

**Integrating City Planning and Emergency Preparedness:
Some of the Reasons Why***

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When proposing urban redevelopment and renewal schemes, what responsibility does the city planner have to ensure citizens are not placed at risk? How can the practical integration of emergency planning and city planning principles be achieved? While their importance is not contested, questions such as these are not part of the contemporary planner's creed, even though the industrial hazardscape of cities and towns, in particular, is increasing. There is a compelling need for a closer integration between disaster and city planning. Planners need to consider aspects of emergency management, risk assessment and hazard vulnerability in their planning and development deliberations. An emergency management focus is particularly necessary when urban renewal and redevelopment is being considered. Of special importance is the need for planners to understand that large-scale urban and industrial projects can exacerbate the plight of existing 'at-risk' groups, and may even create a more hazardous social environment for both existing and future populations. These issues are examined in two articles. This first paper examines the issues in the context of emergency management and other relevant literature. In the second paper two case studies are presented to demonstrate how these issues translate into practice.

The Urban Hazardscape

Living in a modern city, even with its benefits, opportunities and advantages, nevertheless presents a host of dangers. As cities are transformed in response to fluctuating pressures of urban ecological and economic cycles, urban areas often encroach on land previously regarded as undesirable, or which may contain unforeseen hazards. Floodplains and industrial zones, for instance, may be contiguous with residential sub-divi-

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sions. These residents are often shocked when high water, a 'routine' transportation accident, or a plant 'accident' forces their evacuation, putting pressure on them to re-appraise accepted beliefs about risk, security and safety. Circumstances like these suggest that locations once thought of as congenial—at a time in which the physical environment was described as 'neutral stuff' (Zimmerman 1951)—are undergoing radical re-assessment. Now, many of these same locations are judged to be malignant and hazard-producing. This is particularly the case in many urban locations that are characterised by industrial activity.

All technological utilities create risks as well as benefits. Certain industrial activities, in particular, place sections of our cities in a state of almost perpetual risk because of inherent hazardous elements, processes and products involved in the procurement, manufacturing, storage, transportation and application of particular commodities. While specifically designated 'industrial zones' are obvious areas where technical failures are most likely to unfold and where heightened vulnerabilities exist, there are a plethora of other locations where less obvious, and more prosaic urban hazards exist that are also high risk-producing. The tenant who lives above a dry-cleaning premise, for instance; or even the inner-city dweller whose house is near a paint shop, fast food shop, or petrol station; the resident living next to a newly re-routed freeway, whose children are now exposed to unacceptably high levels of lead from exhaust fumes as well as an increased likelihood of hazardous materials transportation accidents; the patient who finds herself laid up in a hospital built across from a car repair workshop; or the elderly citizen finishing out his years in a retirement home that backs onto a rail line—all these people are vulnerable to industry-related hazard impacts.

Anderson, for example, reports that the typical ingredients stored in an American 'corner store' vehicle workshop would include petroleum distillates, aromatic hydrocarbons, mineral spirits, benzene, toluene, and petroleum naphtha (1987, p.108). Many other small work premises also have potentially lethal quantities of hazardous materials, such as solvents, combustible solids, strong acid or alkaline solutions, ignitable wastes, flammable paints, heavy metals, pesticides, and other assorted dangerous constituents. In other words, sites such as drycleaning establishments, paint shops, and car repair workshops are small-scale hazardous storage depots. It is ironic, therefore, that the conventional tendency has been to disregard the hazardousness of these sites—and the vulnerability of the groups nearby. Instead, emergency management planning strategies and city planning approaches tend to be directed toward the regulation of large-scale major industrial complexes.

