the changes are long overdue. Although new legislation has been presented to Cabinet, as of this date no changes have been made.

Of additional concern is that this Act does not require that municipalities plan for emergencies, it only allows them to plan *should* they wish to do so. This discretionary power, coupled with a lack of standards for the aim, scope and contents of a plan, has resulted in a very scattered and arbitrary approach to disaster planning by municipalities across the province.

2.3. DEVELOPING A MUNICIPAL DISASTER PLAN

The Municipal Act gave additional power to municipalities by allowing them to pass a bylaw declaring a state of emergency and to exercise any necessary powers. In order to assist the municipalities in dealing with a disaster, disaster planners began developing a disaster or emergency plan.

> Disaster plans - by virtue of both convention and the guidelines... are lengthy and dry procedural documents descended from military command models. A typical "basic plans and annexes" outlines major legal and functional responsibilities, which each department's standard operating procedures are supposed to define operationally (Kartez and Lindell, 1987:488).

Although the above quote refers to plans developed under the auspices of the American Federal Emergency Management Agency, it equally applies to plans originating in Canada.

Even prior to the expected legislative shift towards planning for peacetime situations, a review of the courses offered by the Canadian Emergency Preparedness College in Arnprior, Ontairo reveals only one course devoted primarily to the planning for war. The majority of the courses deal with developing emergency plans, exercising plans and establishing control centres and are offered to members of all three government levels.

The EPC College in Arnprior has developed an extensive emergency plan prototype which serves as a model to assist disaster planners in developing plans for their own municipalities and also serves as a resource base for the courses which are offered. The city of Collegeville, modeled on the topography and resources of a Canadian city, is used as the basis for the Collegeville Plan. It commences by stating the governing bylaw, the aim of the plan, the emergency control group, the alerting system and emergency operating centres. The next sixty pages are devoted to describing the responsibilities and standard operating procedures (SOPs) of each person/agency desginated in the plan.

A review of the emergency plans of several municipalities in the Lower Mainland of British Columbia (Vancouver, New Westminster, Burnaby and Richmond) shows little deviation from the Collegeville format. With the basis of disaster planning emerging from civil defence, it is easy to understand how the actual plans developed from a military model. Additionally, it is understandable that planning for disasters would attract planners with police or military backgrounds. Almost all of the instructors at the College in Arnprior have a military background. Likewise, many of the PEP staff and the Lower Mainland municipal planners are recruited from the police or military (e.g.

Mel Blaney in Vancouver was an intelligence officer with Norad, Don MacIver in Richmond was with the Royal Canadian Mounted Police).

Both the police and military deal with confidential information which is not available to the general public. A great deal of sociological literature has dealt with how members of such service groups function. Typically individuals tend to socialize off the job with their peers and isolate themselves from "civilians". These organizations use a command structure based on a hierarchy system with plans and policies given and received via orders. SOPs are often kept secret and reviewed and revised by selected staff on a need to know basis. Information to the community is routed through a department spokesperson.

The following quotes appeared in the Vancouver Sun newspaper, based on an interview with Mel Blaney, the director of Vancouver's Emergency Program:

> Vancouver's encyclopedia of emergencies has disaster neatly categorized....In a thick blue binder never far away from his city hall desk, Blaney has compiled an extensive list of instructions....He spends his days revising evacuation and mobilization plans...."When people ask me what I do I say I'm an emergency planner...usually that stops them... the average person would rather not know about it." (Vancouver Sun, September 9th, 1988).

This would seem to capsulize the way in which disaster planners perceive their role (Kartez and Lindell, 1987; Kartez, Hunter and Kelley, 1985; Seismic Safety Commission, 1979). As well, "...individuals charged with maintaining disaster plans...have low status in the local government hierarchy" (Labadie 1984:489). Salaries, geared to those already receiving a military or police pension have not attracted professionally trained planners and thus have helped to perpetuate the "old boy network".

Disaster planners look to their own background and experience for assistance in doing their jobs and, therefore, not surprisingly set out to write emergency plans. Traditional practice in the field, peer pressure and the existing para-military doctrine and precedent also influences the planning direction that disaster planners have taken. They then spend the rest of their time revising the plan and SOPs, updating names and phone numbers, appointing or recruiting new key personnel and occasionally exercising the plan. Everyone hopes to actually never to have to use it.

> That's the horror of every emergency planner...that he has a beautiful plan and when the disaster happens, nothing goes right (Vancouver Sun, September 9th, 1988)

2.4. SUMMARY

To summarize, this chapter has looked at the evolution of disaster planning from a federal perspective. We have been able to see how the original focus on planning for war has gradually shifted to one of planning for public welfare emergencies. But in making the change, we have seen how the perception of disaster planning has remained static, rooted to a para-military doctrine.

With both the federal and provincial governments primarily involved in a co-ordination role, the main responsibility for the development of a disaster plan has remained with the municipality. These planners, also with a para-military background, have continued to perpetuate the way in which disaster planning has been envisioned. The production of a written plan, albeit with a recognition that that it needs to be exercised and amended over time, has become the sole outcome of the planning process.

In the next chapter we will examine how this approach has led to numerous problems when a disaster has struck.

3. A CRITIQUE OF EXISTING DISASTER PLANNING PRACTICE

This chapter will first examine some of the problems which have been encountered by not including the community at large in the planning process. The first area of focus will be that of the individual or family. The chapter then looks at the way in which disaster planners have dealt with specialized agencies and other organizations. It would seem that disaster planners apply some of the same misconceptions that they have regarding public participation to organizational participation.

Despite the identified problems in maintaining this approach, little attempt has been made to change the way in which disaster planners continue to do their job. The chapter concludes by suggesting two main reasons for this: lack of experience and lack of awareness or education in planning processes. These disadvantages are linked to the implications of planning for both individuals and organizations and an argument for adoption of disaster planning theory is presented.

Many planners would agree that disaster planning needs to obtain a higher priority before changes can be obtained (Kartez, Hunter and Kelley, 1985). However, most disaster planners fail to recognize public demand as a means of raising the priority of disaster preparedness in their jurisdictions. In a questionnaire completed by the Seismic Safety Commission in California (1979) most disaster planners felt that only the occurrence of an actual disaster or increased funding would be meaningful factors in increasing the recognition of their job and responsibilities. One reason that disaster

planners fail to involve the public in the planning process is that they anticipate no benefit in doing so.

Research has shown that "people, as a whole, react in the emergency period of a disaster, much better than they are usually given credit for..." (Quarantelli, 1982:7). In fact, most people turn to neighbours and family for assistance and support before they turn to formal government or other agencies. Ironically, this is not the case for organizations, which have more of a problem resolving communication, co-ordination, authority and personnel issues (Quarantelli, 1982).

3.1. COMMUNITY PLANNING

Disaster researchers have consistently complained that disaster planning is product oriented (i.e., the written plan) instead of being process oriented (Wenger, Faupel and James, 1980; Quarantelli and Kreps, 1972). Disaster planners have understood that it is their responsibility to develop emergency plans, and these plans have been drawn up with little outside involvement save for a few specialized agencies such as the police and fire departments. The disaster planners have failed to see the production of an emergency plan as simply one step in the development of an overall process.

By looking at planning as process which involves both individuals and groups, and produces more than one output, we can see some additional advantages to the community. There are three outputs from planning to be considered: the written plan; action which leads to change; and the feelings and ideas which are generated among the people who participate in the process and who observe it (Boothroyd, 1986).

In order to arrive at a plan that allows for all three of the above results, one way of examining the situation is to develop a systematic planning approach. Boothroyd (1986) suggests that all planning should follow several steps: establishing the planning task; identifying the goals; completing an appraisal of the existing situation in order to achieve the goals; generating action possibilities; assessing the options; and finally making a decision.

Unfortunately, the planning task appears to have been defined as writing an emergency plan with as little community input as possible. This approach has led, in turn, to the consideration of one dimensional goals with little consideration of alternative ways of achieving them. Disaster researchers have expressed which such an approach, for despite the existence of elaborate plans, often nothing goes according to plan.

Yet, research has shown that "if future progress is to be made in coping with natural hazards, constituencies must be formed, educated, and prepared for effective political activity" (Petak 1984:299). Not only can the planners increase awareness of the potential disasters to bring about more pressure on municipal councils to obtain additional funding, but evidence has shown that involving the community in the planning process leads to better plans. In examining disaster plans, Kartez, Hunter and Kelly (1985) looked at a number of factors that created problems for communities during actual disasters. Lack of awareness of the disaster plan led to problems in crowd control, organizing volunteers and obtaining instructions.

> Like investors hedging against uncertainty, localities can broaden their portfolios of planning behaviours and avoid the risks of an overly narrow approach. They can undertake planning behaviours that address the special obstacles of planning for uncertainty (Kartez and Lindell, 1987:496).

Current planning simply does not allow for a variety of approaches in dealing with a disaster. As well, by omitting the community from the planning process the planners not only lose the benefits which evolve from advocacy groups and increased input into generating alternatives, but they fail to improve upon the ability of the individual to assist himself, thus creating more work for the already stretched agencies.

Furthermore, since in a major disaster the official major responding agencies are almost always overwhelmed and unable to meet the emergency needs of the community, the community is going to have to rely on itself and in fact "...we should seek to maximize the strengths inherent in localized response systems" (Drabek, 1983:298).

> It is surprising how many people do not know what to do in an emergency, even with instructions in the front of the telephone books. It is important to know how to turn off the water to your hot water tank, simple things like that. A brochure for the whole state would be helpful containing information to promote self-sufficiency for approximately three days (Seismic Safety Commission, 1983:81).

One of the many lessons learned from the Edmonton Tornado in 1987 was the need to educate the public about self-help actions to take in different kinds of emergencies (Wilson, 1988).

3.2. EMERGENCY OPERATIONS

Disaster planners tend to model the plan and process around "... highly specialized line agencies, not community interest groups ...However, in a disaster, these same agencies often find their roles expanded in unexpected ways because of the sudden involvement of...individual citizens, voluntary groups..." (Kartez, Hunter and Kelley,

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1985:12).

However, it would seem that disaster planners consistently overrate the awareness or importance of the plan. "Key officials often neglect to read the plans..." (Dynes, Quarantelli and Kreps, 1972) and "...more often than not will not know what the local plan provides for..." (Kartez, Hunter and Kelley, 1985:44).

> The most contact that the average local planning director has with the disaster planning process is receiving a copy of the new plan every few years and finding that he or she has been designated director of emergency housing in event of a disaster (Kartez, Hunter and Kelley, 1985:45).

Of 114 municipal officials interviewed in California in 1979 by the Seismic Safety Commission, 78% acknowledged having spent less than one week over the previous twelve months actually dealing with the emergency program. In fact many heads of emergency response units see little use in disaster plans. They feel that their personnel are trained to deal with emergencies all the time and that although the disaster plan has some benefits in increasing awareness, for many it is "...basically a personnel response roster they utilize in emergency situations to call up appropriate personnel" (Seismic Safety Commission, 1979:B-25)

What we see is that the disaster plan becomes a plan for specialists, many of whom question its value as they feel their own department is quite capable of handling things in an emergency anyway.

> However, the fact that a plan assigns specific responsibilities does not necessarily imply that those who have been assigned the responsibilities are aware of their role, accept the role assigned to them, understand how to perform that role, or even have the capability to perform it (Kartez and Lindell, 1985:495).

Often the participation of chiefs or department heads in the disaster planning process is limited to infrequent meetings; they exclude the operational personnel. Individual departments which do have internal meetings regarding disaster planning, focus on their own concerns and if they have simulation exercises they exclude other agencies except on a peripheral basis. As an example, while the police, fire and ambulance departments often have training exercises, there has yet to be an exercise which has utilized all main groups of the Emergency Control Centre (e.g. police, engineering, fire, medical and social services) in the Lower Mainland. Most activities are devoted to revising the SPOs and updating the plan.

> What is puzzling is that after years of research on organizational behaviour in emergencies, local government continues to be surprised when standard procedures in the lengthy, detailed plans are irrelevant in real events (Hoetmer, 1984:1).

Research has indicated that regularly updating the written plan, in the absence of some important planning activities (e.g. exercises, training, reviews) leads only to a very small improvement in the ability of a community to respond to a disaster (Kartez and Lindell, 1987). Updating the plan still has its place, but it should be the first step or starting point in local disaster planning and not the end product.

Although research would indicate that most communities have disaster plans, fewer than half of these communities have any training or simulation exercises built into the plan (Seismic Safety Commission, 1979). Exercises are not popular for a number of reasons: they take up time, they cost money, and they require public participation. However, it is suggested that one of the major reasons simulations are avoided is because they are performance oriented and "Exercises sometimes embarrass the department heads..." (Kartez, Hunter and Kelley, 1985:18). Study has indicated that

most department heads would prefer to develop the ability of their department to respond to a disaster by talking to other experienced managers who had been involved in previous disasters. Yet, time and time again, researchers have demonstrated that substantial documentation exists whereby a community should have been able to predict demands on its disaster plan, based on past experience, but which were not anticipated or provided for in revised plans (Kartez and Lindell, 1987). Why is it that experience and research fail to produce changes in the way in which disaster planners attempt to meet the disaster needs of their communities?

3.3. THE LACK OF EFFECTIVE PLANNING PROCESSES

There is no one answer to the question but it is suggested that there are two main areas worthy of consideration. First, most disaster planners, especially in British Columbia, have not had much experience in dealing with disasters. Over the past fifteen years disaster planners in the Lower Mainland have only had to deal with some very localized emergencies such as mud slides or flooding. The potential for any number of incidents to result in widespread damage and injury has been demonstrated several times, but fortunately for Lower Mainland residents, they have not had to experience a true disaster for many years. Research has indicated that communities that have had a lot of experience with disasters (e.g. repeated flooding) do more planning activities with one notable exception, the updating of detailed SOPs. They are twice as likely to engage in exercises, meetings, critiques, etc. (Kartez and Lindell, 1987).

Second, given their background and education, most disaster planners are not familiar with effective planning processes that involve community participation. They

must become aware that a "...good planning process promotes adaptive preparations beyond those achieved with minimal planning, regardless of actual disaster experience" (Kartez and Lindell, 1987:496).

By not following a good planning process, what do disaster planners fail to accomplish? First they fail to identify the existing problems in an easily understood fashion, and then further fail to identify the concerns of special interest groups (Petak, 1984).

Before being able to recommend solutions, one has to be aware of the problem. Disaster planners have tended to be unaware of the degree to which their communities are at risk, have been ignorant of the social, economic and environmental impacts which may occur if a disaster does take place, and have tended to remove themselves from the political arena when sensitive land use planning decisions have been made (Petak, 1984).

For example, a municipality may have an official community plan which defines the areas of future development. Included in this zone is an unstable land slope which has been designated under the community plan as an area for the protection of development from hazardous conditions.

A potential developer may see this slope as an opportunity to build homes to maximize the view, and may see it as a challenge to do so and keep within the existing building codes. An environmentalist may value the land slope as a natural wildlife sanctuary to be preserved at all costs. The disaster planner may perceive the

slope to be the scene of a catastrophe should the soil erode and become a mudslide during a storm.

At some point, in authorizing a development permit, members of council will have the opportunity to listen to various points of view. By neglecting to first identify the potential hazards, and then by failing to examine ways of mitigating the potential losses to each group (including council), the disaster planner loses the opportunity to assist council in arriving at a decision which maintains the current best interests of its residents without losing the potential for future benefits.

> The technical and regulatory solutions to natural hazard problems are reasonably understood. Our failures in applying these solutions are therefore a function of other factors having to do with the process (Petak, 1984:280).

Case study data which nicely illustrates this point is the following:

> A real estate developer standing on the ground floor of a new apartment building on the floodplain of a creek in a Missouri Valley town was asked whether he thought he was taking any risk in locating a structure there. He replied to the contrary and, when pressed, observed further that he knew that the stream had many years earlier reached a stage at that point as high as his shoulders. How then could he say there was no risk? His answer was, "There isn't any risk: I expect to sell this building before the next flood season" (Burton, Kates and White, 1978:96).

It is interesting to note that in the previously discussed Collegeville Plan the only major municipal department which is not included as a resource to the disaster planner is the planning department. Disaster planners have failed to look at the mitigative aspects of disaster planning and have concentrated on the response aspect - the emergency plan.

Sometimes when I'm downtown I look at these large buildings

with this amount of glass on them and (I think) 'I hope an earthquake doesn't occur right now.' But I'm not thinking about it all the time. (Mel Blaney, Vancouver Disaster Planner, quoted in the Vancouver Sun, September 9th, 1988).

One of the tasks for disaster planners is to become better educated regarding the causes and effects of natural hazards and to develop links with the municipal planning departments in order to adapt building codes, restrict land use via zoning bylaws, and assist in presenting the benefits of adopting policies aimed at mitigating the effects of disasters to the public and municipal councils.

Most plans list the potential hazards to the community, some list them in order of likelihood of occurrence, but this risk analysis is done at a very superficial level. Disaster planners have to reach outside their existing networks and utilize the expertise of hazard analysts and then ensure that the response is easily understood. "Typically, too much emphasis is now placed by the technical experts on limiting the range of alternatives which are exposed to public examination" (Petak, 1984:298). By educating and involving special interest groups, additional goals will be identified, which in turn lead to new alternatives being explored.

One of the most important processes which must take place is that of educating not only individuals in the community, but organizations as well.

> Let us mention four kinds of disaster problems,...that are essentially both problems of as well as needing to be handled by organizations. These...can be discussed under the general categories of: communication, co-ordination, authority and personnel. They are the kinds of difficulties in organizations which lend themselves well to prior planning..." (Quarantelli, 1982:9).

Organizations must learn to be more sensitive to people's needs (Kartez 1982; Seismic Safety Commission 1979 and 1983) and to be aware of new organizational approaches to assist in decision making during times of crisis (Perry, 1979). Many agencies assume that they can operate in times of disaster with the same management controls they use to deal with day to day emergencies (Kartez and Lindell, 1987). Organizations are also short sighted in their planning approaches and tend to keep persons working far too long during disasters, with a resulting loss of effiency (Quarantelli, 1982). Although experience and research have demonstrated the guilt and problems faced by those required to work in disaster rescue instead of being with their families (Quarantelli, 1982; Hartsough and Myers, 1985), organizations have failed to help prepare the helpers and their families for this eventuality. Only recently on Vancouver Island for example, are firefighters hiring a disaster consultant, Carol Stewart, to assist them in helping their families prepare for an earthquake so should it occur, the firefighters will not feel so worried about their families' abilities to cope in their absence.

Finally, organizations need to learn to work together, to communicate and to be equal participants in a planning process. The municipal disaster planner in Jerusalem, Mr. Eli Peso, stated that although they had quite an elaborate disaster plan, in fact very few followed it. Jerusalem is continually faced with potential disasters arising from terrorist bomb threats (averaging three calls per day). These frequent alerts result in the activation of volunteers and staff on a regular basis. Compulsory military service and a high degree of volunteerism additionally contribute to a system whereby the persons responding to a call-out all know each other by name, have worked along side each other previously and are aware of each other's mandate and individual experience

and abilities. The lack of terrorist threats in British Columbia should not serve as an excuse for the lack of inter-organizational planning.

3.4. SUMMARY

As has been discussed, disaster planning suffers from a lack of community participation in the planning process. The para-military bias of treating "civilians" as persons needing direction rather than persons capable of of appreciating and resolving threatening problems has contributed to a planning process geared towards planning *for* rather than *with* the community. This approach accepts the myth that people are going to panic, be out of control and lack sufficient ability or motivation to take steps towards self-sufficiency.

