Psychosocial Assistance after Environmental Accidents: A Policy Perspective

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There is a substantial body of literature on the psychosocial impacts of chemical and nuclear accidents. Less attention, however, has been focused on the program and policy issues that are connected with efforts to provide psychosocial assistance to the victims of such accidents. Because psychosocial assistance efforts are certain to be an essential part of the response to future environmental emergencies, it is vital that relevant program and policy issues be more fully considered. This article discusses the highly complex nature of contamination situations and highlights some of the key policy issues that are associated with the provision of psychosocial services after environmental accidents. One issue concerns the potential for assistance efforts to become objects of conflict. In the context of the intense controversy typically associated with chemical or nuclear accidents, and with debates over the causation of illness usually at the center of environmental accidents, psychosocial assistance services may themselves become contested terrain. Other significant program and policy issues include determining how to interface with citizen self-help and other voluntary groups, addressing the problem of stigma, and deciding how to facilitate stakeholder participation in the shaping of service provision. This article offers a series of policy proposals that may help smooth the way for psychosocial assistance programs in future environmental emergencies. — Environ Health Perspect 105(Suppl 6):1557–1563 (1997)

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Introduction

In addition to their potential to inflict serious biological and ecological damage, accidents involving chemicals or radiation have the capacity to profoundly affect the psychosocial well-being of individuals, families, and communities. Studies conducted in the aftermath of environmental disasters such as Chernobyl and Bhopal, as well as studies of less well-known contamination cases, have documented a variety of important psychosocial impacts (1–10). These psychosocial impacts range from increased levels of distress to severe social disruption and conflict. In addition, some studies have suggested that the psychosocial impacts of environmental accidents can be quite long lived (1).

There is a growing body of literature and research focused on understanding these psychosocial impacts, much of it dealing with clinical issues and implications. Up to this point, however, far less attention has been focused on program and policy issues connected with efforts to plan and deliver psychosocial assistance to victims of chemical and nuclear accidents. Because environmental accidents are expected to be a continuing problem in coming decades (11), and because psychosocial services are certain to be a crucial part of the public health and human service response, there is a pressing need for these program and policy issues to be more fully considered.

The first part of this article discusses some of the characteristic features of environmental accidents which, when taken as a whole, tend to make contamination situations highly complex and challenging to address. Next, the article identifies several major program and policy issues that are relevant to the provision of psychosocial services after environmental accidents. The final part of the article discusses the need to strengthen institutional capacities for addressing the psychosocial aspects of chemical and nuclear accidents. Several proposals are offered that may help smooth the path for assistance programs in future environmental emergencies.

Environmental Accidents: A Complex Program and Policy Setting

In considering program and policy issues associated with the provision of psychosocial assistance to environmental accident victims, it is useful to begin by recognizing the complexity and intractability of contamination situations. Although all disaster situations are difficult to manage, a variety of features that typically characterize environmental accidents can create an especially challenging policy and program setting.

One such feature is chronic, pervasive uncertainty (12,13). In chemical and nuclear accident situations the threat to health and well-being typically comes not from something familiar and visible, but from contaminants that are invisible to the naked eye. Knowledge about exposure is usually incomplete, and rarely is there adequate scientific and medical knowledge about the contaminants. For "many technological risks," note Kroll-Smith and Couch (14), "the degrees of danger can only be guessed at...." Disagreements among experts are common. Frequently there is uncertainty about the consequences of exposure, and long-term effects may take years (e.g., cancer) or even generations (e.g., birth defects) to manifest themselves. Thus, it is not at all clear to those affected whether the worst is over or yet to come (15). "In a sense," says Baum (16), "this...
pattern of influence extends the duration of victimization." Even when an environmental accident is declared officially over, in an important sense it is not really over for those who may have been exposed (12). Against the background of this continuing sense of threat and uncertainty, a feeling of closure—for individuals or for a community—remains elusive.