Other residential groups are also victims of industry-generated hazards, several of which may have been created years before but have only recently been determined as risk-producing. A case in point is the current problem associated with toxic wastes. Like their counterparts in the contaminated areas of Love Canal (New York), or Times Beach (Missouri) in America, some present-day landholders in Australian cities such as Armidale, Brisbane, Sydney and Melbourne are discovering that their properties are now serious health risks, caused by contaminants produced by work operations previously conducted on sites subsequently made available for housing. The unintended consequence of past industrial activity, in particular, is creating unacceptable risks to an increasing number of exposed citizens, and is looming as a major environmental problem in many countries. This reality, however, has to compete with a more generalised disregard about hazards. This perception diminishes the relative importance of matters such as pollution, toxic waste disposal, and even urban planning, to relative unimportance, which in countries like Australia and Canada has only resulted in desultory debates being attained on these issues. Of greater significance to Australians and Canadians is economic growth, even though 'the lack of planning and foresight to which this dominance has led is a matter of record' (Walker 1992, p.5).

When hazard impact situations do arise, however, victims invariably turn to elected public officials for compensation and assurances that 'it will not happen again'. Increasingly, people are also seeking explanations about how such events were allowed to develop in the first instance. When forced to respond to victims demands, politicians or their departmental officers may seek explanations from professionals such as the city planner or the emergency manager. While these specialists do not have all the answers they are often able to clarify some issues. Many answers are inextricably linked to the processes which led to the original development of cities and neighbourhoods, and the activities subsequently pursued therein. Many more are associated with changes in the collective perception of danger, risk, and safety which tend to alter quicker than actual land-use practices. In essence, explaining the 'why' and 'how' of hazard impact is complex and equivocal. Nevertheless, the insightful person realises that there are fundamental defects in many official explanations, as well as defects in the remedies; and that crisis occasions have a startlingly regular recurrence rate.

Another reason for the increasing hazardousness of urban settings is that for most of the world's urbanised areas, the spheres of city planning and emergency planning remain largely unintegrated. That is, the theory and practice of city planning has not been blended with the principles and conventions of emergency management, even though there are significant

commonalities between them (Lindsay 1993). As a consequence, hazardous urban environments remain whilst others are inadvertently developed; and specific 'at-risk' groups are created, while the condition of existing hazard-vulnerable groups rises. Ironically, this has occurred at the same time that real advances have been made in both fields of emergency management and city planning.

The city planner nevertheless has an obligation to ensure that urban growth, development and renewal does not jeopardise the safety and security of present or future citizens. This duty exists irrespective of the vexing impediments created by the arbitrary fragmentation of jurisdictions and duties within the public arena (Britton 1990; 1991a). This duty exists even though officers in the emergency management field have a particular responsibility in the context of emergency planning and management. However, just as emergency services officers need to be cognisant of relevant social pre-conditions that at first glance might be regarded as falling within the domain of city planners (such as land-use and environmental planning issues—Britton 1991b), the city planner must be aware of principles relating to hazard and emergency management. Furthermore, the city planner must ensure that issues such as equity, obligation, and responsibility are not discarded or compromised by the land-use patterns they advocate and have a part in implementing (Benveniste 1990; Forester 1989). This is especially important with respect to the inherent risks associated with any land-use proposals.

The City Planner and Emergency Management Planning

There is a need for the urban planner and the emergency manager to work together to make the city a safer place. This cooperation, however, does not occur in most modern cities. Depending on the economic and demographic trends of the city, urban planning offices are more likely to direct their efforts trying to meet the specific, focused and contradictory demands associated with four major contemporary social influences: population growth (eg. meeting the demands for new housing and infrastructure); conservation (eg. creating green spaces; preserving existing flora, fauna and heritage sites); urban renewal (eg. abolishing ghettos; refurbishing transitional locations; encouraging capital investment); and economic development (eg. encouraging industrial growth; operationalizing incentive plans for economic diversification). Urban planning offices may also be expected to offer solutions for a myriad other contemporary urban social problems such as crime, alienation, traffic congestion, and unemployment. While urban planning seems to have played a part in reducing some of the risks

inherent in, for instance, property development (Sorensen 1991), it has not had a similar, conscious, effect on technological hazard mitigation or perhaps with respect to other hazard categories. With so many concerns demanding the input of a modern urban planning office, perhaps it is not surprising that the attention of individual planners and their public offices have been distracted from the high impact, though infrequent, mass emergency and disaster occasion that threaten contemporary urbanites.