Specialist agencies are expressly included in the process, but their understanding, motivation and interest have been underestimated. With little significance attached to the plan, it receives little attention and so when opportunities to test agency participation in the plan arise, there is a relunctance to exercise the uninformed and unprepared.

Disaster planners in British Columbia have had little experience, fortunately, with large-scale disasters and have had little knowledge of risk analysis or planning processes. The result is manifested in current practice: the creation of a product, the Emergency plan, rather than the development of a plan which examines the role of the planner vis-a-vis the community and council over a period of time.

The argument for disaster planners to adopt a planning theory, when planning

for disasters, would seem to be justified. Therefore, the question to be answered becomes *which one?* The next chapter will examine a number of traditional planning theories and discuss the benefits and problems of using these theories in preparing for emergencies.

4. THE SEARCH FOR PLANNING SOLUTIONS IN TRADITIONAL PLANNING THEORIES

Many planning theories have been presented, contradicted and defended over the past century. This chapter will review existing theories in the three main planning areas: disaster planning, organizational development and in the planning discipline itself. Each theoretical approach will be reviewed with a particular focus as to how it could provide a theoretical framework which would address the problems identified in the preceding chapter.

This chapter will conclude with summary of analysis of traditional planning approaches, which will be used in developing an introduction to the proposed model.

4.1. DISASTER PLANNING THEORIES

Disaster planning literature provides no comprehensive theoretical approach for the community emergency planner. The literature is mainly either prescriptive (e.g. how to write the plan), descriptive (e.g. what happened) or evaluative (e.g. what did or did not work in a particular disaster situation).

Most prescriptive manuals or books are structured towards identifying the elements of the emergency plan (e.g. the need for an Emergency Operation Centre). Carter (1984) includes the areas of responsibility and standard operating procedures to be included in the emergency response plan and also outlines the steps to be taken in

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order to implement the plan. He also includes sections on community awareness and self-sufficiency. However, for example, the section on community awareness suggests various *means* of informing the community (e.g. town meetings, media) but does not perceive the *process* of doing so as part of an overall plan.

Impact oriented literature develops theoretical bases from several perspectives. Kreps (1978) explores theoretical issues fundamental to the sociological discipline, from a focus which attempts

> ...to define the basic elements of organized disaster response, then develop ideas which both suggest patterns of inter-relationships among then and provide mechanisms to account for these patterns (Kreps, 1978:66).

While the findings which arise from this approach are certainly of interest to the emergency planner, the theorectical model does not lend itself to one which can be used by emergency planners in developing a plan.

Quarantelli (1981b) has approached the problems generated by current disaster planning practice in a different way. He has emphasized that

> it is a mistake to equate disaster planning with the drawing up or the production of written plans...Studies show that disaster preparedness planning is most effective when officials view the planning activities as an unending process, and that
> ...disaster planning typically or usually assumes that people should adjust to the planning or the plan...Realistic disaster planning requires that plans be adjusted to people and not that people be forced to adjust to plans (Quarantelli, 1981a:2-4).

But, Quarantelli does propose a planning model by which the disaster planner can initiate a planning process which adjusts to the community needs. He has proposed

principles of disaster planning:

> a. a continuous process; b. reducing the unknowns in a problematic situation; c. evoking appropriate actions; d. what is likely to happen; e. based on valid knowledge; f. focused on general principles; g. an educational activity; h. overcoming resistances; i. testing; j. not management (Quarantelli, 1981b:Contents).

What he fails to address is the means by which the disaster planner can engage in planning processes so as to increase the knowledge base for both the planner and the community, incorporate the increased knowledge with appropriate actions within a continuous planning process, and to do so in a fashion which promotes planning with the involvement of the community.

While some work has been done in examining why communities may be reluctant to become involved in disaster planning, the lack of information in this area "...really underscores the need for research directed toward general processes operating at the community level" (Drabek, 1986:57).

As can be seen, the disaster theory literature does not provide the emergency planner with a model for working with the community, but rather it proposes some concepts and principles to be applied to a process. It fails to actually develop a planning model or theoretical base for the disaster planner.

4.2. ORGANIZATIONAL DEVELOPMENT THEORY

Organization development theory is based on an "...explicit social learning approach, which it perfected as a clinical method for intervention in organizational change" (Friedmann, 1987:203). The behaviourist approach began with the study of groups and group dynamics. A search for appropriate methodology led scientists to study group processes by trying to change the behaviour of groups, which in turn led to the attempt to link small group research with change in formal organizations (Friedmann, 1987). Likert was the first to make his business that of changing organizations by developing models of management systems. He identified the principle that supportive relationships involve group decision-making and high performance goals (Friedmann, 1987).

This concept of planning, based on a management perspective, assumes a common corporate goal. The goal of the corporation is established by its mandate and is taken as a given by those who choose to work for the corporation (Boothroyd and Anderson, 1983:1). The underlying goal is to maximize profits and minimize losses, the participation of employees or of the corporation's "citizens" is a "...means to corporate ends" (Boothroyd and Anderson,1983).

As discussed in the previous chapter, disaster planners have neglected to involve the community in a planning process. A community is made up of various special interest groups, each with their own particular goals and objectives. There can be no assumption of a common goal, and the organizational development approach does not

lend itself to dealing with conflicting goals within the corporate body or "community". One of the errors that disaster planners have made is that even in the specific selection of particular agencies such as the police and fire departments, they have assumed that these agencies shared the same common goal. As well, this was again assumed to be identical to the planner's own goal. By assuming the same corporate end, the planner also assumed the same commitment. And this, as the research has indicated, has led to a lack of assumption of responsibilities and unwillingness to participate in the planning process.

A fire brigade officer involved in the Clapham Junction rail disaster in London, England, made the point that they had long ago identified the potential for disaster at what is said to be the busiest rail crossing in the world, serving both commuting and long distance passenger trains.

> We had learned from our rehearsals the importance of first going quickly through the whole of the wreckage to locate where people requiring medical attention were trapped. (CBC Radio News, December 12th, 1988)

The traditional approach is to view the participants as problem-solvers and decision-makers with an assumption that participants will try to understand what is happening and then activate themselves and their resources to solve the problem (March and Olsen, 1976). The time for planning a disaster response is not during the disaster. A response is specifically planned in order to avoid to have to try to understand what is happening during the time of chaos, so assistance can be rendered even when the total picture is unknown. It is too late to start to activate resources when the problem or disaster is happening.

Approaching decision-making as a social process, the manager's task is one of how the problem is to be solved, not the solution to be adopted (Vroom, 1973). The focus then becomes one of developing a model which allows the decision-maker to select the appropriate process, depending upon the presenting problem.

While the concept of uncertainty is of fundamental consideration in management decision-making, it is viewed as a lack of appropriate information (MacCrimmon and Taylor, 1976) as opposed to the potential impact of an event (e.g. earthquake) or a forecast into the future. For example when having to decide whether or not to increase production a manager may request an additional market survey, up-to-date sales figures, or a study on a competitor's sales in the same market.

Decision-making is seen as a means of bridging the gap between the existing state and the desired state (MacCrimmon and Taylor, 1976). However, disaster planning is not viewed as a decision-making process in order to achieve a desired state. The desired state is to maintain the existing state, or to take the concept further, to make decisions so as to avoid or mitigate the effects of a potential change. The reality of natural disasters implies the existence of plans to prepare for dealing with occurences over which the planner has no control. While a community can benefit in certain ways as the result of a particular disaster, the disaster itself would never be seen as a preferable, even if predictable, means of achieving those benefits.

So, as can be seen, organizational development theories do have some applicability in implementing a way of problem-solving with a community group around a particular issue. However, they fail to provide an adequate planning theory for

disaster planners, primarily because of their failure to address incongruent goals and for reliance upon increased information to solve the problem. While acknowledging the need for a process to take place, management decision-making does not provide for a process where the end is uncertain.

4.3. PLANNING THEORIES

4.3.1. Introduction

Several authors have made attempts to classify traditional planning theories. Hudson (1979) presented a simple but inclusive scheme which organized planning theories into five groups, Synoptic, Incremental, Transactive, Advocacy and Radical planning, under the heuristic rubic of SITAR. He states that while this classification does not exhaust all planning traditions it does appear to cover all major developments in planning theory and practice since the 1960's. Hudson concludes his discussion on the merits and weaknesses of each approach with a proposal to mix approaches in order to ensure that planners respond to the diversity of problems and settings, a blending and harmonizing of the "sitar's" five strings.

Friedmann (1987) has developed a more recent approach for classifying traditional planning approaches, based on the history of planning thought. His system uses four main traditional groupings based on the commonality of "language", philosophical outlook and core concern. He identifies *social reform* as focussing on finding ways to institutionalize planning practice, to make action by the state more effective and as based on questions of a broad philosophical nature. *Policy Analysis* focuses on the

behaviour of large organizations and their ability to make rational decisions without a distinct philosophical position. The *social learning* tradition is based on the position that knowledge is derived from experience, validated in practice, and then applied to the process of action and change. Finally, the *social mobilization* planning tradition appears as a form of politics, asserting the primacy of "direct collective action from below" (Friedmann, 1987).

While his classification provides the reader with a thought provoking analysis, each classification in fact incorporates to a greater or lesser degree the categories used by Hudson. As well, the social learning planning tradition includes many of the issues addressed under the preceding review on organizational development. The adoption of a planning theory should lead to more effective practice (Friedmann and Hudson, 1971) and, therefore, should include both a philosophical approach and a practical application. Friedmann's social reform classification has a strong philosophical bias but little practical application, whereas his policy analysis classification has a strong technical or practical aspect but is almost devoid of any philosophical base. Neither provides a cohesive and inclusive classification for the purposes of an analytical critique. For this reason, it has been decided to use the Hudson SITAR framework in this review; however, many of the ideas that Friedmann discusses in his approach have been introduced in following the SITAR model.

Christensen (1985) founded her theoretical model on linking the planning theories as reviewed by Hudson (1979) with variable problem conditions. Her perspective refines Hudson's integrated approach with a focus on dealing with uncertainty, and will, therefore, be discussed following the presentation of Hudson's classifications.

4.3.2. The Synoptic Approach

"Synoptic planning, or the rational comprehensive approach, is...the point of departure for most other planning approaches" (Hudson, 1979:388). Its foundations lie in the preparation of a master plan, a plan which is to consider and provide answers for the problems in the future. The synoptic approach provides for a thorough examination of the goals, alternatives and information. It looks at problems from a systems viewpoint, relating ends (objectives) to means (resources and constraints) (Hudson, 1979). The synoptic approach presumes that for each problem, an adequate, if not perfect, solution can be found.

Only in synoptic planning is there a major emphasis on producing "plans", (Hudson, 1979) and the master plan approach is the one that disaster planners have used in designing and maintaining their community disaster plans. They attempt to develop a plan to enable agencies to respond to whatever disastrous situation occurs. And yet, the nature of this approach is dependent upon complete knowledge.

> Any event such a major change in our form of government or economy, a large scale disaster...would have unpredictable effects...Therefore, we must assume that such catastrophic changes will not occur" (Kent, 1964:106).

It would appear ironic that the majority of disaster planners are using an approach which clearly avoids dealing with the core of their field. Realistically, planners using the master plan approach have realized that it is impossible to always be able to avoid or predict all changes. They have incorporated into the master plan, a contingency plan in order to deal with these unpredictable occurences. Given the nature of disasters, one could argue that disaster planning is the ultimate in contingency

planning.

Altshuler (1965) states that some of the planners in the 1960's thought that decisions in choosing between various options should remain with the planner, that they are in the best position to analyze the problems from an overall point of view. However, the evidence would indicate that disaster planners do not have an overall view, they engage in a process with a narrow vision and scope.

> Hazard managers do not assess the full range of control alternatives. They adopt control strategies which reflect those they perceive as being preferred by the public, rather that those which are technically most feasible (Johnson, 1979:10).

While planners may think about the impacts of their plan on the actual population, they fail to ask the people what they think and fail to involve them in the planning process.

> Managers, confronted with situations that are not compatible with their organization's prior "world view" or mental schema will tend to persist with the old schema rather than develop alternatives to account for the new situation (Kartez and Lindell, 1987:489).

It is this schematic thinking which explains why public officials continue to view citizens as problems in disasters rather than viewing them as a resource (Kartez and Lindell, 1987).

The synoptic approach assumes an understanding of the problems.

> ...few sophisticated American defenders of planning believe that planners can achieve a total comprehensiveness of perspective on any issue. Many do believe, however, that professional planners can come closer to achieving it on numerous vital issues than other participants in the...process (Altshuler, 1965:194).

However, the discussion in the previous chapter clearly indicates that most planners are seriously uninformed regarding the potential hazards in their community and the ability of the community to respond to the risks they pose.

One of the criticisms of the comprehensive approach is that it fails to allow for the evaluation of alternatives either by the public or through elected representatives. However, Altshuler (1965) defends the approach by arguing that the only solution may well be to adopt a specialist orientation, "...even while remaining willing to adjust specific proposals as highly distasteful side effects become apparent". First of all, the planner has to make those who might oppose the proposals aware of them, and in the case of disaster planning the community remains blissfully unaware of any proposals being made.

Second, one of the major problems identified was the low status of the disaster planner. The status of the disaster planner will hardly be enhanced by bringing attention to his plan and job when "highly distasteful side effects" become evident. An approach which can also have the benefit of elevating the status of the disaster planner will be discussed in the next chapter.

In conclusion, the synoptic approach is a simple systems comprehensive attempt to solve the problems of today at some point in a predictable future. It is based on the premise of a knowledgeable planner with an acute sense of the needs and values of his community. The disaster planner of today would appear to be sadly unaware of the potential problems and solutions available in the community, unable to increase awareness and community concern and unable to maximize the community resources.

4.3.3. The Incremental Approach

The incremental approach to planning is based on a mixture of "intuition, experience, rules of thumb, various techniques (rarely sophisticated) known to individual planners, and an endless series of consultations" (Horvat, 1972:200). It certainly allows for the involvement of others in a planning process, and is less "cold" in approach than the synoptic approach. Disaster planners do often utilize many of the elements of the incremental decision strategy, some to their detriment.

The disaster planner would "...rely heavily on the record of past experience with small policy steps to predict the consequences of similar steps extended into the future" (Lindblom, 1959:152). Research has indicated that the planners rely far too much on past experience, specifically on the past experience of others, and fail to consider the actual results of those actions. Instead of examining research findings as to what actually occurred during the disaster response, disaster planners have preferred to listen to their peers' perception of what occurred.

Never quite sure how to address the problem of uncertainty in their plan, disaster planners would make continued small incremental changes to their emergency plans. They would continue to review and revise the SOPs in their plans, but fail to base these changes on inter-organizational simulation exercises. Instead, the changes would be based on intuition and the experience of other disaster planners.

Incrementalism uses experience as the force for change. In communities subject to repeated disasters, especially in the case of floods, the experience has led to a "disaster

subculture". The members of this community subculture have a residue of learning regarding disasters, which is then applied to subsequent disasters (Ross, 1978:227). However, in other communities disasters arrive unexpectedly and without precedent. With no experience possible, how is the planner to gain the experience necessary to adopt an incremental approach? After the Anchorage earthquake in 1964, organizations there did change their structures in order to better respond to future earthquakes, but without the previous earthquake experience, they were "stuck in a groove" (Ross, 1978).

An incremental approach is a safe way of making changes to the plan, but it does not address the problem of dealing with a plan which may be fundamentally unsound in its basis. If the philosophical basis of the planning process fails to address the need for community participation, no amount of tinkering with the responsibilities of the medical health officer is going to alter the disaster planner's approach to planning.

As discussed, researchers have despaired of the fact that disaster planners fail to make note that all of their carefully laid out procedures and control mechanisms are ultimately irrelevant in providing a good disaster response. They strongly suggest that disaster planners, while not abandoning the disaster plan in totality, need to take a completely new tactic in assisting the community to prepare for disasters and the incremental approach is not going to give the planners a theoretical base for achieving this.

4.3.4. The Transactive Approach

Transactive planning focuses on

> ...the intact experience of people's lives revealing policy issues to be addressed...planning consists less of field surveys and data analyses, and more of interpersonal dialogue marked by a process of mutual learning...it also refers to the decentralized planning institutions that help people take increasing control over the social processes that govern their welfare (Hudson, 1979:389).

Transactive planning is based on intuition and experience, or personal knowledge. And yet, as discussed in the previous chapter, disaster planners believe a number of myths regarding their community and its responses during a disaster (e.g. people panic in disasters). Even when their experience contradicts these prior beliefs, the new experience is either dismissed as exceptional or attributed to presumed unique qualities of the community or people involved (Quarantelli, 1984). The transactive approach fails to acknowledge or address the fact that personal knowledge can be erroneous, and that planners can be locked into maintaining myths even when confronted with directly contradicting evidence. Prevention of looting at the disaster scene remains a high priority and army personnel continue to be used during the rescue phase of emergency response to enforce perimeter security. Disaster planners continue to arrange for the deployment of potential rescuers to prevent looting despite the research which indicates it is extremely rare and despite their own observations or those of colleagues at the actual disaster scene.

One of the principal criticisms of disaster planners is that they fail to treat the communtiy as a resource. One cost of this is that they fail to benefit from the experience and expertise of their constituents. In addition, they allow the community to

remain in a dependent state rather than helping it to develop some self-sufficiency. Both of these weaknesses would be addressed by following a transactive planning approach; however, several other key problems remain unaddressed. Again, as previously stated, disaster planners need to develop a knowledge base. The technology of natural hazards is fairly well developed in certain subject areas and the disaster planner needs to make himself aware of the available data.

While self-sufficiency and the ability of the public to take control over the way in which they deal with their lives is important, the very nature of disasters implies a certain degree of chaos. There is a need for firmly developed intra- and inter-organizational policies, mandates and protocols to be able to deal with the initial response for the many, in a large scale disaster, who become incapable of assuming on-going responsibility. Quarantelli (1982) states that while people rise to the occasion during the first stages of a disaster, they are not as able to cope in the long run. Certainly their ability to do so may be improved by increasing their awareness and knowledge, but there will always be need for an organizational response.

Friedmann (1975) states that transactive planning is a "...response to the widening gulf in communication between technical planners and their clients." He further argues that the key that leads to sound planning is through establishing communiciation on a personal as well as a subject basis. He strongly supports the need for the planner to be a quick learner and the need to develop a mutual learning situation. That certainly is important, but it does not address two concerns. A climate of mutual education will not lead to the development of the specialized knowledge which is necessary to address the vast array of potential hazards. Nor will it assist in creating

a political climate to upgrade the status of the planner and create a commitment on the part of government agencies to provide funding and begin a process of mitigation of the risks as identified by special interest groups.

Secondly, it does not provide any guidance to the planner as to how he can go about dealing with the issues at hand, while developing this climate of learning. It presumes an audience ready and willing to learn and exchange ideas, whereas in disaster preparedness, not only is there no such audience but the planner has passively, if not actively, worked to exclude it. Friedmann states that transactive planning "...is inappropriate, for instance, where expertise carries sufficient authority to act without the benefit of mutual learning". One of identified problems is that because of the background and expertise that disaster planners bring to the position, they feel that they (and other specialist organizations) have the authority to act without a need to involve the public. Transactive planning focuses on the increase to the knowledge base, it does not address very well the development of a mutal sharing of values and of establishing priorities.

4.3.5. The Advocacy Approach

Advocacy planning applies itself to defending the interests of the weak against the strong. It has been successful in challenging traditional views and the development of pluralist viewpoints (Hudson, 1979). It is a theory which certainly addresses some of the problems facing the disaster planning profession today. The advocacy planning approach provides interested parties with a means of presenting strong interests in a political forum capable of generating new policies. The pluralist outlook assists in

generating new concepts and alternatives to achieving identified goals. Disaster planners have been accused of neglecting the psychological factors involved in designing their emergency plans, and advocacy planning provides a link between the social scientist and the planner (Hudson, 1979).