Another important feature contributing to the complexity of environmental accident situations concerns the matter of responsibility and blame. Erikson (12), using the analytic comparison with natural disasters, has said the following:

Natural disasters are almost always experienced as acts of God or caprices of nature. They happen to us. They visit us, as if from afar. Technological disasters, however, being of human manufacture, are at least in principle preventable, so there is always a story to be told about them, always a moral to be drawn from them, always a share of blame to be assigned.

In the aftermath of environmental accidents, people want to know why something that need not have happened has in fact taken place; why suffering that could have been avoided has not been. Thus, rather than ultimately producing resignation or acceptance, these human-made disasters give rise to anger and outrage. The conviction that authorities who were meant to protect the public failed to do so can generate a powerful sense of violation and betrayal. In the aftermath, lingering mistrust can extend to any institution perceived as being linked to the accident, and indeed can extend to official bodies more generally. Clearly this can have serious ramifications for assistance efforts.

A third key aspect of the complexity of radiological and chemical accidents relates to their profound social impacts. Cuthbertson and Nigg (17) have argued that whereas natural disasters tend to produce what could be called a consensual adaptation, situations such as environmental accidents tend to create a conflictive adaptation. After natural disasters, people typically pull together to overcome a common problem and get things back to normal. When people share a sense of common suffering and altruistic concern, a kind of therapeutic community emerges, which provides an ambience of camaraderie, solidarity, unity of purpose, and mutual support. The emergence of a therapeutic community, argue Cuthbertson and Nigg (17), appears closely related to the presence of important contextual factors such as general consensus on the nature and risk level of disaster agents; beliefs that the disaster could not have been prevented; indiscriminate, highly visible, and communitywide damage; and obvious and urgent needs toward which feeling and remedial action can be directed.

In general, few of these contextual factors are present after chemical or radiological accidents. More than anything else, these situations are characterized by haziness and ambiguity rather than consensus. As noted above, contaminants are often invisible, and unknowns and uncertainties are the norm. The uneven spread of contaminants frequently means that people who live near each other—even on the same street—can have vastly different experiences with the situation.

In the face of such ambiguity, and in the context of such vital, emotionally charged issues (e.g., health risks), differing understandings and interpretations can engender controversy, conflict, and social division. Whereas some people will see the situation as extremely threatening or damaging, others may question the very idea that a hazard exists. One part of the community may want the issue acted on immediately, whereas another part may want it left to fade away. With high stakes involved, differing assessments of the degree of risk can pull people apart.

At Three Mile Island, Pennsylvania, for example, disagreement over evacuation had normally supportive friends rebuking each other for making the wrong choice (18). Moreover, the matter of assigning blame for an accident, with ensuing litigation and compensation issues, can be a source of conflict. The social division generated by environmental accidents can be bitter; people can be stigmatized and those who publicize the contamination can find themselves labeled troublemakers. Exposed communities may "divide and polarize in their attempts to understand and resolve the ambiguity confronting them" (19).

Thus, rather than producing consensus and a therapeutic community, environmental accidents have a marked potential to create the very opposite: social division and a dissensus community (14,20). Such accidents can damage and degrade the traditional support networks upon which people normally rely and "produce increased conflict and deleterious long-term strain on community structures" (21).

In sum, the constellation of features highlighted above— invisibility of contaminants, a continuing sense of threat, long latency of possible health effects, scientific and medical uncertainty, a sense of outrage, chronic loss of trust, social disruption, degradation of traditional support networks, lack of therapeutic community, and social disensus—combine to make environmental accidents exceedingly complex and challenging situations.

Assistance Efforts as a Potential Arena of Conflict

If the first point to be noted is that chemical and radiological accidents generate a complex program and policy environment, a second point follows: in the ambiguous, highly charged settings that are characteristic of environmental accidents, there is always a risk that psychosocial assistance services may themselves become objects of conflict and contention.

Human service programs of all types operate in a complex social context. Differing goals and values, challenging external relations, and resource scarcity and competition are often normal dimensions in the activities of human service organizations. However, the characteristic features of environmental contamination situations can considerably increase the risk that psychosocial assistance efforts will become a site of social conflict.

