V. DISASTER EXPERIENCES AND INVOLVEMENTS

Based on HICA-MYDP documentation, the EMOs in this inquiry were presented with a list of 29 hazards. They were asked to respond whether the particular hazard did occur once or more than once, and whether they were involved in its management in any way. Table 11 provides the key information. The results are reported in rank order of experiences and no distinction is made between emergencies which may have occurred but once and those which were experienced more than once. But some attention will be paid to this difference in the subsequent discussion. The table also gives the percentages of those who reported to have been involved "in the disaster response" - the complementary percentage (the percent tabulated subtracted from 100 percent) of those who claimed disaster experiences but not their direct involvement in response is not explicit in the table. In other words, the percentage of experiences in terms of which the hazards were ranked includes at least one occurrence and, again, the complementary percentage of those who did not report at least one such experience is obtainable by subtracting the tabulated percent from the maximum, 100.

The percentages of experiences range from a high of 86.9 percent (power failures) to the low of 1.6 percent (tsunami). But, of course, not all hazards can occur everywhere or anywhere so the percentages somewhat mask the geographic distributions of realistic hazards: somewhat obviously, one is hardly likely to have encountered a "tsunami" in Kansas, Nebraska or Iowa (and, indeed almost anywhere but in Hawaii). No geographic adjustment is made in this report since it aims, at this stage, only to provide data on the nationwide distribution

Table 11

DISASTER EXPERIENCES AND INVOLVEMENTS

Rank	Event	Experienced	Involved
1	Power failure	86.9	62.8
2	Winter storm	83.8	72.5
3	Hazmat/highway	77.9	69.0
4	Urban fire	71.3	59.1
5	Flood	69.8	62.3
6	Hazmat/stationary	55.7	61.2
7	Agricultural drought	59.6	20.6
8	Tornado	59.4	49.5
9	Flashflood	53.6	47.0
10	Urban drought	48.0	23.6
11	Air transportation	41.5	34.0
12	Wildfire	41.2	34.3
13	Rail transportation	39.9	32.0
14	Hazmat, rail line	39.0	33.0
15	Hazmat, pipeline	37.5	22.6
16	Hurricane	35.8	32.0
17	Civil disorder	31.2	21.8
18	Earthquake	23.1	13.1
19	Hazmat, river	20.2	16.1
20	Radiological/transport	14.2	12.0
21	Mine disasters	10.8	8.3
22	Landslide	10.4	6.9
23	Subsidence	9.3	5.5
24	Radiological/fixed fac.	8.8	7.1
25	Dam failure	7.9	5.8
26	Nuclear facility	5.0	2.8
27	Volcanic eruption	3.8	2.8
28	Avalanche	2.4	1.0
29	Tsunami	1.6	1.3

There is no clearcut difference in the pattern of experiences with natural and technological hazards: the thirteen obviously natural hazards listed have an average rank of occurrence of 14.1, while the remaining technological hazards have an average rank of 15.1. But some major natural disasters are, of course, reported by many of the respondents and thus rank high: floods, tornadoes, flashfloods; and this is quite clearly related to the fact that such events can, and do, occur across many areas of the country, while the threat of earthquakes or volcanic activities, for instance, threatens generically smaller areas of the nation.

Incidents involving radiological hazards generally rank rather low thus far, while emergencies involving hazardous materials straddle the middle rankings, typically having been experienced by perhaps one fifth of the EMOs.

It may be of some value to explore incidents involving hazardous materials somewhat more. Three of these have to do with essentially fixed facilities, while four items bear on transportation. The three items concerning stationary emergencies include: fixed facilities, pipelines (in that, in a given community, the pipelines themselves are fixed or stationary even though hazardous materials may be "transported" through them) and fixed facilities where the hazard refers to radiological materials. In responding to the separate questions, the EMOs could have reported none, one, two or three types of emergencies which they had encountered. A pattern index was generated and the result is provided in Table 12.

Table 12

STATIONARY EMERGENCIES INVOLVING HAZMAT

Index Value	Percent
0	27.9
1	44.5
2	23.5
3	4.1

The meaning of the results is simply this: 27.9 percent of the EMOs reported not to have experienced any of the three emergencies involving fixed facilities: in general, pipelines, or facilities which handle radiological materials. It also implies, that 72.1 percent did experience at least one such emergency (44.5 percent one only, 23.5 percent two of them, and 4.1 percent actually marked the questionnaire for all three items).