In order for special interest groups to be able to identify a position they must first become "...well informed about the underlying reasons for planning proposals, and be able to respond to them in the technical language of the planner" (Davidoff, 1965:280). Advocacy planning theory, while promoting a strong relationship between planners and each special interest group, fails to address two communication problem areas. First, as advocacy planning neglects to incorporate a means for exchanging information between the interest groups, it would seem to assume that the issues that each group deals with are mutually exclusive. It also assumes that the learning processes that each group undertakes are of no use to anyone else. Second, this planning approach fails to provide a vehicle for the disemination of the results of each special interest group to the other groups and the general public.

Disaster planners have been unwilling to provide the public with information because they have feared the response of the public and have rationalized this approach by pointing to the lack of public interest. Nevertheless, they have a point. The recent "discovery" by the media (Vancouver Sun, September 16th, 1988) regarding the storage of deadly PCBs in various public buildings in Vancouver has certainly created some strong concerns on the part of the community, but when they did not know about it, "what you don't know, you can't worry about". It is not clear if the planners themselves were aware of the PCBs before the media coverage, but the extent of the

storage problem had certainly not been identified as an issue. Why should the planner go about releasing information to the population when there are no accepted answers, and when it will cause him more work and will put him at the forefront of a controversy? The arguments for taking part in such a process are that by presenting the problem, allowing advocacy groups to put political pressure on local governing structures and suggest alternative ways of dealing with the issue, the PCBs will be dealt with in such a way that their elimination would preclude the disaster planner having to prepare a plan to deal with their potential risk.

But in order for the planner to develop a mitigative approach to dealing with hazards he must be willing first to seek out the knowledge and second he must be comfortable in introducing a controversial subject to his audience without fear of personal retribution or criticism. Until a climate of mutual trust and understanding is established, there will be no incentive for the planner to do so. The advocacy planning theory fails to present a solution to the process in order to compensate for this.

4.3.6. The Radical Planning Approach

Friedmann identifies two streams of approach to radical planning theory. The first is associated with a spontaneous activism, guided by an idealistic but pragmatic vision of self-reliance and mutual aid. The second takes a more political approach, based more upon the theory of the state as controlling the character of social and economic life (Hudson, 1979).

Both approaches, however, demonstrate an ideology of the "dispossessed, whose

strength derives from social solidarity, from the seriousness of their political analysis, and from their unflinching determination to change the status quo" (Friedmann, 1987).

Certainly, when struck by a disaster, the community is able to spontaneously respond. Residents are quick to help others, and are often involved in heroic rescue attempts. "Disaster victims react in an active manner, not passively as implied in the dependency image" (Quarantelli, 1960:73). Victims do not wait for orders from officials (Drabek, 1986) and take appropriate action to provide assistance to family and neighbours.

However, this is a response to a disaster, and not part of a plan or commitment to a new life in community as seen by the utopians and anarchists, or a new life in struggle as seen by the Marxists and neo-Marxists (Friedmann, 1987). The reality is that the survivors of a disaster have a desire and need to return to the world as it was before the disaster struck.

> non-victims, not unlike victims, seek to structure the situation and normalize it, i.e., integrate the novelty of the disaster into conceptual schemes used in everyday life (Anderson, 1968) (as summarized in Mileti, Drabek and Haas,1975:63).

It is interesting to note that sudden chaos, does create a utopian environment.

> At the organizational level, the period of post-disaster utopia is often characterized by the emergence of ephemeral social organizations which incorporate utopian values (Taylor, 1972:112).

However, this community feeling of solidarity and independence does not continue. Over time, the difficulties of coping with personal losses and the magnitude of the reconstruction needed start to have a negative impact. Many of the emergent groups

were formed on an ad hoc basis, to meet the immediate needs. This fragmented approach creates problems in trying to provide a co-ordinated and efficient response.

Lack of prior planning, and reliance on emergent groups to perform rescue work has led to the repeatedly stated problems of "... interagency communications, ambiguity of authority, poor utilization of special resources, and unplanned media relationships" (Drabek, Tamminga, Kilijanek and Adams, 1981:240).

Research has indicated that while it is important and necessary for disaster planners to recognize and utilize the fact that individuals are able to provide for immediate needs, prior planning pays off (Scanlon and Taylor, 1977). Friedmann's planning tradition of social mobilization occurs naturally as a result of the lack of existing structures immediately after a disaster. In other words, radical planning emerges by necessity, not by design. But in the long term the needs for co-ordination and organization become necessary in order to mitigate the effects of the disaster.

Some of the implications of viewing the post-disaster community as a naturally occurring phenomenon which contains similiar characteristics to Friedmann's planning tradition of social mobilization will be explored in the final chapter under areas for further research.

4.3.7. An Approach to Planning based on the work of Christensen

This section concludes with a discussion of Christensen's planning approach to dealing with uncertainty under variable planning conditions.

Effective planning begins by confronting the problem at hand and assessing conditions of uncertainty, rather than misapplying theories and methods without regard to particular problem conditions. By matching planning processes to problem characteristic, planning offers a chance to overcome, or at least reduce uncertainty" (Christensen, 1985:63).

Christensen developed a matrix based on the known and unknown goals as matched with the known or unknown technology (i.e., means of obtaining the goals). She argues that where the goals and means are known, standard, routine procedures can be set into a replicable program. The role of the planner follows a rationalist approach. She acknowledges that "...the conditions of an agreed goal and an effective technology cannot...be relied on to last forever", but she does not suggest any process for the planner to follow in order to determine how either the technology has become obsolete or the goals of the community have changed. She also accepts the role of the planner as an expert and yet fails to allow for the disemination of knowledge to the community.

Where the technology is unknown but the goal agreed upon she suggests adopting an incremental problem solving process or a pragmatic systemized search for a solution. The problems incurred in following an incremental approach have already been outlined; and while a research oriented approach is certainly useful it does not address the process by which the planner can also maximize the resources of the community.

When the technology is known, advocacy planning or concensus building and bargaining are suggested means of selecting the goals. The argument does not address how the planner is able to provide the information or develop the interest in order to create a willingness to explore the possible goals.

Where both the technology and the goals are unknown, Christensen identifies the situation as one of chaos. The planner needs to identify the problems and then provide the motivation to act upon them. When faced with chaos, the planner becomes a leader. This is a different role as compared to the role of facilitator identified in the previous situation; the role of researcher as when trying to establish the technology, or that of administrator when dealing with applications of known information to known goals.

While providing for varying and flexible approaches to problem situations is a start to synthesizing one's approach to the use of various planning theories, it still leaves some unaddressed issues. It fails to acknowledge the difference in knowledge and experience that exist between the planner and the community. It also fails to provide the planner with a means of working with the community in both an administrative function and as a dynamic leader around issues dealing with uncertain technology and unclear goals. It fails to provide for a synthesis of planning theories based upon both a changing community and changing technology.

4.4. SUMMARY AND CONCLUSIONS

The disaster planning literature has focused more on providing the planner with concepts and principles to include in creating an emergency response plan, than an actual model or framework for incorporating a community plan. The majority of the literature has focused on impact assessment and while the research is clear about the steps planners can take to mitigate the effects of disasters, it has failed to provide a theoretical planning base.

Organizational development has contributed much valuable knowledge regarding problem solving techniques and processes to be utilized in order to maximize positive community input. It does not address the problem of working in a pluralisitc society with numerous and sometimes incongruent goals. It is a discipline which views the concept of uncertainty as a forum for the search for increased knowledge, and does not deal well with imperfect knowledge and inability to forecast the future.

The comprehensive approach assumes that the knowledge base is known, and in the setting out of the master plan, does not allow for increased knowledge acquired either externally to or as a result of the planning process. An incremental approach is dependent upon a sound base and previous experience. If the past has not provided the planner of the community with similar experiences, there is nothing to build upon. The problems of tomorrow, if one were to use the incremental approach, would have to become the problems of today before they could be resolved.

Transactive planning relies on intuition and experience. It also does not address how time can be used to gain knowledge in lieu of or in addition to experience. Intuition in many cases has proved to be wrong. Planners have often thought that they knew what it was that the community needed and/or wanted. This planning approach does not present a a means of exchanging information and re-evaluating priorities given the additional knowledge.

While advocacy planning assists in generating alternatives to be considered it fails to take advantage of the relationships which have formed among the members of the special interest groups and between the group and the planner. The knowledge gained

in the consideration of various goals disappears with the decision-making, or by the implementation of the decision. The groups base their very existence on the continued emergence of plans to which they adversely react and so the advocacy approach fails to encourage an anticipatory approach.

Radical planning, with its grass roots approach, fails to provide for a co-ordinated and efficient emergency response plan. Its fragmented approach allows participants to provide immediate assistance to neighbours and family; however, over the long term the chaos and stress leave residents in a more vulnerable position to meet the community planning needs for recovery and reconstruction.

While Christensen makes a good effort to at least link various planning approaches to different situations, she still fails to allow for two time-related factors. She fails to provide the means or process by which a planner can engage with the community as knowledge, values and priorities change. She assumes that once the goals have been set, they remain so.

As time progresses, knowledge increases or becomes available. With added knowledge, values are re-considered and priorities change. As well, the participants involved in goal selection may change; sometimes because of changing priorities and sometimes as a result of physically relocating.

Christensen also does not allow for a process to adapt to the changing priorities of both the community and/or the planner.

A planning process has to allow for changes to knowledge, subsequent changes of values and re-ordering of priorities. It has to have a philosophical base which allows it to move from a reactive approach to one of anticipation or mitigation.

In effect what is needed is a planning theory which allows for change during the planning process and which provides a path for movement from a focus on problem resolution to one of problem identification, and vice versa. The next chapter presents leadership planning theory as a model to address the problems of goal selection and goal achievement over a period of time.

5. LEADERSHIP PLANNING THEORY: A NEW PARADIGM

5.1. INTRODUCTION

As stated by Hudson (1979) and Friedmann (1987) a planning theory should provide the planner with both a philosophical approach and a practical process by which to implement this approach. As previously discussed, disaster planning has concentrated on the practical or technical processes and has not given consideration to any philosophical base.

Leadership planning theory is presented as a philosophical approach towards disaster planning which incorporates both community participation and leadership, with a practical application based on a series of planning processes.

> *Leadership* is defined as influencing the activities of an individual or a group towards accomplishing a goal during the planning process.
> The *planning process* is defined as acquiring knowledge, identifying problems, setting goals, generating alternatives, choosing a solution, and evaluating the results of both the process and the decision.

These two definitions provide the basis for the two concepts that the planner has to deal with - goal selection and goal achievement. Planning theory is an attempt to synthesize these two concepts in order to provide a basis from which the community and the planner will be able to determine both the correct and optimum goal and the best way in which to achieve that goal. To achieve the poorer solution or to be unable to implement the best alternative is unsatisfactory. Complete success is possible only after achieving the best choice.

However, the reality is that in many cases the answers may not be known and even if they are known, they are not implementable. For example, we do not yet have the technology to prevent earthquakes from occurring. And yet, we have many large cities located on major faults. The ideal situation may be to move the cities elsewhere, to areas which we know are less prone to earthquakes. One can anticipate, however, that disaster planners would be unlikely to achieve the relocation of several hundred thousand people on the probability of a major earthquake in next several years. Therefore, the philosophical direction and subsequent processes should be able to assist the participants in achieving a balance between the implications of adopting a less than perfect solution with an effective resolution. To refer back to the previous example, since it is unlikely that the community would move, how can the community and planner develop the best plan to cope with the potential earthquake?

Goals are selected either to resolve a problem or to prevent a problem from occurring. The first instance indicates a reactive approach, the second an anticipatory approach. To react to a problem presumes one of three situations: the problem was not originally identified, the solution was inadequate or unknown, or the solution was ignored or improperly implemented. Disaster planners have long been aware of the need to anticipate disasters and accept that waiting or reacting when the disaster finally does occur is too late. However, disaster planners have limited their range of solutions and failed, in many cases, to implement known solutions.

There are a number of reasons why the planner is faced with dealing in a reactive fashion, but the common denominator is one of time. With the acceptance and understanding of imperfect knowledge comes the awareness that mankind strives towards

perfect knowledge or an understanding of the world in which we live. One *distinction* between science and philosophy is that science is considered with particular questions while philosophy tends to total knowledge (Piaget, 1971).

> Total knowledge is at the present time, and perhaps forever, an affair of provisional synthesis and of partly subjective synthesis, because it is in fact dominated by value judgements which are non-universal but peculiar to certain collectivities and even to certain individuals (Piaget, 1971:63).

As our knowledge increases, over time, our values also get reconsidered and changed; and these changes should assist us in re-organizing our priorities. The disaster planner, in order to effectively mitigate the losses of a community must be aware of the community's assets, values and priorities. That process can only begin by exchanging knowledge, acknowledging existing values, and establishing and priorizing goals.

This chapter will support an anticipatory approach towards disaster planning versus a reactive one. Toward this end, we will examine first the way in which goals are selected (the decision-making process) and second the way in which goals are achieved. Our conclusion is that leadership planning theory provides a theoretical structure that allows the planner and the community to get beyond crisis or a reactive action, and ensures anticipatory planning.

5.2. GOAL SELECTION

Goals are established to resolve or avoid problems; therefore, the first step in goal selection is problem identification. It will be argued that a problem emerges when there is an incongruity between one's knowledge and one's values.

If one is content with the status quo, then there is no identified problem. The acceptance of the current situation presumes both a complete understanding of the issue and satisfaction regarding the way in which it has been dealt. If the community at large is not aware that a large number of hazardous chemicals are being stored near an elementary school, then obviously the storage arrangements cannot be considered as a problem.

Just as the planner has his own knowledge and values, so does the community. For the purposes of this argument the community's knowledge will be defined as the sum or total of the individuals' knowledge. While no one person in the community can know what everyone else knows, many people may know the same thing. However, since the values of individuals cannot be aggregated, it will be assumed that the prominent community values are those that are determined via the political structures that exist in a democratic society. It is also acknowledged that the acceptance of a predominant value does not dismiss the existence of other values.

It is the relationship between knowledge and values, which determines the goals and, in turn, the priorities. Let us first examine the way in which the planner and community develop their own knowledge.

There are several theories on how knowledge is obtained. Piaget (1971) states that our knowledge stems neither from sensation nor from perception alone. Biological factors may account for innate knowledge which originates in or is derived from the mind or the constitution of the intellect rather than from experience. These biological factors are influenced by the genetic makeup of the individual. Piaget (1971) goes on to

base the acquisition of knowledge on the ability of individuals to form abstractions based on sensorial data.

Wartofsky (1983) states that social factors or inter-individual co-ordination dictate the transmission and reception of educational and cultural data and it is the synthesis of biological, individual and social factors which determine our knowledge base.

Friedmann views planning as the link between knowledge and action and prefers to perceive of knowledge in terms of social learning. He examines planning as a process whereby scientific and technical knowledge are fused with personal knowledge within a process of mutual learning (Friedmann and Hudson, 1971).

Regardless of the philosophical approach, it is not difficult, therefore, to understand why the planner and the community do not share identical knowledge.

| | COMMUNITY | |
	Known	Unknown
Known	Community: Known Planner: Known	Community: Unknown Planner: Known
PLANNER **Unknown**	Community: Known Planner: Unknown	Community: Unknown Planner: Unknown
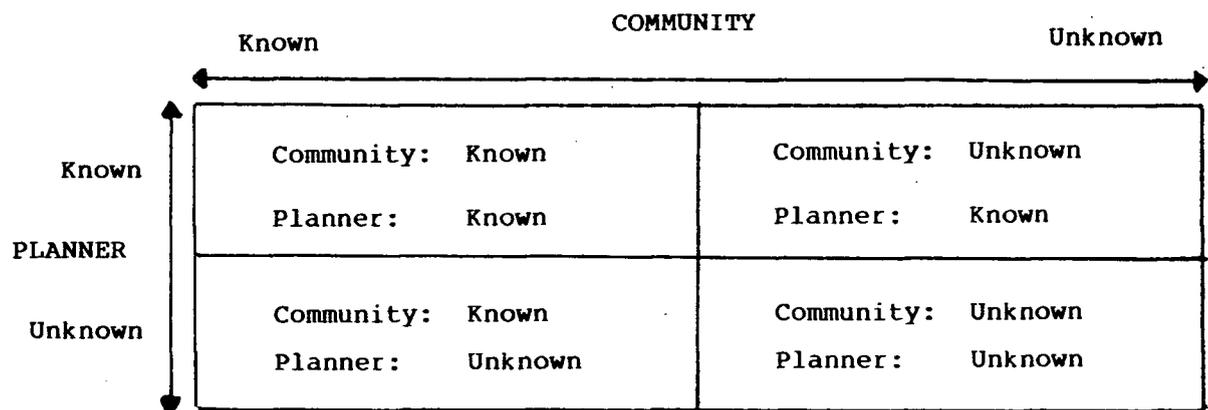
Figure 1. Acquired Knowledge

As can be seen by applying the above matrix, knowledge sharing falls into four

main areas. Starting at the top left hand quadrant and moving clockwise, let us examine each box. First there is information which is known to the planner and also known to the community. This will tend to be factual and shared cultural and educational knowledge, or social knowledge. For example, the planner and many of the members of the community may be aware that the river, which runs through the centre of town, flooded the main streets five years ago.

In the second quandrant we appreciate that there is knowledge which is known by the planner but not by the community. Friedmann would consider this knowledge to be personal knowledge, based on the planner's education and experience. Using the same example, the planner may have reviewed the meterological data indicating an extremely high snow pack in the surrounding mountains and predicting a much larger flood in the next spring. No-one in the community, other than the planner, may be aware of this information.

Next we have the quadrant of the unknown. Herein lies the information which is known neither by the planner nor the community - it is waiting to be learned. Again using the same example, it may be that a hydro-electric power company is considering erecting a dam upstream of the local town and is in midst of completing the final plans to present to government.

Finally, there is the quadrant where the information is known by the community but not to the planner. Obviously, the planner cannot possess the total sum of knowledge existing in a community. Friedmann would consider this to be the personal knowledge of the community. Referring to the same example, many residents may

remember that when the flood previously occured it demolished a old historic site. The planner, may not have been present and may not have been informed by members of the community who witnessed the event.

Logically, it would follow that problems would jointly be identified as a result of the common knowledge indicated in the first quadrant, the area shared by both. In fact it is the statement and identification of problems in this area that may have led to the hiring of the planner in the first place. A community concerned about future flooding would most likely consider hiring an emergency planner who was familiar with floods. However, it would be naive to assume that there is only one issue around which joint knowledge is shared. The reality is that there are undoubtedly numerous problems which may be jointly identified. The community may be concerned about earthquakes, transportation of dangerous goods and a number of other potential disasters as well as flooding. Once identified, how do these problems become resolved? How do we start?

The basis of acquired knowledge is the observation of reaction or inaction when one or more factors are introduced to each other or combined. What we choose to observe, or conversely to disregard, is based upon our perceptual abilities, the ease of observation, our conditioning and our values. If we place a high value upon something we tend to observe what happens, if not we ignore it. For example, if one were to place a high value on the preservation of top soil, the rise of river water due to clear cut logging upstream would arouse our interest and attention. Likewise, if one were to place a high value on having a nice home with a river view, having that same home inundated with mud and debris from a flood, would also be cause for concern.

It is also our values that determine the importance we give to the issues or problems. In many cases it would seem that the greater the value we place on the resolution of a problem, the more we are interested and so the more we tend to search for and accumulate knowledge around the issue. Thus, for the most part, the amount of knowledge which is known and utilized is determined by one's values.