For example, these assistance efforts must operate in a broader context that is itself conflict-ridden. As noted earlier community polarization and division typify environmental accident situations; such social discord can easily affect the service delivery domain. In addition, levels of mistrust and anger are generally high in affected communities, and these can also spill over to affect perceptions of, and cooperation with, assistance projects.

Equally important in making psychosocial assistance efforts an area of potential conflict is the ambiguity associated with environmental accidents. Although all disaster situations are in important ways socially constructed, environmental accidents must surely represent the quintessential example of the contested and negotiated nature of social reality. The point becomes clear when the contrast with natural disasters is drawn. If a tornado strikes, damaging 200 trees and 50 homes and injuring 20 people, there is a kind of fait accompli—a common starting...
point for all concerned parties. People may disagree over how to respond, but there is a certain minimal shared understanding of the circumstances.

On the other hand, in environmental accidents there is no such common starting point; no shared understanding of the situation. The nature and extent of any damage may not be readily apparent and it may be difficult to gauge the level of long-term risk. Experts often disagree among themselves, as do residents in the affected area. Even the matter of deciding where to draw the boundaries of the affected area can be a matter of fundamental dispute. In contrast to a natural disaster such as the tornado mentioned above, environmental accident situations present far fewer brute facts that everyone can see, accept, and agree on.

The widespread uncertainty and lack of definitive knowledge usually associated with exposure to environmental toxins necessarily puts the process of defining the situation at the heart of the experience of environmental accidents. In such an ambiguous, fluid, and contested setting, the very entry of psychosocial assistance services into the area becomes a constituent part of the process of framing and constructing the situation. Indeed, because debates over the nature, extent, and causation of illness are usually at the center of environmental contamination episodes, every word, action, or policy coming from a psychosocial assistance effort has the potential to significantly affect how the situation is viewed. Given the highly charged atmosphere and the high stakes for affected parties, this increases the likelihood that the assistance efforts themselves will become objects of social conflict and contention. In other words, to the extent that a psychosocial assistance project is perceived as affecting the way in which an environmental accident situation is defined and understood, it may become the object of social contention. Although this risk varies from situation to situation, the possibility that psychosocial services will become contested terrain needs to be considered by policymakers, program developers, and practitioners.

Stigma and Discrimination

Another important characteristic of environmental accidents that warrants careful consideration is the problem of stigma. "In pollution cases," notes Edelstein (10), "stigma routinely accompanies the announcement of contamination and the identification of its boundaries." Because people fear unknown contaminants and the possibility of contamination (22), residents of affected areas are "likely to be defined by others as people to be avoided" (14). It is not unusual for environmental accident victims to find themselves the butt of jokes, the object of hostility, and the target of discrimination (23). Thus, for people in the affected area, Kroll-Smith and Couch (14) explain, "intensifying the experience of environmental pollution is the social trauma of being acted toward as a polluted person...."

In the aftermath of environmental contamination, social stigma can be widespread. It can be aimed at a wide variety of targets, including not only the residents themselves but also "objects, places, animals, and products" (10). Property values in the affected area may drop, tourism may be hurt, and products may become difficult to sell or export (24). It is also important to note that stigma and discrimination touch not only adults, but also adolescents and children. For example, a study conducted by Bebeshko and Korol (25) 9 years after the Chernobyl nuclear disaster reported adolescents hiding their identities as victims because they "feared discrimination in further education, work, and marriage."

Human service and policy professionals involved with psychosocial assistance efforts clearly need to be aware of these problems. Certainly, as is the case with all postdisaster services, psychosocial assistance efforts after environmental accidents need to be organized and delivered in a manner that does not scare people off or further stigmatize them with inappropriate labels. This concept is nothing new; it is a general principle of disaster relief (26). However, what is perhaps new is the need to operate in a postdisaster environment where stigma is such a predominant feature. Whereas there is nothing necessarily stigmatizing about a natural disaster (e.g., a tornado), it can be postulated that "contamination is inherently stigmatizing" (10).