On the other hand, the professional group whose role is to develop emergency management plans and lay the groundwork for emergency response operations must face a city as it is given to them—that is, after the planners and developers have completed their work and moved on to the next project. Traditionally, emergency and disaster managers have not been in positions to determine how urban development is to proceed. Even now, their input is not central to the decision processes appertaining to location and development. The possible exception is their belated involvement with emergency planning procedures in industrial parks. Even with this recent adjustment, however, emergency planning is still reactive, coming in after other decisions have been executed by others. Furthermore, the decisions of the urban planning office, which tend to be based on order, efficiency, transportation systems, growth patterns, and other influencing factors (Banai 1988), may directly result in new concerns for the emergency manager.

For hazard mitigation purposes then, 'it is important for the emergency planner to work with the community's comprehensive or land-use plans, which specify the locations of future growth and development, as well as the adopted goals, objectives, and policies of the community' (Godschalk 1991, p.153). These comprehensive plans, Godschalk continues, 'should point out hazard areas ... and provide policies and standards to control the development there to reduce vulnerability'. Godschalk's comments represent much of the conventional emergency planning wisdom, although it is worth noting that most emergency response planning efforts focus on natural hazards. His examples are floodplains and fault zones. The persistence of natural hazards over the technological, and the tendency for extolling normative prescriptions rather than citing actual cases compels one to ask whether, and to what degree, the message about technology being risk-producing has registered with certain sections of community decision-makers (Britton 1992). Moreover, it prompts certain questions to be asked:

- How effective are contemporary urban planning conventions for the purposes of all-hazard mitigation and comprehensive community safety?

- How can the practical integration of emergency planning and urban planning principles be achieved in terms of (a) the constraints of the existing structural morphology and functional operations of the city; and (b) in terms of possible modifications to (a) in the future or new features introduced into urban design?
- When proposing urban redevelopment schemes (in particular), what responsibility does the urban planner have to ensure residents are not placed at risk?

In the first instance, these questions should be directed primarily to local planning offices. In Australia as well as in Canada, responsibility for planning is usually granted to local authorities. This is particularly the case for plans or schemes 'which attempt to give some indication as to what uses of land will be permitted or restricted in certain areas, and on what general conditions' (Bates 1992, p.75). However, higher tiers of government can, and very often do, exert a large degree of control on local government actions. In Australia, for example, local governments can only act to the extent that a state legislature grants it the power to act. Furthermore, the regulatory authority granted by the state to local authorities is subjected to over-riding or inconsistent state or federal laws (Mitchell and Brown 1991, p.44). Similarly, planning authority in Canada is granted by provincial governments to the municipalities (Rogers 1973). Planning schemes though, do not automatically mean that non-conforming uses of land within the area covered by the scheme have to cease or close down. While they can be used to prevent any expansion, intensification, or other significant increase in non-complying land-use activity (Bates 1992, p.80), these schemes are only indirectly aimed at addressing current problems caused by past actions. Moreover, most recent prescriptions governing environmental planning legislation lead one to the view that they were developed in response to the demand for local and global environmental conservation, and hence designed essentially to prevent further desecration of the biosphere and to assist in its preservation. As a consequence, they do not appear to be designed specifically for the protection of citizens from the harmful effects of existing industrial activities; or designed to introduce stringent regulations to control prevailing hazardous activities; or to stem the continuing degradation of local communities created through industrialism. Indeed, it appears that no legislation in Australia has yet focused on issues of environmental health, looking instead at conservation.