A planner must accept that the expression of his and the community's knowledge will reflect each one's values. It is the lack of congruity between one's values and one's knowledge that gives rise to the ordering of problems, or how we priorize our actions in the search for a solution.

	High	KNOWLEDGE	Low
High	Knowledge: High	Knowledge: Low	
VALUES	Values: High	Values: High	
	Knowledge: High	Knowledge: Low	
Low	Values: Low	Values: Low	
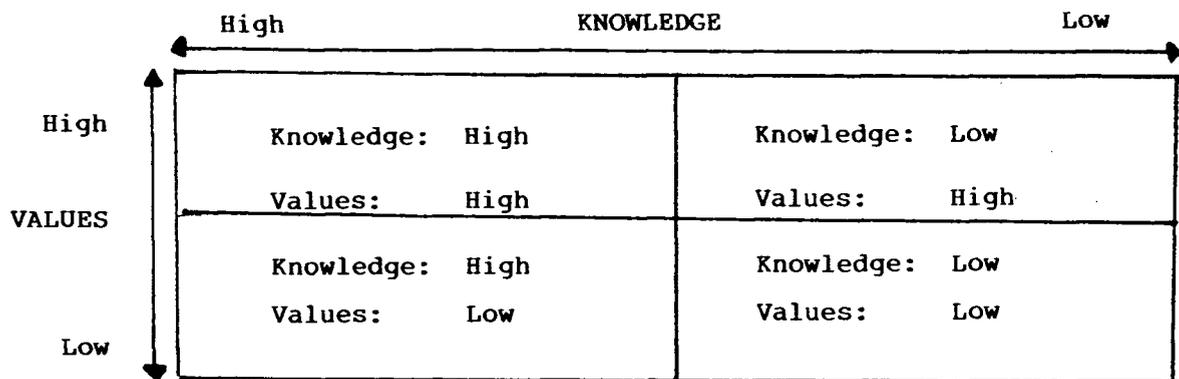
Figure 2. Goal Selection

Again starting at the top left hand quadrant and moving clockwise, we first examine the situation where both knowledge and values are high. This is the area where we will tend to put our highest priorities for problem resolution, where the solution is readily available and of high importance to us. For example, as previously discussed disaster planners have placed a high value on completing disaster plans based

on a para-military model and have, because of their background a lot of knowledge of how to go about developing and completing such a plan. As well, they are operating in the existing paradigm which places the importance of disaster planning on the development of an emergency response plan.

In the second box knowledge is low and values are high. The disaster planner may consider the prediction of earthquakes as an important factor in the preservation of lives, but has little knowledge on how to do so. Therefore, the disaster planner may continue to read articles or talk to geologists about earthquake prediction but be unable to resolve the problem.

Moving on, we come to an area where we have little knowledge and place little value on it. The problems in this area become our lowest priorities. The disaster planner who places little value on the debriefing of first-line responders after a disaster and who is unaware of the consequences of failing to do so, is unlikely to plan for the provision of any such services.

Last we have the quadrant where we have high knowledge but place little value on the problem. For some time disaster planners have had access to information on how to protect one's self from injury during an earthquake. However, as previously discussed, since disaster planners have placed little value on the ability of the general public to benefit from this information without panicking, they have failed to become involved in public education around earthquakes.

When the disaster planner and the community both share the same knowledge

and values, they then have the same priorities and it is from these priorities that the goals become selected. If both the community and the planner place a high priority on preparing for an earthquake as opposed to preparing for a nuclear war, then the planning will be directed towards the threat of earthquakes. As seen by the changes in federal legislation, over time, the legislation provided shifted its focus from planning for war to planning for peace.

Once the goals have been selected, and a solution selected the next step is to implement the decision.

5.3. GOAL ACHIEVEMENT

In order for the goal to be achieved, the planner must work with the community in such a way to ensure that the goal is achieved in the best possible way without impediment.

Hersey and Blanchard (1982) based their situational leadership model on four leadership styles: *telling, selling, participating* and *delegating*. These styles focus on combinations of task and relationship behaviour.

The following definitions have been adapted from the Hersey and Blanchard model to reflect a disaster planning perspective.

> *Task behaviour* is the extent to which the disaster planner engages in one way communication, by explaining what each member of the community is to do as well as when, where and how tasks are to be accomplished.

Relationship behaviour is the extent to which the disaster planner engages in two way communication by providing socio-emotional support, encouragement and facilitating behaviour.

Maturity is: (a) the amount of knowledge and experience within the community; and
(b) the willingness and ability of the community to assume responsibility; and
(c) the capacity of the community to set high but realistic goals. This is a measure of achievement motivation and provides the link to a responsible, healthy, self-sufficient community.

It is proposed that the disaster planner in fact operates as a leader amongst followers - the community. It is further proposed that as the community achieves different levels of maturity, the planner must alter his planning approach so as to be as effective as possible. The planner, however, cannot deal with the community as one homogeneous group. The community is made up of individuals with different values and knowledge and thus different priorities. While the planner has to be prepared to engage the community as a whole in the planning process, he must recognize that it contains many self-interest groups and individuals and that not all will be at, or have an interest in, attaining the same level of maturity.

As well, the community is not a static entity. Members leave and enter the community on a continual basis. As knowledge increases or decreases, values are reconsidered, and priorities change. At all times the disaster planner must not just focus on attaining the goals but also on the people for whom the goals are being achieved. He needs to consider not only the forces in himself and in the community, but in the problem itself. The maturity of the community is, therefore, most often linked to the selected goal; and the community may be working on several goals simultaneously.

One group of parents may be concerned about making sure that their children know what to do during an earthquake. A number of residents living near a chemical plant may be concerned about the effects of a toxic chemical leak. Another group may be upset about the plans to develop a housing project on a hazardous land slope. Each of these concerns becomes raised as a problem, and each in order to resolve the problem, goals are set. The achievement of each one of these goals will concern different individuals according to their own priorities, and while these groups cannot be dealt with in an isolated fashion, nor can they be dealt with in the same fashion.

The following matrix examines the structure of leadership styles based on the maturity of community. It is important to understand, however, that depending on the issue, the "community" may in fact only represent one particular group within that community.

The concept of leadership is explicit as part of the planning process. Each of the leadership styles (e.g. selling) are part of the stages in a leadership approach to the community.

The objective of the telling style (located in the bottom right hand corner) is to provide the community with complete and unambiguous directions for task achievement. It presumes an immature community - a community unable to set clear goals, with little knowledge and experience and an unwillingness to assume responsibility. The planner, when working for such a community, should encourage in a friendly, controlled atmosphere. How the planner introduces himself and the initial procedures used will have significant bearing on how the planner is perceived by the community. The

High Relationship Low Task PARTICIPATING	High Relationship High Task SELLING
Low Relationship Low Task DELEGATING	Low Relationship High Task TELLING

Relationship

Behaviour

Task Behaviour

High   Moderate   Low

Maturity of Community
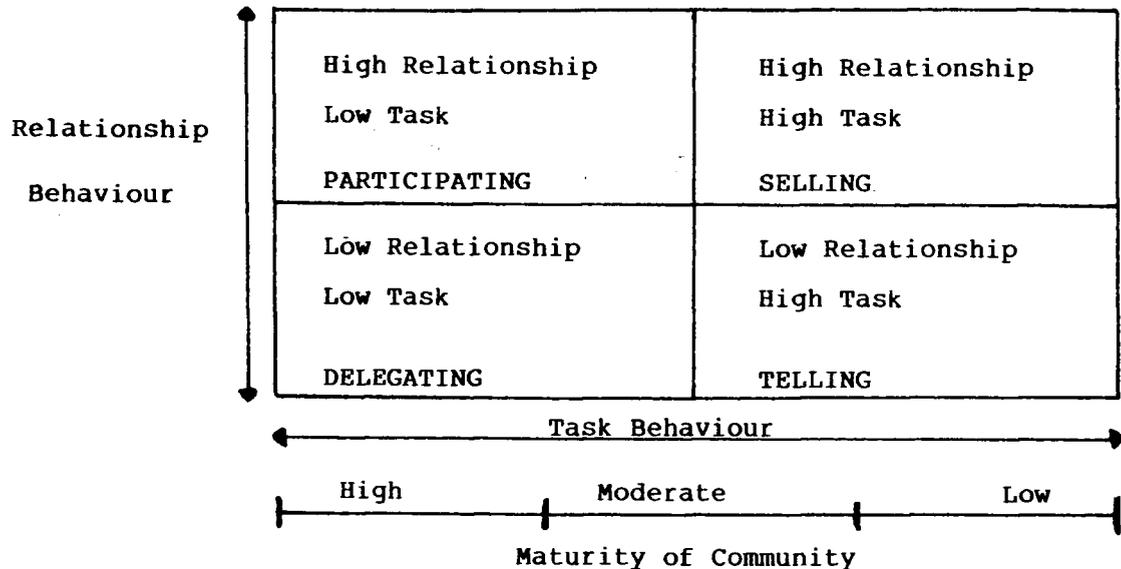
Figure 3. Community Planning Relationships

planner should be enthusiastic and should be clear as to:

(a) what has to be done,
(b) how the achievement of the tasks will be carried out, and
(c) when the task is to be completed.

The intial preparation of an emergency response plan lends itself particularly well to this style. The planner should aim to priorize the tasks so that the goals (or the perceived goals) of the community are satisfied as a direct result of working to achieve the tasks (e.g. saving lives). The intial direction needs to be clear and detailed (e.g. the police responsibilities are...). The planner should use his skill in attention splitting (i.e., dividing concentration amongst groups to maintain an awareness of the progress of various groups/individuals towards task achievement). For example this would ensure that while each response department was working on their own plan, the community at large was being informed of their efforts and each response group was being made

aware of each other's work.

As the community experiences growth through this initial planning project and gains an awareness of the viability of disaster planning and the need for community involvement and participation, the disaster planner should change his approach toward establishing community participation and develop a climate which encourages two-way communication. Here, the planner is interested in gaining commitment from the community toward goals. By seeking comment on decisions, the disaster planner should be able to convince the community that its needs can be better met with continued involvement in the process. The planner is required to psychologically involve the community in achieving goals and also develop its maturity. In the selling quadrant most of the direction is provided by the planner, but the community becomes part of the decision-making process.

For example, by making the community aware of the emergency response plan, members in the community will become more aware of the potential hazards which exist in their community. A number of individuals may become concerned about the transportation of dangerous goods. The planner can introduce these individuals based on their common concern. By supporting the group and assisting them in setting feasible goals, the group will see a benefit in working co-operatively as goals become achieved (e.g. re-routing a truck route from in front of a school).

As the community matures, the disaster planner should move to a participating style. The objective of the style is to more equitably share the process of decision making. The community assumes the role of collaborator rather than follower. It has

gained an awareness of the issues and should be encouraged to use this knowledge to seek acceptable solutions. The planner should actively seek this involvement. As the planner works with the community he adopts the role of facilitator, monitors progress and provides guidance and direction when required. Once the goal has been achieved the planner should reinforce the positive action this required. He should also discuss and conduct with the community an evaluation of the process. This stage is characterized by multi-way communication, shared task achievement and joint evaluation.

In the participating phase, the group concerned about transportation of dangerous goods would have achieved some goals and would have benefited from the positive re-inforcement of the disaster planner. They would be able to identify new problems (e.g. lack of community knowledge around hazardous placarding) as their knowledge base grew, examine their previous successes, adapt their planning processes to incorporate the most successful steps, thus setting new goals. The disaster planner is still needed to provide the support and benefit of his knowledge and experience.

With an involved and highly mature community, the disaster planner can adopt a delegating style so as to provide the community with the maximum opportunity to make decisions and determine the methods of achieving goals. All the planner need do is provide the outline of the problem in sufficient detail to enable its resolution. Any constraints such as time, methodology and standards need to be given. The planner must remain accessible as a resource to the community to overcome any problems which may occur. The planner must also be prepared to discuss the process and ensuing actions.

The disaster planner need only present additional concerns to the group and with their knowledge and interest, he can be confident that they will be mature enough to identify and resolve the problem. The group itself will have no difficulty in identifying additional problems on their own, but one of the tasks of the disaster planner is to ensure that each community group, remains aware of each other's progress and he is also in a position to identify and introduce problems of mutual concern. For example one group of residents may be working on the problem of educating school children regarding earthquakes and another may be looking at educating school children regarding wilderness survival. The disaster planner can bring both groups together in resolving the problem around their common goals.

5.4. LEADERSHIP PLANNING THEORY

This theory then provides a synthesis between goal selection and goal achievement. As seen earlier, the goals are likely to be selected in the area where both the community and the disaster planner are both knowledgeable and where both have given the goal the same priority. The goals selected to resolve immediate problems are those most likely to have the knowledge and priority of the community and the planner. These problems are typified by being reactive in nature (e.g. the river water is rising) and to remain with a reactive approach precludes using anticipatory planning and thus focusing on the prevention of problems in the future, or their mitigation (e.g. moving the residential district out of the flood plain).

5.4.1. Starting the Planning Process

The following figure shows the methods by which the disaster planner and the community can move from a reactive approach to an anticipatory one. It is important to remember that the leadership role of the disaster planner is applicable to planning process and is not intended as a role to be played during the emergency response or rescue phase of a disaster.

Assuming that the the disaster planner is already working for a community, his point of entry into the model would begin with the participating phase. However, if he were to start his employment utilizing this model, he would then be able to skip this entry point and begin at the telling phase.

The participating phase is the area in which many disaster planners are currently situated so let us review the characteristics of this phase. It is defined by a high degree of knowledge with accompanying high values. When planners have been hired, they have expected to work in the areas in which they have high knowledge and upon which they place a high value. Because of the lack of awareness in the community about disaster planning and the potential for becoming involved in the process, the community hires the planner to complete the activities that it associates with disaster planning. As discussed in previous chapters, these activities are centered around creating and maintaining a disaster plan, the function most clearly identified by the planner's background and experience and the community's expectations.

High Task
High Relationship

SELLING

Moderate Information
Moderate Maturity

Low Value

High Value
High Information
High Relationship

PARTICIPATING

Moderate Maturity

Low Task

High Task

TELLING

Low Relationship
Low Information
Low Maturity
Low Value

High Maturity
High Relationship

Value Unknown?

PARTICIPATING

Low Information
Low Task

High Value
High Maturity
High Information

DELEGATING

Low Relationship
Low Task

High Task

PARTICIPATING

Low Relationship
Low Information
Low Maturity
Low Value

Figure 4. Leadership Theory

69
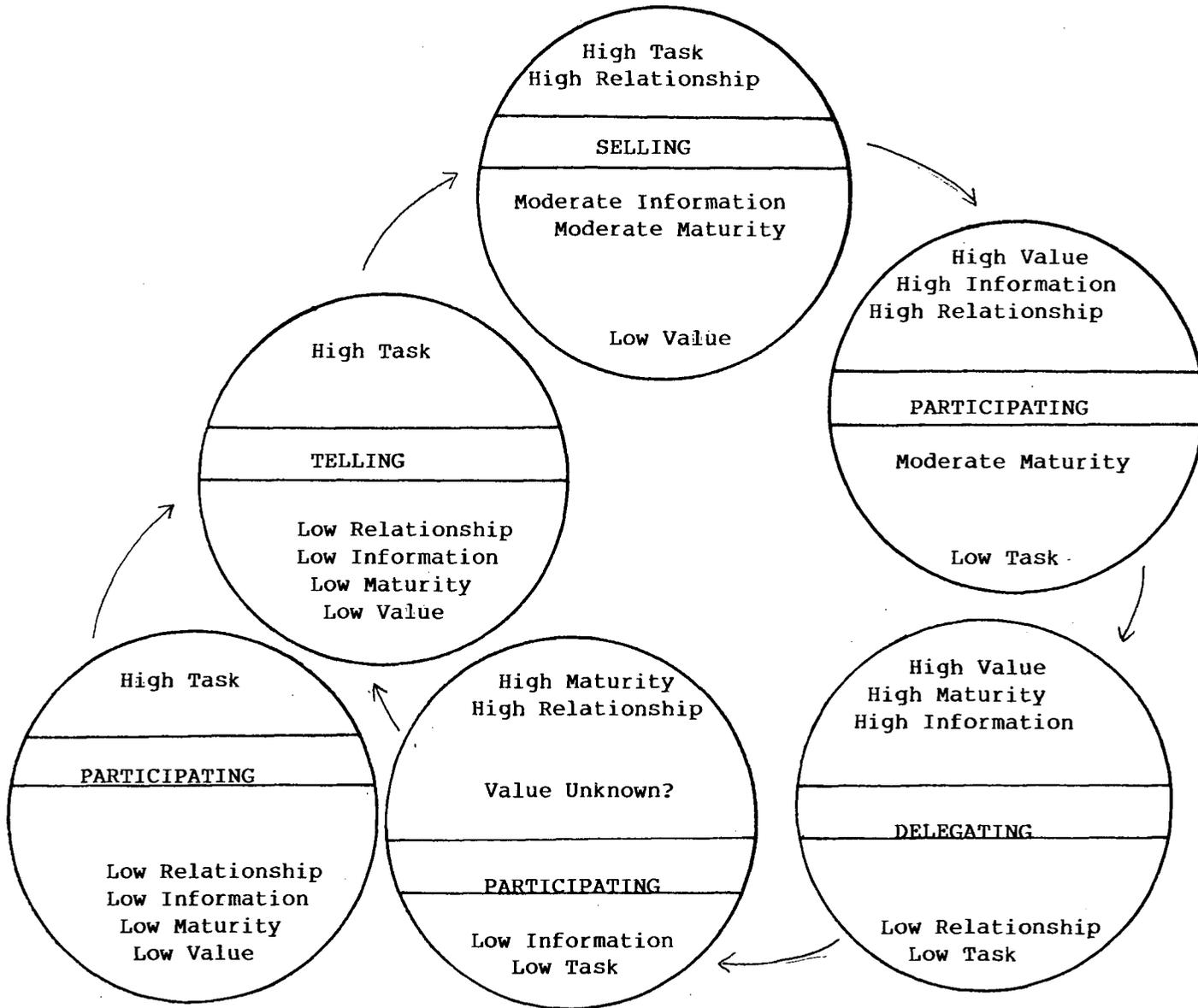
As also discussed, research has shown that planners are often ignorant of the hazards existing in their communities and have little knowledge in the area of hazard assessment or planning processes, and thus put little value on these areas. One of the characteristics of the participating phase is that the majority of members in the community are at the same knowledge level and have placed similiar values on the resolution of the problem. Disaster planners starting off in this phase have not had the opportunity to ensure that this is in fact the case, and for the most part, the reality is that the only ones participating in this process are those who have responsibilities outlined in the plan: members of the various specialized units such as the police. Even then, planners have frequently overrated the importance, or value, that these groups place on their involvement in the emergency response plan.

Because of this limited involvement with the planning process and lack of commitment, these agencies need to be dealt with in low relationship/high task fashion and yet the planner, because of his lack of awareness of his own and the community's level of relationship, is dealing with these agencies in exactly the opposite fashion. The result is as can be predicted: a half hearted acceptance of the plan, a lack of motivation and an unwillingness to engage in simulations and test of the plan.

So the planner remains trapped; unsure of the community needs and direction to follow, he continues to meet with the same agencies, conducts limited exercises, and updates and maintains his emergency plan.