Because stigma and discrimination are so problematic and damaging and because they are regular features of environmental accidents, one important role for human service providers will be to try to tackle and reduce them. Clearly this is not something that can be done at a clinical level; rather, it will necessitate a proactive stance at the community level. The same is true of efforts to facilitate communication and ameliorate social division; these problem areas require action at the community level. Indeed, because some of the most significant effects of environmental accidents may be experienced at the community level, the social portion of psychosocial assistance efforts may require considerable emphasis when organizing and delivering long-term help to affected areas.

Relations with Self-help and Other Voluntary Groups

With community fragmentation common in contamination situations, and with traditional support structures impaired, alternative support networks and mechanisms become especially important.

Many of the needs for support and action following an environmental accident can be met either through citizen groups or self-help groups. Given the central importance of these forms of citizen self-activity, professional providers of psychosocial assistance must thoughtfully consider how best to interface with such efforts. This may not always be a simple matter because a multiplicity of groups and perspectives may be involved and contaminated communities are so susceptible to polarization.

Clearly the most helpful human service role is not one of attempting to replace or supplant citizen initiatives, but rather to complement them. For example, one role might entail serving as a resource for self-help or support groups. In the context of such groups, environmental accident victims could exchange information and provide mutual support. The groups might also provide a forum in which personal losses, which often go unrecognized in environmental accident situations (27), can be discussed. The objective is clearly not for professionals to impose themselves on these groups but to offer assistance and resources in organizing, launching, and facilitating them.

It must also be noted that certain sectors of the affected population will not be likely to participate in support groups or other citizen initiatives but will still be in need of assistance. Human service providers may be the only resource to meet such needs. Thus, as in other disaster situations, it is important that psychosocial service providers provide outreach to isolated and vulnerable sectors of the population that, for reasons of age, infirmity, isolation, inclination, or lack of mobility, might have problems that are not otherwise being addressed.

Facilitating Stakeholder Participation

Another key policy consideration in the provision of psychosocial assistance concerns the participation of those who
have an interest in and are affected by the services (stakeholders). Like other disasters, chemical and nuclear accidents have the capacity to shatter the life assumptions and sense of security of their victims. Further, medical uncertainty, a need to rely on expert assessments, and the invisibility of contaminants, can create a continuing sense of weakness and vulnerability in victims (28,29). It is important that human service efforts do not add to feelings of powerlessness in a situation where so much seems to be out of human control.

With this in mind, program designers and policymakers need to consider how best to facilitate stakeholder participation in the various aspects of psychosocial assistance projects. One possibility that has been recommended for use in the aftermath of some chemical accidents involves the formation of stakeholder advisory groups (30). Here, the various interests that are involved with or affected by the assistance come together to offer their ideas and feedback. Stakeholder advisory groups can provide valuable input in needs assessment and program evaluation, helping to create responsive and effective programs. These advisory groups can also be a valuable mechanism for building trust. In the context of environmental accidents, where trust is frequently in very short supply, efforts to build rapport are absolutely crucial. Finally, stakeholder advisory groups are also an excellent means of increasing awareness of the availability of services.

Naturally, environmental accident victims are at the top of the list of those who should be consulted in developing psychosocial services. The creation of a stakeholder advisory group can help show environmental accident victims that their views are important and are taken seriously.

Meeting the Challenge of Future Environmental Accidents

In addition to considering the types of program and policy issues identified above, it will be important in the coming years to strengthen local, national, and international capacities for addressing the psychosocial impacts of chemical and nuclear accidents. Given the magnitude, chronicity, and complexity of these accidents, it will be crucial to learn from the experience to date, expand the relevant knowledge base, enhance training, resources and infrastructure, and improve our ability to respond effectively to this new public health and human service problem. The balance of this paper offers a series of policy proposals that may help smooth the path for psychosocial assistance efforts in the aftermath of future environmental accidents.