In the companion paper to this (Britton and Lindsay, forthcoming), two case studies will demonstrate several issues which are significant if the focus of attention is directed toward planning for community safety rather

than general environmental planning. In particular, they reflect the need to consider issues such as social justice; the distribution of safety; delegated responsibility; social positioning; resource slack; vulnerability; and at-risk groups. These attributes are discussed below. The case studies to be discussed in the later paper have four significant common features that warrant exposure here:

- The study sites have changed over time as a result of transformations in urban morphology and transformations of social patterns.
- The study sites are currently areas in which hazardous industrial activities prevail.
- Both study sites are currently areas in which low socio-economic groups predominate.
- As a consequence of the above, the study sites are illustrative of how the at-risk status of existing vulnerable social groups may be exacerbated.

Revisiting the Fairness Hypothesis

Social Justice, the Distribution of Safety, and Delegated Responsibility

In our opinion, these two case studies will highlight several issues that need to be brought into the city planning spotlight. The relative recency of emergency management concentration on disaster planning for technological impact introduces a set of fundamental issues that have tended to remain backstage in many areas. In particular, the hazardousness of contemporary urban environments, especially from technology impact, introduces considerations relating to matters such as obligation, responsibility and control. Basic to these considerations is the question of equity. Equity, as it applies here, relates to matters of social justice and the distribution of safety; as well as its converse—the selective victimization of social members.

Hazardous industries are not randomly distributed within cities. Industrial zones in general, and hazardous industries in particular, tend to be located in less-affluent areas characterised by low socio-economic residents less able to capably deal with crisis, either economically or politically. The conditions leading to these circumstances are often difficult to identify, although many factors have contributed, such as industry taking advantage of low-cost land; the proximity of a labour force; the absence of appropriate land-use zoning; the failure to uphold existing zoning regulations, perhaps by selling off buffer zones by local governments (Britton 1991b, p.60) or

by state governments (Britton 1991c, p.202); or, in extreme cases, the absence or failure of prohibitions for inconsistent land usage.

Thus, when considering the distribution of safety from technological hazard, two factors predominate. The first is that technological hazards are not distributed equitably throughout society and hence some groups win and others lose in the production of danger. The second, which builds on the reality that technological hazards are not distributed randomly, is that the hazard vulnerability of at-risk groups is often aggravated because of inadequate land-use planning. These conditions point to the fact that social groups with the least amount of resources are often those who are most directly exposed to risky technologies. Moreover, secondary impact events, such as evacuation, forced relocation and prolonged illness are more likely concomitants of technological mishaps, each of which have the tendency to disrupt affected populations for lengthy periods of time. These kinds of interruptions to social routines are least affordable to citizens at the lower socio-economic status level.

The issues of social justice, distribution of safety and delegated responsibility pertain to the much wider issues of morality and the ethical positions of influential social groups. This is an area wherein little research has been attempted, as Beatley (1989) reminds us. While a few recent studies have contemplated these issues from the business and corporate perspective, especially the view that this group should anticipate disasters through planning and training (Jackson 1991); and the 'delegated responsibility' hazardous industries have to provide safety for the public (Jackson and Janssen 1990), there are no studies which call attention to these dimensions in the context of the professional emergency manager or city planner. Recent attempts, however, are trying to get this on to the agenda for other relevant groups, such as the insurance industry (Britton and Oliver 1993). If the businessman has a delegated responsibility to provide safety to the public, then the emergency manager and the city planner has a greater responsibility. Moreover, this responsibility must go a lot further than merely calling for the development of a code of ethics for disaster managers (Partridge 1988), or statements that the planner 'owes allegiance to ... the public interest and a primary commitment ... to those restricted by social, economic, personal, and other constraints' (Benveniste 1990, p.36 quoting Wachs 1985). While these are important, they do not go far enough to ensure public safety from large-scale technologically-induced social crises. After all, it is the emergency manager who marches at the front of society's organised response to disaster; and it is the city planner who is at the vanguard of planning in general and urban planning in particular.