There is no question that a disaster plan has its place in disaster planning, but as previously mentioned, it should serve as a stepping stone in the disaster planning

process and not the end product. Therefore, the disaster planner should continue to work on his plan, the reason he was probably hired in the first place. However, he needs to be aware of the error of assuming that he is operating in a true participatory fashion. He needs to recognize the lack of community awareness and commitment towards the need for disaster planning. He also needs to recognize that designating responsibility to persons and/or agencies does not imply their acceptance of the plan. In order to be able to move towards mitigative planning, he needs to be aware of the deficiencies of starting in middle of the process and he needs to implement a strategy which moves towards the telling style.

5.4.2. The Telling Phase

One of the characteristics of the telling style is that the information level is low, and this would apply to both the community and the disaster planner. The literature and practice would certainly support the fact that the community at large is seriously uninformed regarding exisiting hazards. Furthermore, the community is also unaware of how to go about minimizing the effects of these hazards in order to reduce damage to property and persons. Research would additionally support the fact that the disaster planner needs to update and expand his own knowledge base.

Therefore, as a first step the disaster planner needs to improve his awareness of hazard zones, community planning policies and the significance and consequences of the existence of these hazards in the community. Gathering this information will not be an easy task but the search for this information will lead the planner to explore and develop a new network. Developing an awareness of potential hazards should lead the

planner to consultations with the scientific and academic community. Seeking information on land use and zoning regulations will introduce the disaster planner to the municipal or regional planning departments, traditionally not included in disaster planning. A review of historical material and issues that have previously been raised before council may provide the disaster planner with names of residents who have previously been concerned about emergency preparedness and thus assist him in accessing community based information.

While there may be certain areas where either party is highly knowledgeable, there are sure to be areas of disparity, and because of the low relationship level, neither the areas of disparity nor the areas of congruence are defined.

The collected information then needs to be communicated, in an easily understood fashion to both the residents and to the individuals of the various specialized agencies included in the existing plan. Because of the way in which disaster planning has evolved, most persons involved in the process will most likely place a low value on this information and so the planner is going to have to be creative in order to convey the necessary information without alienating or unduly frightening the public. The goals of this approach are to create an awareness and to start to have the community take responsibility for their future safety and well-being.

The planner also needs to inform the specialist agencies of this accumulated knowledge and needs to take responsibility for establishing a planning process which will clearly identify for each agency the importance of their participation in the plan. They need to understand that their role is not just in accepting responsibility within the

confines of a written plan, but a commitment towards the reduction of risk for themselves, their families and their community.

It is up to the planner to assist the general public, private and public industry and response agencies in beginning to identify the problems and clarify the goals and subsequent priorities. Once persons have at least accepted the process and are becoming more aware of the potential disasters, the planner can move onto the next phase.

5.4.3. The Selling Phase

As the information becomes assimilated by the community, the planner can move on to the selling style. In this area he is now dealing with persons who have at least a moderate understanding of the available information, but knowledge alone is not sufficient to gain community participation. For example, through a series of media presentations the population would become more aware of the probability of earthquakes. Public forums or community information exchange meetings could then be held so that residents can be aware of steps they can take to reduce the chances of being injured during an earthquake. They would also be made aware of current emergency plans and would have an opportunity to contribute suggestions to the plan.

It would be naive to assume that simply making the community at large aware of the benefits of disaster planning is enough to ensure the active participation of its members. However, it is not naive to expect that the sharing of information and preliminary identification of problems will form the beginnings of one or more concerned citizen groups. Those that choose to participate in the process, by the virtue of their

continued involvement, will have gained in maturity. Although the planner is still involved in a high task situation, there now begins the development of a high relationship as well. The value, or importance, placed on the need for disaster planning is still low and thus the planner needs to sell the participants on the need to increase awareness and elevate community concern.

There is no one group or person that can effectively represent all the potential risks to the communities, but there is no reason why limited constituencies can not be developed around specific issues (Petak, 1984). The planner should take pains, as his relationship with both the established agencies and the public evolves, to assist in the development of special interest groups and encourage them to increase knowledge around the issues they perceive as being critical. For example, residents living in flood plain areas should be encouraged to become more aware of the risk of flooding in the near future and steps that can be taken to prevent damage to property.

The creation of public pressure groups will start to force public officials and government administrators to increase funding and support. It is important, though, to also keep the various political decision-makers aware of and involved in the planning process. By sending briefs or abstracts of relevant information to municipal councils or members of parliament, the planner can encourage politicians to take positive steps towards solving identified community concerns.

As the community is able to see the benefits of becoming involved, either through the resolution of identified problems or at the least an acknowledgement or understanding of the problem, they will be more eager and interested to take part in

the disaster planning process.

The planner also needs to sell the benefits of inter-organizational planning and participation in simulated exercises to the agencies involved in providing the initial disaster response. By bringing to their attention some of the disaster research findings around the inadequate communication which exists in most disasters during the intial states, the planner should be able to help increase their understanding of the need for a planned integrated response. As the response agencies become more aware of the limitations of their plans and the importance of their involvement, one can assume that they would become more commited to not only improving on their emergency response plans, but also improving community self-sufficiency.

As the agencies and interested citizens become sold on the concept of disaster planning as part of an on-going process, the planner is able to move into the participating phase. It is important for the planner to devise means of publicizing both the information and the process to those still uninvolved. Over time, participants will leave, and it is up to the disaster planner to ensure that while he is selling one group there is another constituency waiting to be sold.

5.4.4. The Participating Phase

Now the planner can return to the participating phase of the process, but this time he returns with the commitment and understanding of the community with which he has been dealing with and thus has the high relationship necessary to plan in this area. He has also made the effort to increase his own knowledge base on the actual

problems facing the community and has become aware of the community's priorities and needs through their involvement in the planning process.

Individuals in the community will have been made aware of the potential hazards and risks and will have formed constituencies to affect the development of fiscal and management policies of governing bodies. These groups will have formed close links with scientists and researchers in an effort to obtain additional information and the planner will find himself acting more as a facilitator, maximizing the expertise in the community and assisting the community in identifying new problems and setting priorities. The planner will also find an increased need to disseminate information and keep the various components informed as to what each is doing.

An increased willingness to participate in simulated disaster exercises should also lead to improved communication and organizational decision-making on the behalf of the police, fire and other emergency response personnel. As the implications of the exercises become known, industries should be increasingly aware of the potential risks they may inflict upon the community and the planner should encourage them to participate with the specialist agencies and in public forums.

Now the disaster planner can truly function in the role of collaborator. He is able to articulate his own concerns, ensure that each community group is able to identify their own issues and work with them towards achieving their goals. As the goals become achieved, the process picks up on the positive momentum gained and the planner can move on to the next phase.

5.4.5. The Delegating Phase

Now the planner can take a back seat; he no longer needs to run the show. In the delegating phase the community is able to address the issues and remains informed and motivated to work actively towards change. Friedmann and Hudson (1971) stated that true planning is the linkage between knowledge and organized action and at this stage of the process the community becomes its own planner. The level of awareness is high, the priorities are clarified and the citizens are able to take responsibility for acquiring the necessary knowledge and working towards goal resolution.

Organizations are also actively involved in the planning process. Experience continues to increase as exercises are carried out and the results are analysed and improvements are incorporated into the emergency response plan. The community's expertise and participation are also taken into account and encouraged as both work towards destroying the disaster myths and dealing with practical approaches to dealing with an actual disaster. As the community takes more responsibility for ensuring post-impact self-sufficiency, the roles of the emergency responding agencies should start to shift in focus.

The disaster planner is still necessary to the process for a number of reasons. First, he has to ensure that the same level of maturity is maintained and guard against stagnation and entrenchment. An important part of the planning process is to generate as many possible alternatives as possible and groups need to be reminded of the importance of educating and informing those not yet involved in the process. Only by continuing to make an attempt to increase the knowledge base of the actively

involved will the planner be assured of tapping all potential ways of solving presenting problems.

Second, as advocacy groups resolve the identified problems it becomes more and more important not to lose the benefit of the relationships formed and the knowledge gained. The planner must ensure that the process allows for the re-absorption of groups into the overall plan.

The planner acts more as a co-ordinator and a resource to the community as a whole. Information must be shared, interested political officials must be kept aware, evaluations have to conducted and it is up to the planner to ensure that an environment or climate continues to exist so as to allow the community to continue to address potential concerns in a similar fashion.

5.4.6. The Reactive Approach

The above four phases of the leadership model are based on a reactive approach to problems. The problems are identified and the goals are selected following adherence to a good planning process. The goals are achieved in order to be able to diffuse the effect of potential hazards. School children will have been educated as to what to do during an earthquake, citizens will have become aware of basic steps to maintain self-sufficiency during the impact of a disaster and organizations will be able to provide a co-ordinated and efficient emergency response. The planner has not yet been able to move to an anticipatory or mitigative planning approach.

5.4.7. Disaster Mitigation: an Anticipatory Approach

Natural and man-caused hazards have been traditionally addressed in a reactive fashion. When the disaster strikes, then we will do.... Since man cannot adequately control the forces of nature we have to plan for when those forces are unleashed. However, planning can mitigate the effect of uncertainty on the community, thus moving towards the final stage of the leadership planning model. Disaster mitigation is aimed at preventing a negative effect, and in the process of doing so, processes and goals are turned into an action which outweighs the costs of the preventative action. In order to be able to achieve this type of planning the planner must have a high relationship with the community.

> The risks and benefits associated with alternative hazard mitigation approaches should be thoroughly aired in open hearings, while the technical findings contained in hazard assessment reports should be cast in terms that are fully understandable to policy makers and the general public (Petak, 1984:298).

The maturity of the community and organizations has to be very high so as to be able to participate in a process with the planner where the information is scant, the values untested and the goals uncertain. The relationship has to remain high in order for the planner to be able to work with the groups in new directions where the information may not be readily available and the value of the information, once discerned is unknown. There will inevitably be moments of frustration and of paths, following an incremental approach, which will lead nowhere. However, with a firmly commited and motivated community, new ground will be broken, new problems identified and new priorities set.

Disaster mitigation is a step that disaster planners and communities are just starting to explore. One of the few and best examples is the case study of Soldiers Grove in Wisconsin (1983). While this study does not follow the model in the sense of working through the reactive phases, its mitigative approach is valuable in demonstrating the potential of using an anticipatory approach.

5.4.8. Soldiers Grove: a Case Study of a Mitigative Approach

Soldiers Grove was a small agriculturally based town of 514 people in the 1970s. It was economically deprived, partially due to the same factors affecting other similarly based towns all over North America, and to a greater extent, as the result of repeated wide-spread and destructive flooding. The town was built in a floodplain long before the clearance of upriver land by loggers and farmers increased surface runoff and silt build up, thus resulting in a pattern of flooding. The intial response was as expected, agencies stepped in to assist the residents in cleaning up and rebuilding. The U.S. Army Corps of Engineers was given the task of solving the problem.

The U.S. Corps, a specialist agency, did not follow a planning process which involved the community and this approach obviously narrowed its alternatives. "First, they saw rivers as adversaries,...second, they saw floods not as a people problem, but a river problem...third, flooding was not an environmental problem but an engineering problem..." (Becker, 1983:1). Following this line of reasoning led to the development of dams and levees to control future flooding, but this attempt in the case of Soldiers Grove was unsuccessful. Government policy dictated that the cost of the dams and levees was federally funded; however, the maintenance costs were to be borne by the

beneficiaries - the towns and villages. Following another devastating flood the U.S. Corps presented the town with the projected costs of maintaining a new dam/levee project. The cost was going to be double the current annual tax revenue. The town rebelled. To a town where out-migration exceeded in-migration, the doubling of taxes was sounding the death knell. There had to be another solution.

The Village Board hired a planner...not a disaster planner, but a community planning specialist, Tom Hirsch. His first step was to complete a survey to find out what the townspeople understood about the situation and what their feelings were. One of the possible alternatives that emerged was to relocate the business area of town which was located in the centre of the floodplain area. Rather than attempt to respond to flooding by designing emergency plans and detailing SOPs for agencies, the planner assisted the town in mitigating the effects of the flood by removing the source of potential damage. Following this approach was not without considerable difficulty. It was compounded by the worst flood ever to hit the town, occurring in midst of the planning process, in 1978.

The Governor of Wisconsin and disaster relief agencies immediately stepped in to offer the traditional disaster assistance programs of grants and low interest loans in order to enable the community to rebuild the damaged buildings. However, the town had done its homework, and eventually the various agencies involved were educated as to the nature of the problem and the costs and benefits associated with the different alternatives. After a considerable amount of selling, the Wisconsin Department of Natural Resources finally awarded the first grant to the community in order to begin its relocation project. This was a milestone in disaster planning, the first time in

American history that such a proposal was accepted and funded. The town of Soldiers Grove, with the help of Hirsch, proceeded to implement its relocation plan over the next five years.

The Village Board passed new building code standards which included a mandate for solar heating in order to cut energy costs. It also developed new zoning bylaws, provided amenities for disadvantaged citizens (i.e., accessibility to commercial buildings for the handicapped) and created a new park in the old commercial part of town.

By 1983, the population was showing a sustained increase for the first time in decades and 64.5 permanent jobs were created by additional commercial ventures attracted to the new commercial site. While by no means could one state that Soldiers Grove was on its way to becoming a boom town, the future certainly would seem to be much improved (also based on a personal interview with Tom Hirsch, Community Planner, in Madison, Wisconsin in 1988).

5.4.9. Planning: an Ongoing Process

This case study serves as an excellent example of the potential to be derived from the adoption of a mitigative or anticipatory approach by the disaster planner. As the planner works with a mature community to develop new goals based on an increased data base and new values, the planner returns back to the telling phase. The planner must now work at communicating the information to the uninformed and uninterested. He must develop a relationship with them, whether they be individual residents or government officials, in order to be able to sell them on the established

goals. Once these are accomplished, the planner moves through the participating and delegating phases ready to discover the next problem and prevent its reoccurence.

5.5. ADVANTAGES OF LEADERSHIP PLANNING

The major factor which the theories discussed in the previous chapter fail to address is one of time. While one can determine the particular point in time in which a decision is made, the planning process evolves over time, and during this time knowledge is increased, values are formed or reconsidered, priorities are established and the players change. Both the goals selected and the goals achieved are subject to review and evaluation, and results of both the planning and evaluative process become part of the relationship behaviour between the planner and the community with which he works.

Leadership planning theory presents both a philosophical approach towards the selection of goals and process by which to achieve them.

Planners plan for people, and this theory considers the community to have an instrumental role in the planning process. Accepting this approach necessitates community participation throughout all phases of planning and the model demonstrates the means by which the planner can serve as a leader to assist the community to solve presenting or immediate problems and to move from this reactive approach to an anticipatory one.

5.6. SUMMARY

This chapter first dealt with the issue of problem identification: determining when and how a problem is perceived. We were able to see that a problem is perceived to exist as a result of one's knowledge and one's values. Since individuals have different knowledge and different values, disagreement will exist as to what is a problem and when and how it should be resolved. By viewing the planner and the community as two separate entities we can see how neither will identify the same issues.

Leadership planning theory incorporates the concept of goal selection as a synthesis of knowledge and values leading to priorization of goal achievement. The disaster planner, as a leader, must work with the community to assist it to acknowledge the existing problems and then work towards resolving them in some order of importance.

It is in working with the community towards the search for solutions that the planner's leadership skills are critical. By recognizing the importance of the relationship between the planner and the community and capitalizing on this relationship and the community's maturity, the planner is able to lead the community to increasing levels of participation. By doing so, the planner increases both his and the community's awareness and knowledge and thus affects the community's values and priorities.

Through the ordering and re-ordering of these priorities the community becomes increasingly able to take responsibility for its problems and work towards their resolution. The planner is able to move from a reactive approach to an anticipatory or

mitigative one. It is only by resolving the problems of tomorrow before they become the problems of today that we can hope to view our existence as an opportunity to meet the challenges of the future.

As discussed, the use of the leadership planning theory allows the emergency planner to take a philosophical and practical approach towards disaster mitigation. Disaster planners, today, are for the most part already committed and commissioned to work on emergency response plans, and this theory allows for them to continue in this task, while also moving towards a community oriented approach. By recognizing the lack of common knowledge and values, the planner is able to start to move towards the telling phase of the process.

The philosophical intent of working with the community is underlined in the approach that the planner is directed towards. By working at improving his own knowledge of the community while increasing community awareness, the planner is able to develop his relationship with community. As the community becomes aware of potential hazards and existing plans, the planner moves into a selling role. Although the overall community may become concerned about the lack of co-ordinated and practical response, since the planner is dealing with a pluralistic society he can take advantage of this to create special interest groups. It is in this area that the leadership planning theory is able to deal with incongruent goals.

This planning theory also now starts to deal with the issues of imperfect knowledge and uncertainty that the organizational and comprehensive planning theories address poorly. At this point, the community is still developing the skills, interest and

knowledge with which to actually participate. Through participation, knowledge is gained and priorities are re-structured. This theory, as opposed to the more traditional theories, encourages the change of goals and values as part of the ongoing process rather than as the end of the process.

As the community gains in maturity the various special interest groups are able to take responsibility for their own planning and problem resolution. However, the advocacy groups are not disbanded upon completion of their goals, but re-absorped into the process to utilize their expertise and capitalize on their common experience. However, possibly the leadership planning theory's greatest contribution towards a successful planning process is its ability to adapt to changes in time. It acknowledges and addresses the fact that with the passage of time the knowledge base increases, the participants change and new goals are set.

It provides the planner with a place to start within the process, a means by which to change roles as the community progresses through the stages, to move into anticipatory planning and then continue to allow for the development of new goals and priorities within the same planning process. By following this approach the planner and the community continue to receive positive re-inforcement for their actions and are truly in a position to reduce the risk of potential hazards to the community.

The next chapter will provide the disaster planner with concrete suggestions on how to develop a planning process which incorporates the leadership planning theory as a model for avoiding some of the mistakes made to date.

6. IMPLEMENTATION OF A DISASTER PLANNING PROCESS

For a model to be used it must be able to synthesize theoretical perspectives with practical considerations. This chapter is intended to be used as a handbook or manual for disaster planners: a means of begining the planning process and implementing the leadership planning theory as described in the previous chapter. This chapter begins by summarizing the critique developed in Chapter Two: problems existing in disaster planning practice today. The second and major part of this chapter is an annotated check-list of the steps that the disaster planner can take to avoid committing these same errors. The chapter then concludes with a brief summary.

The implementation of leadership planning theory in the area of disaster planning is a novel application to current practice. Parallels in practice, if they do exist, are unknown in the literature. The nature of the planning problem is such that field testing is undesired, except for partial and expensive testing in the form of exercises, and such exercises are far beyond the scope of this thesis. Translating the critique and theory developed in the first four chapters into a check-list form will, it is hoped, help disaster planners in the field to assess the merits of the theory and adapt it to their own practice. This concluding chapter begins with a summary of the critique that has been developed, and ends with a summary of conclusions and suggestions for further research. Between these is the major part of the chapter, a handbook-style annotated check-list implementation of a disaster planning theory.

6.1. CURRENT PROBLEMS IN DISASTER PLANNING

One of the first identifiable problems has been to develop a disaster management plan. Although the production of an actual emergency response plan is important, the disaster planning *process* is more important than the *product*. Disaster planners have traditionally looked at their role as one of producing an emergency plan in consultation with a select few, and have ignored the community at large. As a first step, therefore, it is important for the disaster planner to involve the community right from the start and to develop a disaster plan which includes such participation at all stages.

One of the weaknesses of existing practice is the failure of disaster planners to develop their own knowledge base regarding their community and its resources. Therefore, the next step is to develop a community data base. It is important to identify existing community resources, both financial and personal, and then to *use* them in the planning process. It is also important to take into account past research and avoid an overdependence on the personal experiences of other disaster planners.