An Expanded International Working Group on the Psychosocial Aspects of Environmental Accidents

The importance of facilitating the international exchange of information on the psychosocial impacts of environmental disasters has been recognized for some time. For example, following the Chernobyl accident, the World Health Organization created a Working Group on the Psychological Effects of Nuclear Accidents (31).

This earlier work should now be expanded by creating a broader international working group on the psychosocial aspects of environmental accidents. For reasons of coordination and professional cooperation and in order to gain the best understanding of the various issues associated with psychosocial impacts and postaccident assistance, it would be advantageous for the working group to draw from the full range of disciplines and specialties that are currently involved in dealing with toxic disasters. The group might include, for example, social workers, clinical or community psychologists, psychiatrists, and environmental sociologists. In addition, in light of the complexity of environmental accident situations, an international working group would be greatly strengthened if specialists in program development, public health, disaster planning, and public policy were included.

The goal of such a working group would be to improve psychosocial service development and delivery, promote research and training, and enhance preparedness for future chemical and nuclear disasters. Rather than replacing local, regional, and national efforts, the working group would serve as a resource for them. One particularly important role for a working group would be to facilitate the international sharing of information. At present, it is not uncommon for service providers in one country or locale to be unaware of similar projects conducted elsewhere. Clearly this makes it difficult for psychosocial assistance efforts to benefit from the lessons and insights of others dealing with similar problems. By facilitating the exchange of information on the psychosocial aspects of environmental accidents, an international working group could help overcome this situation.

One positive step in this regard has been the recent formation of the International Working Group on the Psychosocial Aspects of Ecological Disasters. Launched in late 1996 after the International Conference on Radiation and Health in Beer Sheva, Israel, the group brings together approximately a dozen researchers from Eastern and Western Europe, North America, and the Middle East. Members of the group meet periodically to share data and develop collaborative research projects. In addition, the group is currently preparing a monograph. Such efforts may serve as a catalyst for the formation of an expanded international network on the psychosocial dimensions of environmental disasters.

More Comprehensive Guidance Materials

An important outcome of the improved sharing of knowledge and experience should be the preparation of more comprehensive guidance materials focused specifically on psychosocial assistance after environmental accidents. Such materials would be most useful if they included clinical, program, and policy insights as well as information on potential difficulties and pitfalls connected with the distinctive features of toxic disasters. More extensive and detailed guidance materials than those currently available would be invaluable in facilitating the provision of timely and effective psychosocial aid after future chemical or radiation disasters. Making these manuals available on the Internet and publicizing their availability would allow authorities to access them instantly in the event of an accident.

A useful adjunct to the preparation of more comprehensive guidance materials would be to assemble in one place a full range of published and unpublished materials on the psychosocial aspects of environmental disasters. An academic institution or disaster research center might be one logical location for the materials; another might be the World Health Organization, which by international convention plays the central coordinating, directing, and assisting role after nuclear accidents (32). A further possibility might be to situate such materials at a proposed Reference Centre for Technological Disasters under the auspices of the International Red Cross (33). Mental health, human service, environmental, emergency response, and other officials could be notified of the existence of the collection, thereby permitting specialists from around the world to
easily and quickly locate needed materials following an environmental accident.

**Identifying and Assisting High-risk Populations**

Although no group is immune from the effects of environmental accidents, evidence from various studies suggests that, depending on the situation, the psychosocial fallout from an environmental accident can hit particular populations especially hard. In the aftermath of the Exxon Valdez oil spill, for example, Palinkas et al. (2) found that younger age groups, women, and Alaskan natives appeared especially vulnerable. A study by Bromet et al. (1) found that after the Three Mile Island nuclear accident, women with preschool children were apparently at increased risk. For maximal effectiveness, human service assistance efforts in the aftermath of environmental accidents need to identify high-risk populations and develop special projects or interventions as appropriate.