In a way, these moral and ethical issues are associated with the 'fairness hypothesis' propounded by Cantor and Rayner (1986). At issue for these two decision scientists was how to reach an even-handed approach for agreement on what technological activities should be considered risk-producing; how such activities should be managed; and how consensus about the likely harm emanating from these activities could be reached. In a move to counter the 'how safe is safe enough' argument long dominated by engineers and economists (Starr 1969, 1985), Cantor and Rayner argue that when matters of risk assessment, risk choice, and risk acceptability are being made, explicit recognition should be given to the preferred choices of all affected groups, and not just the few powerful groups. They argue that all stakeholders should be involved in decisions relating to technological hazards because this process enables consent or compromise to be made by all. This orientation encourages risk managers to debate options of risk choice on the basis of social conflicts over trust and equity, rather than on probabilities of event occurrences and the magnitude of those events when they do occur. Cantor and Rayner maintain that if people were more involved in decision-making processes regarding potentially hazardous activities, there is a likelihood that many current obsessions with some low-probability, high-consequence technological impacts might be regarded in a different light, possibly in a more objective and realistic manner. Hence, the current tendency to perceive technological hazards as deriving only from large-scale industrial complexes might be re-balanced.

The fairness approach incorporates ethical, political, legal, cultural and economic comparisons of risk preferences. These are the same issues that emergency managers and city planners also need to consider in relation to the siting and management of the urban landscape, especially those associated with hazardous facilities. In its broader context, the fairness hypothesis reminds us that there are important social issues involved in planning and management, both in the wider context as well as in the specific context discussed here. Just as risk acceptability requires the consideration of ethical questions about safety and society for engineers, economists and corporate decision-makers, so it does for city planners and emergency managers. Here, the issues concentrate on ethical issues pertaining to location, hazard mitigation management, and obligations to those who are placed at risk.

Social Positioning, At-Risk Groups, Vulnerability and Resource Availability

There are other social issues requiring consideration. To begin with, mass emergencies and disasters are not the simple 'acts of God' which many

like to believe. Rather, these occasions are artefactual: they result from unintentional, misunderstood or mis-applied attributes of our social system. This 'disaster as a social product' thesis (Britton 1986; Quarantelli 1987) also argues the inappropriateness of regarding large-scale social crises as unforeseeable events. Instead, they should be anticipated as one of a set of outcomes to particular social structural arrangements (Perrow 1984; Turner 1978). Mass emergencies and disasters are therefore probably unavoidable given our current ways of living, where we live, and the prevailing state of our technological understanding and application. In this respect, Turner's (1978) description that disaster is a failure in the intentions of deliberate human actions is useful. So is Bates and Peacock's more recent suggestion that 'disaster is a failure in the social structure or the organization of a social system, which is brought on by an extreme environmental event that is beyond the range of the system's internal adaptive capacity' (1989, p.352). In other words, disaster is an unintended social consequence. Technological hazards and technological disasters are also unintended social products: they are latent functions of industrialism, especially of large-scale and complex industrialization. The fact that disaster is an unintended consequence, and can be attributed in part to the ways in which we live, implies a planning failure, a lack of planning, an absence of appropriate planning, or perhaps inadequate planning integration.

There is also a popular misconception that disasters and other large-scale impacts affect everyone equally, and that the only real difference between those who become victims from those who do not is where people happen to be at the time. The rationale that 'disaster is the great leveller' is correct at one level, and yet at the same time it is also an inaccurate interpretation of vulnerability. The viewpoint is correct to the extent that conclusions reached by many hazard studies indicate that decisions about physical location can place people in a higher risk category and can heighten one's vulnerability to specific hazards. For instance, those who live on floodplains, along tornado belts, astride fault-lines, in storm surge zones, or in bushfire-prone regions are more likely to become victims of natural hazards than those who do not. Similarly, people living near hazardous manufacturing plants, chemical factories, adjacent to dangerous goods storage depots, on landfill or industrial waste dumps, underneath flight corridors or downstream from dams are more likely to become victims of technological hazards than those who are not so located.