Disaster planners in the past have failed to conduct thorough hazard and risk analyses. Research at the community level is essential in determining the existing hazards. A hazard assessment, followed by a risk analysis should be one of the first steps taken. How can the planner start to develop a plan without knowing the risks faced by the community?

The exclusion of organizations and community members from the disaster planning process has led to a situation whereby even the selected specialist agencies

included in the plan have not made a commitment to the process - the pulling out and dusting off of the plan just in time for the annual review. Organizations can not be exempt from the process and there is a need for them to be educated and sold on the concept of participation in order to have their commitment in the development of a disaster plan. Once this is obtained, then work can begin on an emergency response plan, a plan developed to reduce the impact or consequences of hazards which are facing the community.

Traditionally, disaster planners have included a small section on warnings, and have devoted 90% of their plan on the post-impact and rescue phase. Once the population has been rescued, the plan stops. An emergency response plan must provide a plan for all of the stages of response; from the warning phase, through to the impact, post-impact, and rescue phases, and conclude with the recovery and reconstruction or renewal phases.

As well, the para-military doctrine has often led to disaster plans being made available only to the higher ranking officials, sometimes on a "need to know" basis. The first response agencies have to be made to understand that the value of an emergency response plan is negated unless *all* participants required to function under the plan are informed of the general plan and are trained in their particular responsibilities.

Research has indicated that plans are seldom exercised. When this is done, it usually only involves one or two agencies, and often only includes EOC participants in a table-top level exercise. Since no community is faced with major disasters on a

regular basis, the only way in which an emergency response plan can be evaluated is through simulation exercises. These exercises should involve all first-response agencies and all levels within these agencies. The public should also be part of the exercise, and the planner should use this participation as a means of creating public awareness.

There would appear to be general acceptance that disaster planning is not perceived to be a profession in same way that community planning is recognized. Added public awareness, created by participation in the disaster planning process, will also lead to a higher profile for disaster planning. Public pressure and advocacy planning are instrumental in increasing government funding and political representatives must be encouraged to examine the way in which personnel and resources are allocated to disaster management.

The time for acceptance of the existing myths in disaster planning is past, and politicians will have to be educated to realize that knowledge empowers people and does not induce panic. In wide-spread disasters organized first response agencies will be *unable* to meet the emergency needs of the community and the public must be taught the principles of self-sufficiency and the error of depending on "the government" to meet their needs. Every citizen has a responsibility to mitigate the risks of living in their chosen community.

The concept of mitigation is a critical one in planning for disasters. Communities can continue to plan for existing hazards or they can start to anticipate the risks and plan for the reduction of hazards and associated risks.

The next section of this chapter provides the reader with some practical and concrete steps that can be taken in order to avoid the identified problems and implement the solutions.

6.2. DISASTER MANAGEMENT: A PLANNER'S HANDBOOK

6.2.1. Clarify your goals

It is important to keep in mind the reasons why you are in the business of disaster managment. The goals can be neatly summarized as follows:

Preserve life

Reduce suffering

Evaluate the incident

Protect property

Anticipate and mitigate

Recovery and renewal

Evaluate the response

First and foremost is clearly the need to save as many lives as possible and to reduce the suffering of the injured. Once the people are looked after, both already damaged and undamaged property have to be protected, and the emergency response plan is designed to address these needs following the impact of a disaster.

As soon as the immediate needs, in terms of people and property have been met, the next step is to plan for the recovery phase, or the attempt to stabilize or operationalize. Once the situation has stabilized, then communities can start to look to the future and plan for reconstruction or renewal.

By evaluating our response to the disaster we can benefit from our mistakes and pass on our successes to other communities so as to assist them in their planning efforts. Prior to being faced with a disaster we can exercise our plan and evaluate our response to a simulated disaster in order to better prepare ourselves.

But, in order to develop a response plan, one must anticipate the possible hazards and accompanying risks by completing an analysis. One way of mitigating the consequences of a disaster is to develop a response plan, providing education and training to the community is another. Another mitigative approach is to focus on the elimination or reduction of the actual hazards and accompanying risks.

The first step is to develop a planning process.

6.2.2. Form an Emergency Planning Committee

6.2.2.1. Establish the Responsibilities

The responsibility of the planning committee is to co-ordinate, monitor, evaluate and assist in the development of a Disaster Management Plan.

In order to be able to accomplish this objective, the planning committee will need to form at least five sub-committees. Ideally, different persons would sit on each committee, but in a small community members may well have to double up and share tasks. The five sub-committees should cover:

Hazard and Risk Analysis;

Emergency Response;

Exercise Design and Evaluation;

Education and Training; and

Mitigation.

6.2.2.2. Choose the Membership

The members of your Planning Committee should primarily come from community based agencies and organizations.

a. This committee should definitely include at least one member from one of the first-response agencies, but it is important to avoid a duplication of the Emergency Operations Centre personnel.

b. It should include a member of the local municipal council; creating political awareness begins at this level.

c. This committee should also include a member from the academic community, interested in adult education and capable of attracting funding and researchers in the area of disaster research.

d. An interested participant should be recruited from private industry. Industrial associations involved in industrial processes which have the potential to add to community risks, or the Chamber of Commerce or Board of Trade could be asked to nominate a representative. Regular reporting back by the delegate from this group will have the added benefit of increasing community awareness.

e. Applications from the community should be requested. Selection should be based on interest, previous community involvement, respect of other community members and exposure to existing resources.

f. A member of the municipal planning department should be invited to sit on the committee as well. It should be a person who has some history with the community, is knowledgeable regarding land use planning and is aware of the long term planning goals of the municipality.

g. The City Manager or representative from the City Clerk's Office would also be a useful addition to the committee since they will be aware of current issues before Council, budgets and programs.

6.2.2.3. Using Leadership Planning Theory

Planning for disasters is a complex task and there are a number of areas which should be addressed at the Planning Committee level (Siegel, 1985). The disaster planner, in the telling stage, should try to ensure that the Planning Committee members have a thorough understanding and awareness in the following areas.

a. The existing legislation and regulations governing disaster planning in the community. Members should be aware of the legislation which empowers them to plan for disasters, and they should be aware of the roles and responsibilities of each of the three levels of government.

If adjoining municipalities have emergency plans, clearly they should be

examined for both information and for the potential impact on the municipality being planned for. It is also important for the Planning Committee to be aware of any emergency plans which might exist at the federal or provincial level.

b. The roles and responsibilities of each of the five sub-committees. It is important that each sub-committee keeps on track and completes its assigned task, however; it is critical that they share information and work together towards the development of an over-all plan.

c. The existing resources in the community. Although it is not important for the Planning Committee members to be aware of specific types and numbers of resources available to the community, they should have an overall awareness of current and future resources available to them. Areas that the disaster planner may wish to include are: municipal departments and programs; computer systems; staffing levels; media; community organizations; research institutions and existing studies or plans. It is important for members to know where to go should they, or sub-committee members, need to obtain additional information (e.g. municipal lawyer, city engineer).

d. Various work plan analysis techniques Although each sub-committee can function independently of the other, in many cases, the product of one sub-committee is dependent upon the results of another (e.g. the emergency response committee needs to know what types of hazards they should be planning for). If the planning committee is aware of work plan techniques they can ensure that each sub-committee is working on the appropriate task at the right time.

e. The current budget available for disaster planning and sources of additional funds (e.g. JEPP funds). Although many of the committee and sub-committee members have a job description which includes planning for disasters, consideration should be given to covering costs for volunteers.

Providing education and training will also mean additional costs for the hiring of trainers and facilities. First responders, when working on their emergency response plans may see the need for communications equipment, etc.. As well, exercises will also add to disaster planning costs.

f. The existing official community plans. It is important for the planning committee members to be aware of how the community is planning for its future. New subdivisions, development permits for increased industrial zoning, multiple-family highrises and park space are all subjects which will have an impact on disaster planning in the community.

It is also important for the community to be aware of the community plans

for surrounding municipalities. If an adjoining municipality is planning for a hazardous waste site, it would most likely have implications for the municipality currently being planned for.

g. The political climate. It is important for members of the planning committee to be aware of governmental priorities. While no one would welcome a disaster, when one does occur, whether locally or overseas, it is also an opportunity. By taking advantage of the media's coverage and the public's heightened awareness of the situation, committee members can use the situation to pressure politicians for additional resources.

As the committee begins to absorb information about the community and begins to understand its role, the disaster planner moves into the selling phase. Once the committee members are sold on the concept and the need to be involved in the process, the planner can move to a participatory role. With time and experience, the planner can then shift to a delegating position and then on to the anticipatory phase of planning. This relationship will have to be repeated with each of the sub-committees.

6.2.3. Complete a Hazard Assessment and Risk Analysis

The first step in disaster planning is knowing what to plan for. It is important to know what the hazards or threats to the community are. A hazard is considered to be anything which either threatens the residents or the things that they value. The risks are the probabilities of an activity or activities leading to a consequence which has a negative impact on the community (Kasperson and Pijawka, 1985).

Most disaster plans have included some sort of hazard description. The simplest form is simply to list the hazards that one thinks may occur. This can be dangerous, as hazards such as tornados have been left out of the emergency response plan simply because no one could remember one occurring. At one end of the scale is a simple list of hazards, at the other end is a comprehensive hazard and risk analysis. The difference between the two can be thousands of dollars. It makes common sense to include members on the Hazards and Risk Analysis Sub-Committee who have some technical and research expertise and can help other members interpret the results, if not assist in the actual analysis.

A quick review of known possible hazards such as transportation of dangerous goods routes, chemical production plants, and weather conditions could suggest participation of a member of the transportation industry, a chemical industry representative and a meterologist. Students, from universities or local colleges, who are specializing in applicable fields could also serve as valuable sub-committee members.

Therefore, possible sub-committee members could be:

*geographer;

*community planner;

*public health official;

*engineer;

*environmentalist;

*chemist;

*meterologist;

*military representative;

*citizen;

*member of Chemical Industries Association; and

*firefighter.

6.2.3.1. Internal Hazards

The first step is to examine potential hazards exisiting within the municipality. If one is planning for a particularly facility or for a particular agency, the principle is the same. Most hazards can be broken down into three categories: natural hazards (e.g. windstorms, earthquakes, forest fires); man-caused hazards (e.g. toxic chemical spills, aircraft crashes, oil spills); and social hazards (e.g. riots, war, strikes). The search for, and inclusion of specific hazards, is generally dictated by budget, information and time available.

6.2.3.2. External Hazards

The next step is to examine what hazards exist in surrounding communities. When developing a hazard and risk analysis for a specific facility such as an airport, it is critical to also consider what hazards the surrounding municipality is preparing for. If the airport is only planning for aircraft crashes and bomb threats and not planning for the potential earthquake or flood that the municipality is planning for, obviously, planning will be incomplete. This step can be more difficult and time-consuming because other municipalities may not have taken this planning step and the information may not be readily available.

As well, even if your community is untouched by the potential hazards of a neighbouring community, it may have an important role in serving as a resource both during the rescue phase and as a receiving community, accepting injured and homeless residents.

6.2.3.3. Risk Analysis

As soon as potential hazards have been identified, the committee members need to look at the probability of risk. This step can be a simple process or a considerably more difficult one. For example, if a historical perspective makes it clear that the community encounters a major flood every ten years, it would be reasonable to conclude that the risk of flooding in next ten years is very high. However, steps may have already been taken to lessen the chances of another flood. A dam or dikes may have been built to better control flooding. Are these steps adequate or have circumstances and the environment changed since they were erected? These are the types of questions that one must ask.

When the risk is high, and the hazard has the potential for devasting effects, obviously planning for this potential disaster becomes a priority. However, it may be possible to eliminate the hazard and thus negate the need to plan for an emergency response dealing with this particular situation. For more information in this area, the reader should turn to the section on mitigation in this chapter.

In a growing community and as technology becomes more developed, risk analysis is a never-ending process; and yet at a fairly early stage the priorities begin to emerge. The next step is to then plan the emergency response, the process which mitigates the consequences of potential hazards in the community.

6.2.4. Develop an Emergency Response Plan

As mentioned, the Emergency Response plan, in the past, has concentrated on only two specific areas: post-impact and rescue. A proper Emergency Response Plan needs to look at all phases:

*Warning

*Impact

*Immediate Post-Impact

*Rescue

*Recovery

*Reconstruction and Renewal

Depending upon the size of the community, the Emergency Response Sub-Committee may wish to allocate specific phases to sub-committees or they may wish to deal with it as one sub-committee.

Each organization with a specific responsibility in the response phase will also need their own plan (i.e., the police will need to develop a police plan; the fire department will have to develop a firefighting plan, etc.). The role of the emergency response committee is to co-ordinate each of the plans so that they neither duplicate efforts, nor leave out the provision of necessary services. The sub-committee also has a role in facilitating inter-agency communication. As well, this sub-committee is charged with the responsibility for ensuring that the planning for each phase of the emergency response plan blends in with the following phase.

Members for the Emergency Response Sub-Committee should include a representative from:

*Police;

*Fire;

*Ambulance;

*Hospitals;

*Public Works or City Engineering;

*Emergency Social Services (feeding, clothing, financial services, shelter, personal counselling, volunteers);

*City Planning;

*Media;

*Transportation;

*Communications;

*Provincial Emergency Program;

*Search and Rescue;

*Researcher;

*Community Resident; and

*Local Government.

This list already includes fifteen people, and as the more members included, the more difficult the committee becomes to manage. There are, of course a great many other persons who will need to be contacted and involved in the planning process (e.g. Coroner, Military, Aviation Safety Board), but these persons and agencies can be contacted, where appropriate, by the either the agencies involved in their own sub-plan (e.g. police), or during the planning for specific phases (i.e., Environment Canada could be brought in when planning for the Warning phase).

6.2.4.1. Warning

The warning phase bridges the gap between uncertainty and reality. There may be the opportunity for a long warning period prior to the potential impact (e.g. drought). In other cases the warning phase may be short, but be sufficient to adequately protect the community (e.g. tornado). Again, in other situations, the warning period may be non-existent or completely inadequate to provide any protection (e.g. earthquake).

Who needs to know?

Why do they need to know?

What do they need to know?

How will they find out?

Those are the key questions which must be answered in the warning phase of an emergency plan. It is important to remember that the warning needs to go out to several different sets of people, and for different reasons.

a. The First Line Responders

Emergency responders such as police, fire and ambulance need to be informed as soon as possible of an impending disaster. The longer the lead time the greater the opportunity to contact all the personnel who will be needed according to the plan. It will also give people a chance to set up an Emergency Operations Centre (EOC) and prepare themselves for the situation once the impact has occurred.

b. The Community

The public have to be notified so that they can prepare themselves as well. It is not sufficient to be able to warn the community, they have to also know what steps to take to protect themselves and their property. At this stage of the planning process, there will be a strong link with the sub-committee involved in Education and Training. Community response to a warning can include going to basements, battening down windows, or if necessary (e.g. tsunami) evacuating the area.

c. The Front-Line Responders

The front-line responders may or may not be the same personnel as the emergency responders or first line responders, depending on the situation. For example, if the threat was a rising river, front-line responders could be involved in sand-bagging the banks; while a municipal fire department would be involved in a situation where a forest fire was threatening a community, the front-line responders may well consist of external forest-fighting crews.

It is important to allow, when time and other factors permit, a means of attacking or mitigating the threat of a hazard, as opposed to simply dealing with the impact once it strikes.

d. The Politicians

It is also important to ensure that politicians are informed. Decisions will have to be made, and many will have political ramifications. It is far better, when possible, to have politicians informed and prepared before the fact, than afterwards.

Communicating the warning is a logistics problem. The committee members need to carefully examine what communications systems exist, how they can be accessed, and who they can and cannot reach. Issues such as loss of power, loss of telephone lines, and inter-agency communication links need to be considered.

6.2.4.2. Impact

Depending on the disaster, there may be little or no warning or there may be considerable warning of the impact. Similarly, the impact may last for a very short time (e.g. ground shaking lasting 30 seconds) or may last for an extended amount of time (e.g. drought). In either case, the major concern is to *survive*, and then to survive with the least amount of loss.

The ability to survive is a combination of preparedness and individual capacity and capability. The role of the committee is to ensure that the community is as prepared as possible when the impact occurs, again needing good communication with the Education and Training Sub-Committee.

6.2.4.3. Immediate Post-Impact

The immediate post-impact phase is usually very brief. It is a period of assessment and inventory, a time for determining:

What happened?

Where did it occur?

Who did it impact?

What was the extent of the impact?

What resources are necessary?

How are those resources obtained?

When there has been no warning, in many cases, the preceding questions are not answered for some time. It is during this time of assessment that the decision to "implement the plan" is usually made or not made.

The sub-committee members can develop a plan, or checklist, of items to consider during the immediate post-impact phase.

a. The first concern is one of personal safety - Am I safe? First responders in the field also need to ask if others who are following behind or alongside them will be safe?

For the residents, the first concern will be the same. Next, people will turn to those around them. If at home they will check to make sure that family and then neighbours are safe. If at work, they will check on co-workers. If on the street, people will first check on those in the immediate area.

b. Awareness of areas at risk will assist in determining the areas of impact. Research has shown, for example, that trailer parks are hardest hit by tornadoes. An immediate post-impact check-list of sites to check, if in the path of a tornado, would be a useful tool.

c. Extent of injured needs to be determined as soon as possible. There are numerous cases where the emergency responders exceeded the casualities by the hundreds. An awareness, for example, that 90 times out of 100, an aircraft crash involving a plane carrying 150 passengers, and landing on a non-inhabited area, will only have an average of 23 injured and that only 5 will be priority one patients (Jessen,1985), is useful in assessing the number of ambulances needed at the scene (the plane crash may involve a considerable number of deaths, but those who are already dead do not require immediate attention). Aside from the emotional confusion which arises, the confusion at the site may make it very difficult for anyone to assess the situation accurately, but, through training, having at least a starting point is helpful and avoids the call for mass attendance.

d. Communications. During the assessment process, as information becomes clarified, it then becomes critical to communicate this information. Command staff need to know to implement the plan and

to open an EOC. First-responders need to know to attend the area of impact. The public, and the media, need to know so that they can keep away from the area and not create a even greater problem. Existing communication networks need to be known, and if insufficient to meet the needs, should be improved upon.

e. Command and control. As soon as the area or areas of impact become known, control of the site needs to be established. The post-impact plan should allow for initial first responders to assume control until relieved by higher ranking officials or until the person in charge of the rescue phase arrives on scene. As well, control needs to be established at the EOC and a communication link needs to be developed between the EOC and the Emergency Site Manager (ESM).

This phase very quickly moves into the next phase, the rescue phase.

6.2.4.4. Rescue: First Responders

The rescue phase is the one most first responders are familiar with. Each first response agency needs to develop a plan that incorporates: a fan-out system, control and command and a communications plan. The rescue plan should address:

Who is involved?

Who is in charge?

What are their responsibilities?

Sub-Committee members should ensure that each agency's plan meshes with the others, and that all aim towards maximizing efficiency by taking into account allocation and distribution of resources.

a. Fan-Out

Speed is of the essence. Most fan-out systems rely on the telephone system and experience shows us that if the telephone network is still functioning following impact, within twenty minutes the system

will be rendered unusable due to saturation. Line load control can be used so as to keep certain lines open, but one can not necessarily depend on the phone system to be operational. Use of the media, motorcycle clubs and agencies with independent radio systems (e.g. taxi company) could be considered as back-up systems.