Children are one group that may warrant special consideration and that may have special requirements (34). Invisible hazards can be difficult for children to understand and therefore may be particularly frightening for them. Children sense the fear around them and hear about the danger, but in contrast with adults, they lack outlets such as political activism or support groups to help them deal with the threat. Some studies have reported psychosocial impacts in children after environmental accidents (8); therefore, it would be prudent after environmental accidents for human service interventions to include a special component for children.

Such an effort was launched by Canadian health and social services staff in the aftermath of the 1988 Saint Basile le Grand warehouse fire, which released polychlorinated biphenyls (PCBs) into a residential area near Montreal, Quebec. Special materials were developed that included a) a coloring book for children 6 to 10 years of age, to explain PCBs and to help the children express their feelings about the situation; b) a mystery/detective booklet for children 9 to 12 years of age, which helped them to learn the meanings of terms such as PCB, toxin, contamination, dioxins, furans, etc., and which also promoted the expression of feelings; and c) a publication to help adults initiate discussions of the episode with their children. The materials represented a collaborative effort among a variety of human service professionals, including a psychologist, a specialist social worker, an educator, and a school social worker.

**Training Needs**

As attention to the psychosocial impacts of environmental accidents continues to increase, and the knowledge base in this critical area grows, it will be important for the training of human service workers to keep pace. What this means in practice is that there will be a need for professionals and volunteers who have traditional human service skills and a general knowledge of disasters, but who also have at least some specific training and experience in the field of environmental hazards and technological disasters.

Clearly, many generic human service skills (e.g., group facilitation) have great value in the context of environmental accidents. Equally, numerous insights from general disaster training and from the natural disaster literature have relevance to contamination situations. Among them is the recognition that human service workers often need to go out into the community to find those who need assistance rather than simply waiting for people to come to them (35). However, as noted in the opening portion of this paper, environmental accidents bring with them a distinctive, complex, and challenging constellation of problems. It will be extremely important for those involved in psychosocial assistance efforts to understand the characteristics and dynamics of this "new species of trouble" (12). Further, just as it would be useful for medical personnel in an environmental accident setting to have some familiarity with psychosocial issues, so too would it be beneficial for human service workers who are involved with contamination-related psychosocial assistance efforts to have a basic knowledge of environmental hazards. Calls for integrating educational material with environmental content into social work, mental health, and other human service curricula have been made for at least a decade (36). The developing role of community psychologists, environmental sociologists, and social workers in responding to environmental accidents now makes the further incorporation of such material crucially important. Likewise, the development of interdisciplinary courses that would bring together people from fields such as public health, social work, and public policy would be valuable. As Logue has argued, "The importance of an interdisciplinary approach to studying global threats" such as disasters "cannot be overstated" (37). Finally, additional discussion of technological disasters could be included in general disaster training. Some American Red Cross training courses, for example, now recommend familiarity with both natural and technological disaster events (38).

**Better Integration of Psychosocial Factors into International Emergency and Disaster Planning**

Because the psychosocial consequences of chemical and radiological disasters can be as important as their biological and ecological impacts, there is a pressing need for psychosocial issues to be better integrated into accident and disaster planning at the local, national, and international level. One useful move in this direction would involve including more information on psychosocial factors in the training provided to specialists who are charged with responding to chemical and nuclear accidents. A complementary step would be for environmental sociologists, social workers, community psychologists and other professionals with expertise on the psychosocial aspects of environmental accidents to be included in emergency response mechanisms and response teams. Addressing the many complex problems created by environmental accidents clearly requires the insights of a number of fields and disciplines and the cooperation and collaboration of a range of health and human service professions. Multidisciplinary teams tackling the effects of environmental accidents will be strengthened by including professionals who have expertise on psychosocial impacts and psychosocial assistance.

**A Need for More Research on Psychosocial Service Delivery**

Although a variety of important studies of the psychosocial consequences of nuclear and chemical accidents have been published, as noted earlier, there has been considerably less work published about efforts to provide psychosocial assistance to environmental accident victims. In part, this stems from the relative newness of the endeavor. In addition, the pressure of dealing with service delivery can leave little time for stepping back to reflect upon and assess the experience.