However, location in this common sense usage refers only to geographical designation. What is probably more critical is the social location of individuals or groups; that is, the social position of people. In this respect, the popular understanding of disaster victimization is false: disaster is not

the great leveller. If anything, the opposite is more likely to be the case. Other things being equal, large-scale crises exacerbate existing social conditions, including social inequalities. Desirable social resources, like power, status, prestige, money and access (especially to information and/or decision-makers) are differentially distributed within any society. Greater access to these commodities implies a better ability to absorb unexpected losses. The uneven distribution of these resources, however, means that the capacity to generate and maintain a resource buffer is also differentially distributed throughout society. The capacity to absorb unexpected costs and losses is therefore related to the total amount of resources available, or accessible, to an individual or social group. The notion of 'resource slack' (Britton 1991b), which denotes the availability of discretionary or uncommitted resources for contingency use, is useful here.

There appears to be a positive correlation between the access that different social groups have to socially desirable resources and the amount of resource slack available to each group. A crucial linkage is social positioning—where one is located on the social hierarchy. The social positioning of lower socio-economic groups means that they have little, or no, resource slack. The geographical location of lower socio-economic groups also means that they are likely to be located in less favourable—and more hazardous—sectors of cities. Hence, the notion of disaster being the great leveller masks the reasons why some social groups are to start with in vulnerable hazard-prone locations, and fails to take into account what this implies in terms of the differences in the crisis response capabilities of different social groups.

Some Concluding Comments

The purpose of this introductory paper and its companion piece containing case-studies (Britton and Lindsay forthcoming) is to alert city planners of the need to consider aspects of emergency management planning in their professional undertaking of city planning and development. It is crucial to sensitise city planners to the fact that when planning for urban change, especially in the context of urban redevelopment, not only is it important to assess the physical character of obvious hazards, but it is equally important to take into consideration the social character of both current and future populations. Moreover, it is important for city planners to understand why some people are more at-risk, what makes them vulnerable, and what planning measures can be undertaken to ameliorate these conditions. At the very least, the decisions of city planners should not exacerbate the plight of disadvantaged social groups. It is important for city

planners to recognise, and to understand, the relationship their profession has to the maintenance of community safety and how important it is for them to work with emergency management personnel.

There is a great need to integrate emergency and city planning, although for most nations there is little evidence that this has been achieved. Perhaps it is asking too much of the city planner: urban planning does seem to suffer from a similar impediment as emergency management planning, wherein 'the plan' becomes an end in itself rather than being a means to an end. The result is that some urban planning initiatives, particularly some urban redevelopment schemes, inadvertently place people at considerable risk. Furthermore, it is often the case that those who are placed at risk by urban redevelopment and renewal schemes are the least able to respond to this new predicament. However, while these effects may be unintended, they should not be unanticipated: small-quantity hazardous materials activities can endanger individuals who are in close proximity, just as can the larger, more commonly-recognized hazardous industrial activities. This factor must be more widely appreciated by the planning profession and incorporated into conventional city planning training and practice.

It appears to us that the planning profession has yet to turn its attention to the types of questions we have submitted. To be fair to city planners, few sectors of society have. Public policy analysis, decision-making, and policy implementation have generally failed to address these issues; and the majority of public education and awareness programs have regrettably been ineffectual. Moreover, it is not easy to create an efficient, fair and socially responsive planning system. So why should professional planners come under particular scrutiny? The answer is because planners have an irrefutable and essential role in the social and physical development of the built environment. Moreover, they are integrally involved in establishing land-use development control systems. Hence, whether they are aware of it or not—and whether they like it or not—planners have a real, immediate, and tangible responsibility to plan for community safety. They have a delegated responsibility to plan for the future of our cities.

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