In many cases the need for assistance becomes rapidly apparent to the public and thus in many disasters, first responders simply show up without being called. Arranging reporting places for first responders when they have not been specifically called may assist in preventing an over-response to the situation and may also assist in the quick compilation of available personnel resources.

b. Control and Command

Control of the situation is important in order to prevent confusion and ensure a prompt, efficient rescue. Control implies an ability to contain the situation and responders need to be aware that two factors will make complete control impossible: mass assault and mass convergence. Mass assault is defined as the attempt of a group of persons to assist one another and solve the immediate problems; mass convergence occurs when people (e.g. the media, sightseers), commodities and equipment arrive at the site (Siegel, 1985).

While first-aid on the scene, by co-survivors, can save lives mass assault can also result in a mal-distribution of resources. The rescue phase is too late to avoid these problems, education and training of the community at large is the best means of helping survivors provide an as efficient as possible rescue until first responders can arrive on scene.

However, many of the problems of mass convergence can be addressed in the emergency response plan. Arrival of the media can be expected, sometimes sooner than the first responders. Involving the media in the planning process, ensuring that a media communications centre is quickly set up and that a public relations officer is attached to the centre will help to avoid some of the interference that the media can cause. It is critical that the media have access to as much information as possible, as soon as possible and that it be accurate. Emergency response plans should also provide for the arrival of the international media. Small, local media personnel can quickly be

surpassed both in technology and in numbers by the arrival of the international press.

Relief assistance may also arrive, unasked for and, at times, unneeded. Search and Rescue teams (SAR), publicly collected clothing and medical supplies may suddenly arrive. By anticipating these arrivals in a widespread disaster, the EOC can take steps to avoid the problems before they occur (e.g. ensure that public wanting to help survivors donate cash, not clothes; that links are set up with External Affairs and Customs and Immigration so as to prevent the arrival of unwanted helpers and speed up the arrival of needed equipment).

It is also important to consider the control of resources apart from those needed at the immediate site. Rescuers will need to be housed and fed and for disasters requiring an extended rescue period, an emergency response plan should include a plan for reserving necessary resources such as hotel rooms, transportation (e.g. helicopters), and communcations (e.g. pay phones). If these arrangements are not provided for in the plan, outsiders such as the media, will quickly charter every available means of transportation and book every available hotel room.

Establishing command will be easier than establishing control. The response plan should clearly denote which agency is in command (i.e., who gives the orders) at the site, and which agency is in command at the EOC. Command should be allocated to positions, not persons, and every position with a command function should have, preferably, at least two back-up or deputy positions. Obviously, in a small community, this will be impractical and members may have to be the back-up to each other. Members of the EOC should include:

*Police;

*Fire;

*Emergency Health Services;

*Public Works or Engineering;

*Emergency Social Services;

*Emergency Disaster Planner;

*Provincial Emergency Planner; and

*any other person necessary to facilitate an effective response.

c. Communications

Communication is vital in establishing command and control. If orders can not be communicated and if facts can not be made available the best rescue plan in the world will not work. Not only does communication about the disaster have to be made available to the outside world, but the personnel directly involved in the rescue attempt have to be able to communicate both inter- and intra-agency. Police, fire, and public works have to be able to exchange information with each other. Ambulance drivers need to be able to inform hospitals of arriving patients. The Emergency Site Manager must be able to contact the EOC, and the EOC must be able to reach the necessary political authorities (e.g. mayor, PEP) and specialized resources (e.g., CANUTEC, Military).

As people are rescued, the first questions which come to mind are how many deaths, how many injured and how many have survived? In a major disaster, various organizations and agencies will each have parts of the answer. The hospitals may have records of those treated but many may have been treated in field hospitals. Temporary morgues may also have been set up. SAR volunteers may have access to numbers of those rescued or believed to still be in buildings. It is important when planning for communications to build in to the plan the ability to collect, validate and disseminate information regarding casualities.

6.2.4.5. Rescue: Secondary Responders

Secondary responders are those not usually involved in the actual physical rescue and treatment of the injured or in the control of the site. They are, however, involved in providing for the uninjured or mobile survivors (e.g. Emergency Social Services), in the investigation of the incident (e.g. Aviation Safety Board), research, and in providing for the needs of the rescuers or first-responders (e.g. Critical Stress Debriefing). Many emergency response plans, while providing for Emergency Social Services to some degree, fail to address the other areas. The actual issues to be discussed are similar to those discussed under the preceding section.

a. Fan-Out Systems

Secondary responders also need to have a fan-out system. Reaching members in emergency social services, for example, can be more of a problem than reaching police officers. Since there is no one agency providing this service, a fan-out system will need to reach numerous agencies.

b. Communications

Communications is also a major problem. Unlike the police and fire departments, most volunteer or social service organizations do not have an internal communications system (e.g. portable radios) and are, therefore, dependent upon other organizations such as Amateur Radio to provide internal and external communication. While first responders are concentrated in and around the disaster site, secondary responders are located in many different areas, thus adding to the communication requirements.

c. Command and Control

Although the problem of command and control is not perceived in the same light, secondary response agencies have to have clearly defined roles and responsibilities. Different agency structures with differing levels of hierarchy make it difficult, unless, carefully planned, to be clear as to who is responsible for the provision of what service. There is greater susceptibility for the blurring of roles in emergency social services than between ambulance drivers and firefighters.

Specialist secondary responders such as researchers or inspections personnel often have difficulty in obtaining recognition of their status and their right to be in particular locations. First responders may question their presence, perceiving the service to be unnecessary or unimportant, or simply interfering. For example, the need for critical stress debriefing is still not universally accepted as a crucial service to the first line responsders.

An effective and integrated emergency response plan provides for both the immediate rescue of people and the transition from rescue to recovery for the helpers and the survivors.

6.2.4.6. Recovery

This is usually where emergency planning ends. Once the rescue is over, the plan stops. However, disaster planners are starting to realize that unless recovery plans are made, the post-rescue phase can generate, in some cases, an even greater problem than the actual impact itself.

As soon as the rescue phase is over, or in the case of a prolonged rescue period even while it continues, the first priority, or the short term recovery phase, is to determine how to get essential services restored to the community. The long term recovery phase concerns the planning for reconstruction, or planning for the future.

This is a new area for emergency planners and they can benefit from the business resumption plans which are being developed to assist businesses such as banks or other financial institutions recover from a fire or other major crisis (Coleman, 1988).

As the community moves from a rescue phase to a recovery phase the issue of command and control becomes important. As the first and secondary responders wind down their operations, the priorities of the community are no longer the ones that the existing EOC is best able to deal with. The Response Sub-Committee needs to arrange for a Recovery Planning Team to gradually assume control of the recovery process and provide direction to the community.

Possible members for a Recovery Planning Team would be a:

*representative of an EOC First Response agency;

*member of the Professional Engineers Association;

*staff member of the Social Planning Dept.;

*local politician;

*representative of the Housing Commission or CMHC;

*staff member of the Community Planning Dept.;

*member of the local School Board;

*representative from the Insurance Agents Association;

*member of the Chamber of Commerce;

*citizen from a local service group;

*representative from the Building Contractors Association;

*staff member from Public Health;

*representative from the Banking or Financial Services Association; and

*representative from the Law Society.

This planning team will be responsible for implementing the Community Recovery Plan.

A. Community Resumption Plan

In the short term, in order for a community to function, to provide essential services to its population, three main questions need to be addressed:

What is damaged?

What is essential?

How can it be maintained?

The first step is, therefore, to conduct a damage and casualty assessment. The issue is two-fold, what information is needed and who is going to do the assessment?

a. Casuality Assessement

As mentioned in the rescue phase, there will be an immediate need to provide numbers of injured, dead and survivors. This information may need to be collected, sorted and validated over a long period of time. The recovery plan needs to provide a means

of data collection and information sharing between the various agencies and the facts released through the EOC.

b. Resource Availability

The next question to address is the degree of subsistence available for the injured and uninjured. People have to have food, water and clothing. Of the three, potable water is the most critical. Depending upon the degree of damage provision of food, in the short term, is not usually a major problem. Disposal of waste and rotting or contaminated food may be more of a problem and should be provided for in the Resumption Plan.

Clothing is also, depending upon the climate, not usually a major concern in the short term. One of the first steps that communities who are not involved in the disaster take is to hold a clothing drive for survivors. The Resumption Plan should provide a means of quickly determining the need for clothing and be prepared to issue bulletins requesting clothing only if absolutely necessary as the arrival of donated and used clothing can be more of a hinderance than a help.

c. Building Damage Assessment

Is there adequate shelter to protect survivors from the environment? What structures are safe? The recovery plan needs to provide for building inspectors or engineers who can quickly verify whether or not critical facilities are safe. If the plan is able to target key locations and assessors know ahead of time what areas they should tackle first, much time will be saved. Awareness of the need to assess the condition of water reservoirs, large supermarkets, prisons, large housing projects and local reception centres is also important.

d. First and Secondary Responders

Also to be addressed are the requirements of the relief providers. How are the first responders and secondary responders coping emotionally? It is important to ensure that once the rescue phase is over personnel are not kept working around the clock and that they are given adequate rest breaks.

What is the status of existing medical services - what is the ability of the community to provide medical assistance to the injured and to meet the normal needs of a community (e.g. births, heart attacks, etc.)? A recovery plan should provide for supportive mental health programs for the rescuers, as well as for

the community at large. While engineers are needed to assess the structural damage to hospitals, additional personnel are required to check the hospital equipment and to determine the staffing levels.

e. Lifeline Systems

Of equal concern is the condition of existing lifeline engineering systems: electricity, water, sewerage, roads, bridges, railroads and airports. What communication lifelines are operational (e.g. telephone, radio, television, telecommunications)? The recovery plan should include means of contacting major utility companies and municipal public works departments for damage reports. Structural engineers will be required to check for the safety of bridges and access ramps, and the recovery plan should provide for access to these professionals and a priorized list of sites to be checked.

f. Community Services and Business Operations

Of additional concern is the status of existing community services and systems: is the educational system operational? Are the major industrial and commercial employers able to continue operations? The recovery plan should provide a list of school personnel who can determine the safety of school buildings and the availability of teaching staff to operate the schools. As well, the Chamber of Commerce or other business organizations need to be made aware of the need to be able to quickly determine what businesses are or are not functioning. If the recovery plan provides for these organizations to collect the necessary information and then to make it available to those involved in the recovery process, again, much time will be saved.

Once the information is collected and the recovery planning team have a damage and casualty report, the next step is to determine what are the essential services. Obviously the provision of potable water would be considered to be more important than the operational level of an department store. However, if the recovery plan can identify as part of the plan the structures or services with the highest priority, then as the assessment reports are received, the recovery planners can quickly arrange for the allocation of resources for repair, either on a temporary or more permanent basis.

It is important for the Resumption Plan to include lists of materials and personnel which would be critical to the repair or return to service of identified priorities. Not only do the potential resources

have to be identified, but the means of accessing or transporting them and the means of providing for payment, where necessary. The Recovery Planning Commitee needs to carefully review the risks identified by the Hazards and Risk Analysis Committee and ensure that the necessary resources are identified in order to repair predictable damage.

Once the short-term recovery needs are met the focus needs to turn towards the developing a recovery planning process to bridge the gap between community stablization and reconstruction or renewal.

B. Long-Term Recovery

A Long-Term Recovery Plan needs to provide for the collection of all of the data available on the impact of the disaster, and then to use this information to determine the goals for recovery and eventual reconstruction. There is no smooth transition from the short-term or Community Resumption Plan to the Long-Term Plan, but until the community has the time to develop its plans for reconstruction there has to be a plan to assist the community.

a. Demolition and Debris Removal

If the disaster has caused heavy property damage one of the first questions that home-owners will want to address is should they demolish their home or attempt to re-build. Insurers will be very involved in this process and the plan should provide for communication between insurance agents, home-owners and public works. The plan should also provide a means of providing the the public with lists of legitmate contractors able to complete the necessary work and to try to avoid fly-by-night contractors arriving in the community and taking advantage of those already under stress.

Once the decision to demolish has been made, especially if the damaged areas include commercial or industrial zones, the debris will have to be taken to a landfill or dump site. If these areas have already be decided upon in the plan, time will be saved.

b. Relocation of Temporary Housing

If large residential areas have been affected, residents will need to be provided with temporary housing. Temporary housing meets a

different need than the provision of emergency or short-term housing. Depending upon the degree of damage, residents may have to live in temporary housing for many months. Temporary housing needs may be met by the provision of trailers, pre-fabricated homes or quick contruction of residential units. A recovery plan which has determined possible sites, unlikely to be affected by existing hazards, will reduce confusion and assist in re-establishing some sense of control.

c. Relocation of Temporary Commercial and Industrial areas;

Large commercial or industrial areas may have also been destroyed. A recovery plan should examine these areas which are of particular risk and, pending a reconstruction plan, should provide for the relocation of commercial businesses. Not only are stores necessary for the provision of food and supplies to the residential community, but putting people back to work is also a necessity to assist in the economic recovery.

When identifying sites for commercial operations one should consider their proximity to sites for temporary housing. Relocation of industrial sites is much more difficult because of infrastructure requirements and access to resources. Great care should be taken to consider community reconstruction plans before permitting industries to relocate.

d. Temporary Retro-fitting of Existing Damaged Buildings

Owners of damaged building may wish to make immediate repairs to their buildings so as to allow for occupancy. It is important to distinguish in the Reconsruction Plan the areas which may not be suitable for permanent retro-fitting. Areas which may be subject to further risk, should be identified as such so as to prevent owners from making expensive repairs and then have new land-use plans make the repairs redundant.

Depending on the damage to residential facilities, and the type of disaster, it may be useful for the plan to have available temporary retro-fitting procedures and potential sources of the necessary equipment to complete the work.

e. Long-term Emotional Health Support Programs

Research has identified the need to provide on-going emotional support for survivors and for first and secondary responders. A recovery plan should have addressed how this program is going to operate. There may well be the need for a specialized crisis line,

support groups, specialized psychological services and outreach programs. The plan should determine who is going to provide these services and how the services are going to be provided to the community.

Many persons feel that reaching for emotional assistance is a sign of weakness, and when designing such a program these concerns need to be sensitively addressed. Avoidance of terms such as "mental health", "psychological services" and other medically oriented words needs to be kept in mind.

f. On-going Research and Evaluation

There is a great need to learn from actual disasters when they do occur. Although a good planning process will reduce the consequence of impact, it will never eliminate it. The lessons learned from emergency responses to disasters can be useful not only to the community faced with the situation but to other communities which may encounter the same hazard in the future. Immediately after a disaster is a time of confusion and if the Recovery Plan can identify research participants prior to a disaster, the research team will be better prepared and quicker to begin collection of data.

g. Economic Recovery

Disasters usually have devasting effects on the economy. Insurance payments may be insufficient to allow for resumption of businesses and rebuilding of homes. Depending upon the degree of damage, many persons may find themselves without a job or means of financial support. Families may suddenly find their savings wiped out. Large numbers of claimants for U.I.C., W.C.B., C.P.P benefits may put an enormous strain on remaining systems.

An economic recovery plan should examine the adequacy of funds such as disaster aid, insurance, low-interest personal and business bank loans. Depending upon the degree of risk, communities may wish to establish an emergency reserve fund that would be available to residents to supplement their own resources.

Communication should be made with Insurers and federal and provincial departments to plan for the surge of applications for financial relief following a disaster. If LRC locations and the need for phone lines, resources, etc. are established ahead of time the community may be served much more efficiently.

The Committee should explore means by which the municipal, provincial and federal governments could promote and stimulate

private and public economic recovery following a disaster.

The recovery period is the start of a process of attempting to return to normal or to the way things were. When not possible, it is a time of stabilization while long-term reconstruction plans can be finalized. The level of damage, area affected and probability of future risk will all determine the direction to be taken in the next phase.

6.2.4.7. Reconstruction and Renewal

Reconstruction and Renewal Planning begins during the recovery phase, and in the case of a catastrophic event, may take a lifetime or longer to reach completion. It can be a period of simply rebuilding what once was, or an opportunity for reflection and renewal; an opportunity to create a city or town that provides a higher quality of life than previously existed.

Disaster planners are just beginning to explore the issues that need to be addressed in a Reconstruction Plan. They include such issues as land use revisions, hazard mitigation, infrastructure development, preservation of historical sites, redevelopment projects, future development and public education.

Two key questions have to be addressed.

a. Identification of Hazardous Sites

Hazard and risk analysis reports can assist in identifying areas of the community which are particularly subject to a high degree of risk. Some of these areas may be older, poorer sections of town while others may be newer, wealthier areas built on slopes or near waterfront. Reconstruction planning should take into account these factors and should provide the basis for a contingency plan - if these areas were devastated by a disaster what would we want to do?

During the planning process, the discussions surrounding this issue will assist in deciding whether or not residents or businesses would be encouraged to rebuild to relocate.

b. Community Planning Processes in time of Renewal

Usually the processes in place to deal with requests for development permits, changes to land use and by-law revisions require municipal councils to meet stringent procedures. Frequently there are lengthy periods of time between initial proposals and final readings, public meetings and debates. While necessary, and useful, in times of normal operations, following a major disaster they may be totally inadequate.

As well, following a disaster, people are often confused and under a great deal of stress. There is a tendency, on many occasions, to have the planners make many decisions for the sake of expediency. The community often reacts extremely negatively to such planning tactics, needing to feel part of the process and to regain some control over their disrupted lives.

What legislative and legal changes should be made so as to facilitate the planning process following a major disaster? How can redevelopment proposals be expedited without excluding public participation? How can communities start to develop contingency plans now instead of waiting for after a disaster? "If I could start again I would....".

A disaster always has severe social impacts. We know from research that immediately following a disaster the community pulls together; we also know that this positive momentum is often lost during the recovery and reconstruction phases. In part, the ability of the community to survive, and to view the situation as an opportunity for positive change is dependant on the degree of preparedness and participation. Exercising the plan is a necessary part of testing the effectiveness of the emergency response plan and helping the community prepare.

6.2.5. Develop an Emergency Exercise Plan

It is important that the members of the sub-committee who are designing the means by which to evaluate the response plan be different than those who have written the plan. Since the purpose of the exercise is to reinforce the positive and indicate the weaknesses of the plan, one can not expect the authors of the plan to also be aware of the weaknesses of the same plan. By having different individuals design the exercise they may generate some new or additional problems that were not initially thought of.

Members should include representation from the organizations represented in the Emergency Response Sub-Committee. Experts in particular fields can be brought in as consultants for specific incidents.

It is important for members to remember that while an exercise is a test of the actual plan, the purpose is not to embarrass or show up participants. The main purpose of an exercise is to uncover weaknesses and provide constructive criticism while supporting the process and rewarding positive activity. Persons should not be exercised until they have developed a plan and been trained to respond to the plan. There is no purpose gained in having the untrained surprised by an exercise, all that that will accomplish is to ensure that no-one will want to participate next time round. It is important to be aware of the training plan as determined by the Education and Training Sub-Committee.

An additional purpose of exercises is to maintain interest and awareness. It is difficult, especially when dealing with volunteers, to keep people interested in planning for disasters when they never happen. Exercises are an excellent way to make sure that participants remain interested and trained without experiencing the horror of a real situation.

Exercises should follow a progressive route.

6.2.5.1. Fan-Out Exercises

Once persons have been recruited and while their training is being established, a fan-out plan should be developed. A good first step for the Exercise Committee is to arrange for a fan-out exercise. The goal of the exercise is to establish communication with response agencies and their participants. The first exercise may just involve obtaining phone contact with the members of the EOC and their deputies. The next exercise can involve the next level of staffing, such as supervisors. Eventually, a fan-out exercise can test for contact with all particpants required in case of a major disaster.

Exercises can be planned for different times of day and different times of the year. It can be expanded from telephone contact only to include arrival at designated meeting places. These exercises provide a good way for people to get to talk to each other, identify communication gaps, check for correct address/phone information and maintain interest and awareness.