Clearly, if future service efforts are to benefit from the experience accumulated to date, it will be important to conduct additional empirically grounded research on psychosocial assistance efforts. For example, case studies of individual psychosocial
assistance projects could be useful in identifying unanticipated problem areas and new training and resource needs. Wherever feasible, evaluation studies could also be quite valuable. In addition, because there is much that is new in this developing area for human services, research would also be appropriate on the legal and ethical issues arising from psychosocial assistance provision for environmental accident victims.

Conclusion

Environmental accidents pose an important and continuing threat to public health today, and they represent a growing area of human need. Together with their biological and ecological effects, environmental accidents can leave in their wake a wide range of psychosocial impacts. Vyner’s words (39) remain apt: “All evidence indicates that adapting to an invisible exposure is a toxic process.”

The task of providing psychosocial assistance to affected communities is not a simple one. A variety of features that characterize environmental accidents, including the invisibility of contaminants, scientific and medical uncertainty, long latency of possible health effects, a continuing sense of threat, a sense of outrage, and profound social division, can combine to make these exceedingly challenging situations. Furthermore, the task of providing psychosocial assistance may also be complicated by the pervasive ambiguity, anger, lack of trust, and community polarization that follow in the wake of chemical and nuclear accidents. Thus, efforts to address and ameliorate the psychosocial impacts of environmental accidents need to be informed and guided by a thorough understanding of the complex nature of contamination situations.

One significant consideration in the planning and delivery of psychosocial assistance concerns the participation of stakeholders. In a context where people have already experienced a loss of control over their lives, it is vital that human service efforts not add to feelings of powerlessness. In this regard stakeholder advisory groups may prove useful. By including environmental accident victims and others, these advisory groups can increase trust, improve awareness of available programs, and help to create more responsive and effective services.

Efforts to plan, organize, and deliver psychosocial assistance services to affected communities must also include careful consideration of how best to interface with community groups. Many of the needs for support and action following an environmental accident can be met either through citizen groups or self-help groups. Clearly, the most valuable human service role is to complement, rather than replace, such citizen initiatives.

A potentially important role for psychosocial assistance efforts involves addressing the problem of social stigma. In the aftermath of environmental contamination stigma can be widespread, affecting residents, neighborhoods, and even whole regions. Because stigma and discrimination are so damaging and because they are regular features of environmental accidents, it is essential for human service providers to find ways to reduce them. This requires a proactive stance at the community level and serves to emphasize the importance of giving due weight to the social dimension when organizing psychosocial assistance.

With environmental accidents expected to be a continuing problem, it will be important in the coming years to strengthen institutional capacities for understanding and addressing psychosocial impacts. Toward this end it will be crucial to learn from the experience to date, expand the relevant knowledge base, enhance training, resources, and infrastructure, and improve our ability to respond effectively. Among the steps that could smooth the path for future psychosocial assistance efforts would be the formation of an expanded international working group on the psychosocial aspects of environmental accidents, the preparation of more comprehensive guidance materials on the provision of assistance after chemical and nuclear contamination episodes, and the inclusion of special components for high-risk groups (e.g., children and women with preschool children) in environmental accident interventions. Other actions might include further integrating into disaster response mechanisms the full range of human service professionals with expertise on the psychosocial aspects of environmental accidents, adding more content on environmental hazards to human service training, and conducting additional research, including evaluation studies, on psychosocial assistance efforts.

The best way to deal with psychosocial impacts, of course, is to ensure that they and the toxic disasters that produce them do not happen in the first place. Psychosocial assistance efforts are no substitute for conscientious disaster prevention initiatives, government and corporate accountability, full public participation, freedom of information, and adequate regulation. Nor are human service programs a substitute for having swift, just, and effective compensation mechanisms. With these provisions in mind, however, psychosocial assistance efforts have a vital role to play, in conjunction with medical aid, in helping victims of chemical and nuclear accidents. Attention to relevant program and policy considerations will help to ensure that this emerging role is carried out as effectively as possible.

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