6.2.5.2. Table-Top Exercises

A table-top exercise usually involves presenting a simulated disaster situation to a number of persons who then sit around a table and make decisions to resolve the problem. Table-top exercises are useful exercises at the EOC or ESM level. They enable those in command positions to work with others with similar command responsibilities and review the impact of top level decisions on their own and other response areas.

Table-top exercises also help to bring a sense of reality into the planning process, a test of the way in which roles and responsibilities have been allocated. They are a good means of evaluating the gaps in the response plan. It is important to present realistic scenarios and increase the level of difficulty of response over time. Meetings with the Hazards and Risk Committee will be necessary to ensure that the exercises test responses to existing community hazards. They also provide a good forum for the interaction of inter-agency emergency response personnel.

While these types of exercises are generally used for response situations, they can also be adapted to be used as a forum for planning. A scenario can be described and presented to the group, and once the general situation is understood, specific problems can be posed and discussed.

6.2.5.3. Minor Exercises

Minor exercises involve the actual physical acting out of a simulated disaster by one or two agencies or regarding one specific target area. For example, an ambulance service may wish to test its response to a bus crash involving a number of injured, and the subsequent transportation of these simulated casualities to a local hospital. Although, they may wish to involve a few police officers to assist in traffic control, the main object is the test the ambulance response (e.g. did the dispatching procedures work, was triage organized, were the ambulances able to leave the site in an efficient manner, were the hospitals notified of the number of injured, etc.).

A minor exercise may involve several agencies but focus on one particular topic. For example, inter-agency communications during a disaster

may be one area which warrants a specific exercise. Agencies may wish to choose a disaster site and then exercise their ability to set communication links between the EOC and the site, between the various first responders and between the first and secondary response agencies.

Minor exercises are a good way of testing an individual plan and building intra-agency co-operativeness and awareness. Unfortunately all too many exercise plans never move past this point. It is seen as too expensive or too time consuming to involve all of the necessary agencies in an exercise. But, it is only through a major exercise that the gaps in service delivery become evident and that first line responders get an opportunity to work together.

6.2.5.4. Major Exercises

Major exercises are, therefore, an extremely important part of emergency planning and should be conducted once all parties are trained. They can also serve as a lever to bring lagging agencies on board. Conducting a major exercise involves a tremendous amount of planning. It is important to ensure that: all the plans are tested in a realistic fashion; the safety of all participants is maintained and a thorough evaluation is conducted.

The results of the evaluation need to be then directed to the other committees so that their specific plans can be altered to overcome the identified problems. It is important that the evaluation be produced in such a fashion that the positive results are commended and that the areas to be developed are received in a constructive fashion, and not a critical one.

6.2.6. Develop a Community Education and Training Plan

It is as important for the participants with specific responsibilities in the plan to be educated and trained as it is for the community's residents. Members of this sub-committee may include:

*an adult educator, (training in distance education would be beneficial);

*a member of the local School Board;

*a member of the News Broadcasters Association;

*a member of the Press Association;

*a representative from the Police Community Safety Program;

*a representative from a local Cable Company;

*a representative of the Fire Dept;

*a citizen from a Neighbourhood Watch or similar organization;

*a local politician; and

*a member of a local First-Aid Organization.

This Sub-Committee needs to work very closely with the members of all of the other committees and needs to focus its training and education efforts on three main groups:

6.2.6.1. First Responders

First-responders need to be made aware, first of all, of the plan and their role and responsibilities under the plan. While many first-responders, during a disaster, appear to perform the same tasks that they do in their day-to-day work, it is a fallacy to believe that this is in fact the case. Many will perform duties they have never encountered before and regardless of the task, the emotional impact will be considerable

First responders need to be educated as to the differences between crises and disasters, and then on the existing hazards and risks in their community. At this point, the necessity of having an emergency response plan should be understood. Once that concept is perceived, the commitment to understand the plan and one's responsibilities contained in the plan should be enhanced.

Awareness of the exercise plan will also maintain awareness and interest of the planning process and the procedures to be followed. As has been previously mentioned, it is crucial that all persons expected to perform specific tasks during a disaster be aware of the plan and not just the supervisory or administrative personnel.

As well, it is important to ensure that the families of first responders are educated as to the potential hazards and how to best be prepared. If, when involved in providing rescue services, the first responder is confident that his family is as prepared as possible, it will help alleviate the feelings of guilt of not being able to be at home.

6.2.6.2. Secondary Responders

Whereas the involvement of first responders is usually time limited, the secondary responders can be employed throughout the rescue and then the recovery phases. Many are volunteers and will be expected to perform tasks they will never complete except in the case of a disaster. Specialists such as critical stress debriefing teams, even though trained in a particular discipline, will be also be performing unfamiliar functions and in unfamiliar settings.

The problems of maintaining volunteer participation and individual competency are much greater than the problems encountered by first response agencies. The Education and Training Sub-Committee will have to ensure that the basic training programs they develop also stimulate interest and enthusiasm.

As well, both the secondary responders and the first responders will need to understand each others' roles and the need for both services to be provided. Secondary responders may also need training in communication skills and stress management.

6.2.6.3. The Community

Responders will be unable to meet the needs of the community during a disaster, and it is critical that the Education and Training Sub-Committee also concern itself with the community.

Developing community awareness is the first step towards education. Citizen participation at the planning committee level begins to establish the links with grass root organizations and residential neighbourhoods. The main problem facing the Sub-Committee is two-fold: how to expand that participation and increase awareness and advocacy for greater political responsibility and allocation of resources; and establishing community self-sufficiency.

Again, the Sub-Committee will have to work closely with the Hazards and Risk Sub-Committee. The principles involved in informing the first and secondary responders are the same, however; informing the community also

has an added dimension. The community, like the responders, needs to be aware of potential hazards so as to best prepare themselves and their homes should the disaster occur. However, the community is also in an excellent position to lobby for the reduction of hazards. Educational programs need to motivate citizens to take responsibility for their environment.

Community preparedness, via understanding of warning systems, steps to take during impact (e.g. earthquake drills), first-aid and CPR training, and general survival skills will reduce the demands on rescuers and increase survival. The Sub-Committee will need to ensure maximum exposure to survival and rescue training to all ages (e.g. pre-schoolers through to seniors) and to diverse groups (e.g. individual home owners and service organizations).

Special needs groups can suffer greater losses than ordinary citizens and special training is necessary for seniors and physically or mentally handicapped persons.

Finally, the community has to learn to improve its response to a disaster by participating in exercises. Not only will this assist the first responders in developing a more efficient plan, but people will increase their own ability to survive.

An educated community aware of potential hazards and versed in self-survival skills will have completed the phases of reactive planning and will now be in a position to anticipate the consequences of these threats and advocate for the mitigation of hazards and potential impacts.

6.2.7. Anticipate and Mitigate

The Mitigation Sub-Committee needs to examine the hazards and associated risks as they are made available by the Hazards Sub-Committee. Rather than simply passing on the hazards to the Emergency Response Sub-Committee to devise a plan for coping with the potential impacts, the Mitigation Sub-Committee needs to review the findings and determine how best to strategize a response. Both community and political awareness and understanding are essential in establishing an effective strategy.

Possible members for the committee are a:

*local politician;

*citizen member of an active social organization;

*community planner;

*representative from the Law Society;

*researcher

*environmentalist

*representative from the Chamber of Commerce;

*representative from the Insurance Agents Association;

*community development worker; and

*a member of a first response agency.

This Sub-Committee will have to examine the impact of potential hazards on existing and future development and populations. They should be addressing how the social, environmental, political and economic impacts can be reduced, and in doing so can consider at least four possible strategies.

6.2.7.1. Eliminate the Hazard

All too often emergency planners are quick to add additional sections to an existing emergency response plan in order to assist first responders deal with a particular threat. In some cases, depending upon the risk and potential impact, a far better course of action would be to eliminate the hazard. Some hazards such as earthquakes and tornados can not be eliminated. However, hazards such as toxic waste depots can be relocated and transportation of dangerous goods can be re-routed. It may be far more practical and cost efficient to eliminate the hazard than plan to deal with its impact.

It is important to look at both existing hazards and the community's potential for attracting or developing further hazards. The Sub-Committee should be very active and aware in exploring the potential risk to the community of proposed hazardous activities or sites. The cost to the community for planning and adequately responding should be reviewed and publicized. The decision on whether or not to accept the risk should include public participation.

6.2.7.2. Reduce the Risk

In some cases it may not be possible or practical to eliminate the hazard but it may be possible to reduce the risk of a disaster occuring. It may be impossible to move an airport or change incoming flight paths, but it is possible to be aware of existing standards and the steps being taken to reduce the risk of aircraft crashes. Where the standards are not being adhered to, or where the standards seem inadequate, the Committee should ensure that the community is made aware of the situation and should lobby for political support.

In many cases it is only after a disaster in another community or country that people come to be concerned about their own community. The important concept for committee members to keep in mind is that of anticipation: anticipate the risk, examine the standards for risk reduction and determine the adequacy of the standards and the enforcement of those standards.

6.2.7.3. Reduce the Consequences

If the hazard cannot be eliminated and once the risks have been reduced to acceptable levels, then there are two steps one can take in order to reduce the consequences: mitigate the impact and prepare a response.

For example, if it is impossible to re-route a dangerous goods transportation route, it may be possible to move critical facilities adjacent to the route. Similarly, application of development permits should be reviewed. While it may be in a community's best interest to allow for construction of a chemical plant, when approving the permit, the community should be confident that should there be a chemical leak, critical environmental areas would not be affected. Likewise, if the community is in a tornado area they may wish to consider banning trailer parks due to the severity of impacts on such sites.

As conscientious as the community may be, there will always be hazards which can not be eliminated, and in order to mitigate the impact the community is going to have to develop an emergency response plan.

6.2.7.4. Spread the Risk

Spreading the risk is usually an expression associated with insurance companies. To avoid suffering a law suit or having to make large financial

payouts; individuals, businesses and muncipalities usually take out insurance policies. Banks usually require that home-owners take out fire insurance, they have not been as insistent that home-owners take out earthquake or flood insurance. Often the cost of such coverage is a motivating factor for preventative measures. Businesses have long been aware of the reductions on insurance premiums when they install burglar alarm systems. Perhaps it is time for the community and insurance companies to look at the cost benefits in retro-fitting buildings for earthquakes, flood proofing homes, etc. and the effect this would have on insurance premiums and a community's financial obligations after a disaster.

Another approach to spreading the risk is to increase participation in the planning process. After a disaster, especially if it is a man-caused disaster, there is a tendency to want to attach blame. Whose fault is it? The more people involved in the process the more difficult it is to allocate blame and the more people will have to assume responsibility for their own community.

Although the Mitigation Sub-Committee can begin to meet as soon as some of the community hazards become established, in order to mobilize a community response, awareness and education will be a critical part of the process.

This area, more than any other, moves emergency planning into the political arena. It pushes disaster planners into, what for many, may be an uncomfortable forum. But for disaster management to be taken seriously, both as a profession and as a resposibility, disaster planners are going to have to take a more proactive approach.

6.3. SUMMARY OF THE PLANNING PROCESS

As we have seen, disaster planning is a process that begins at the community level by creating a planning committee and evolves over time to a never-ending cycle of educating, evaluating, modifying and re-evaluating. The key is following the concepts of Leadership Planning Theory, establishing the goals and generating a planning process to enable achievement of those goals.

The disaster planner must first educate himself as to the goals of disaster management and then establish a Planning Committee. The committee must be informed as to their responsibilities during the planning process and educated in terms of existing legislation, resources and constraints. It will be up to this committee to insure that each sub-committee follows a similar planning process and moves towards meeting its goals.

The Hazards and Risk Sub-Committee must determine the potential hazards and risks to the community and educate the other committee members as to the internal and external threats. The Emergency Response Sub-Committee will need to tailor its plan to reducing the consequences of potential threats by examining the possible courses of action throughout the warning, impact, post-impact, rescue, recovery and reconstruction phases.

The Emergency Exercise Sub-Committee will need to assess the risks and through a gradual process, test existing plans for response with wide-spread agency and community participation. The Education and Training Sub-Committee will be critical in

ensuring that participants have been adequately informed and prepared for the exercises and, should it happen, a true disaster. Through increased awareness, advocacy groups should be motivated to increase political responsibility and funding. A politically aware and motivated community can then start to take an anticipatory or mitigative approach to disaster planning. The Mitigation Committee can examine the potential of eliminating the hazards, reducing the risks and consequences and spreading the responsibility.

The conclusion will provide a summary of the information presented, the arguments discussed and suggested solutions. It will conclude with areas for further research and study.

SUMMARY AND CONCLUSIONS

1. THE HISTORICAL OVERVIEW

Disaster planners today have based their approach to planning on their background and experience which for the most part is attributable to a para-military doctrine. The beginnings of disaster planning orginated with the perceived need to protect Canadian soil from its enemies during World War II. At that time, the emphasis was quite naturally focused on preparedness for war and war-associated disasters. Over the years, as the world continued to develop technology in the search for better and cheaper goods and as the population increased and continued to develop virgin lands, the concern gradually shifted to one of dealing with natural hazards such as earthquakes or man-caused hazards such as toxic chemical spills.

Although the orientation shifted, the methodology and ideology remained with the military approach. This has resulted in disaster planners today producing and maintaining written emergency response plans, with numerous SOPs and annexes.

2. PROBLEMS IN CURRENT DISASTER PLANNING PRACTICE

The para-military doctrine has also led to a lack of community participation and thus a lack of community preparedness. The focus has been on planning for rather than with the community. This same lack of commitment and awareness has been reflected in the degree of participation of first responders or specialist agencies.

Unwillingness to commit resources, to participate in a planning process and to exercise emergency response plans are all indicators of the failure to engage in a planning process.

The lack of appreciation by the general public and the politicians for the profession of disaster planners is due, in part, to the failure of disaster planners to take the steps to educate themselves and the community regarding potential hazards and risks. The results of such a planning approach have been researched and are clearly indicated: less effective rescue operations, poor communication and lack of co-ordination. The unprepared community takes longer to recover and begin the process of reconstruction.

3. THE SEARCH FOR SOLUTIONS

Three bodies of literature were examined for their applicability to disaster planning. Disaster planning literature focused mainly on the impact of disasters and principles to incorporate in developing an emergency plan as opposed to providing the professional with a theoretical base. While organizational development literature was able to make contributions in the area of problem solving and decision making, it lacked the depth to deal with multiple goal selection and uncertainty.

The exploration of existing traditional planning theories generated the major share of the discussion. The five main groups of theory, presented under the heuristic rubic of SITAR, each had a contribution to make to current practice while also presenting certain limitations. The synoptic or comprehensive approach is the approach most used

by disaster planners in devising emergency plans and yet it is also the approach the least able to deal with uncertainty and new information.

The incremental approach, dependent upon a sound base and previous experience is of little help to communities without a disaster sub-culture. Transactive planning also fails to provide a firm foundation for communities without direct disaster experience. The theory has difficulty dealing with changing technology and community priorities. The advocacy planning approach is useful in generating public awareness and as an avenue for change but fails to add to existing knowledge bases and is dependent upon conflict. While radical planning often occurs spontaneously following impact, it fails to provide for efficient co-ordination and distribution of resources during rescue and recovery.

Christensen pairs various theoretical approaches with varying situations, thus providing for flexibility. However, her approach still fails to provide a means for adapting to changing goals and it fails to provide the planner with a process by which to adapt to variable situations.

A theory should provide for changes to knowledge, changes to values and a re-ordering of priorities. The problem was to develop an approach which provided for movement from reactive planning to anticipatory planning.

4. LEADERSHIP PLANNING THEORY

Leadership planning theory introduces a philosophical concept towards the selection of goals and a planning process by which to achieve them. Community participation in

all stages of disaster management planning is considered essential to ensure adequate preparedness, and in order to faciliate movement from goal selection to achievement the planner is the one to assume a leadership role.

It was shown that problem identification is determined by one's knowledge and one's values. Since members of the community will identify different problems and place different values on the resolution of those problems, a disaster planning process needs to provide a means of priorizing problems and solutions. The disaster planner, by recognizing the importance of the relationship between himself and the community, can by changing his leadership style bring about increased community preparedness and willingness to accept and assume responsibility for emergency planning.

As the community develops its knowledge base over time and as priorities change, the community can move from a reactive approach to disaster planning to an anticipatory one. Before one can plan a response one has to anticipate the threat. Before one can anticipate the threat one has to be aware of the risks. Since current disaster planning practice is focused on the production of emergency response plans, the leadership planning theory provides for continued work in this direction while also moving towards an community based approach which encompasses all phases of a disaster planning process beginning with hazard and risk analysis and ending with the concept of mitigation.

The leadership planning theory builds on the relationship between the disaster planner and the community - moving from a telling or information phase, through a selling and participatory phase, to one of delegating and finally to an anticipatory

planning approach. By using this theoretical approach both the planner and the community can start to take responsibility for ensuring a safer and better prepared community.

5. A DISASTER PLANNER'S HANDBOOK

Emergency preparedness is in need of a theoretical perspective, but a theory needs to be put to practice. This section outlines a step-by-step review and discussion of the means by which the disaster planner can utilize leadership planning theory so as to avoid some of the current problems in practice today.

The handbook assists the planner in determining the main goals of disaster management and then establishing a planning committee to oversee the process. The handbook then defines the five main areas of disaster management: hazard and risk analysis; emergency response; emergency exercise; education and training; and mitigation. Each of these areas needs to follow a planning process which incoporates citizen participation, and the handbook suggests possible members for each sub-committee. Within each management area, there are a number of factors to be considered and while the list provided is by no means exhaustive it does cover the main issues to be addressed.

It is hoped that by understanding the philosophical perspective and by providing the practical tools by which to implement such an approach, the disaster planner and the community will be better prepared for the disaster no one ever thinks will happen.

6. AREAS FOR FUTURE RESEARCH

One obvious area for study would be a case study based on the application of leadership planning theory. Positive outcomes of a disaster management plan could be determined and selected from current research. A comparative case study could then be conducted, examining the numbers of positive planning outcomes in a community which follows current planning practice and in a community after it was involved in a planning process which incorporated leadership planning theory.

The basis for another interesting comparison emerged from the discussion of radical planning theory; the similarity of the conditions immediately following the impact of a disaster and the conditions leading to social mobilization. In the former situation, the desired state is to return to what existed before, while in the latter the conditions lead to replacement of existing values to create an improved social and physical environment. Can the factors which lead to the desire for improved quality of life in an atmosphere of social mobilization be determined, and then be stimulated in post-disaster communities?

The review of the existing disaster planning literature indicated some large gaps in the hazard and risk analysis area, communication planning, plans for recovery and reconstruction, and disaster mitigation. While the technology for specific hazard and risk analysis is available, there appears to be little material on the conceptualization of a strategy to implement a community hazards and risk plan. Communication problems continue to be the focus of most of the impact-oriented research. Lack of inter- and intra-agency communication is a major concern and yet there is little available for the

non-technically minded planner to assist in the development of a communications plan.

The concept of planning for both recovery and reconstruction is in its infancy. While there exists some research and literature in specific areas, such as the provision of outreach emotional support programs, in the majority of areas, such as community based economic recovery programs, policies and programs for reconstruction after a disaster and contingency planning for community redevelopment, the problems remain unaddressed. The area of disaster mitigation is also a new concept for disaster planners, and the opportunity for the development and analysis of a case study based on the Soldiers' Grove example is a challenging one.

Finally, Canadian-based research on disaster planning is virtually non-existent. As Canada enters the International Decade for Natural Disaster Reduction, the onus is on both the public and private sectors to encourage and support Canadian study and research.

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