* Some fixed facility HAZMAT emergency was reported by 40.0 percent of the respondents;

* 19.5 percent reported both such a fixed facility incident and a specific incident involving pipelines;

* 4.1 percent marked all three items: HAZMAT emergency in some fixed facility, pipeline-related incident and radiological HAZMAT hazard in some fixed facility;

* In turn, 3.8 percent cited the two emergencies for which the question specifically postulated a fixed facility (HAZMAT in general and radiological materials problems) and did not refer to incidents involving pipelines;

* pipelines alone, as the locus of an emergency, were mentioned by 3.7 percent of the EMOs.

In a similar manner, emergencies with HAZMAT transportation may be explored. The transportation items included highway, rail and river transport, and the fourth item

dealt with transportation of radiological materials (without specifying the exact mode of transportation). Table 13, paralleling Table 12, shows whether the EMOs reported none, one, two,three or even all four transportation patterns as having led to an emergency.

Table 13

HAZMAT TRANSPORTATION EMERGENCIES

Index Value	Percent
0	18.5
1	34.2
2	28.3
3	15.4
4	3.6

In all then, 81.5 percent (!) of the EMOs referred to at least one of the modes of HAZMAT transportation as having led to an emergency and, indeed, as many as 19.0 percent of them (with index scores of 3 and 4) mentioned all such types of events. Figure 1 shows that:

* 31.1 percent responded that highway transport was involved in an emergency;

* 18.5 percent mentioned both highway and rail incidents;

* 18.5 percent stated that they experienced none of these transportation emergencies (as shown also in Table 13);

* 8.3 percent reported emergencies involving highway, rail as well as river transport of HAZMAT;

* in 5.8 percent of the responses, one finds experiences with highway and river transportation;

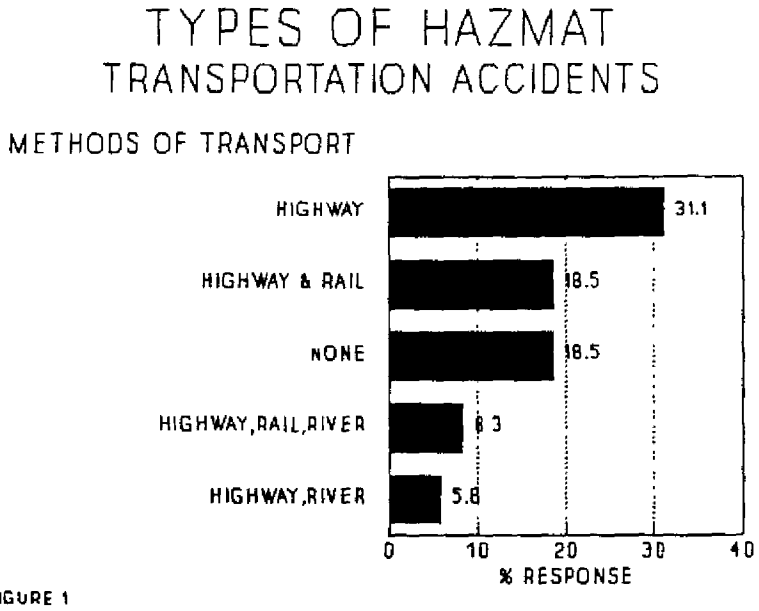

FIGURE 1

In addition when radiological incidents are included we find that:

* highway, train and transportation incidents involving radiological materials are referred to by 5.6 percent of these EMOs;

* and, certainly not insignificantly, 3.6 percent yield the index score of 4 (Table 13), thus having cited emergencies involving general transport of radiological materials, and more specific HAZMAT transport by highways, rails and rivers.

In all, 12.8 percent (the researcher cannot but be tempted to say "only" 12.8 percent) were, by their own reports, not exposed to either type of an emergency - one involving a stationary/fixed facility or one involving transportation of hazardous materials as shown in Figure 2.

* 15.6 percent reported both a fixed facility HAZMAT incident and some emergency involving highway transportation;

* 8.1 percent mentioned a fixed facility problem as well as both highway and rail transportation as emergencies they encountered;

* 7.9 percent experienced an emergency concerning highway transportation of HAZMAT and no other event;

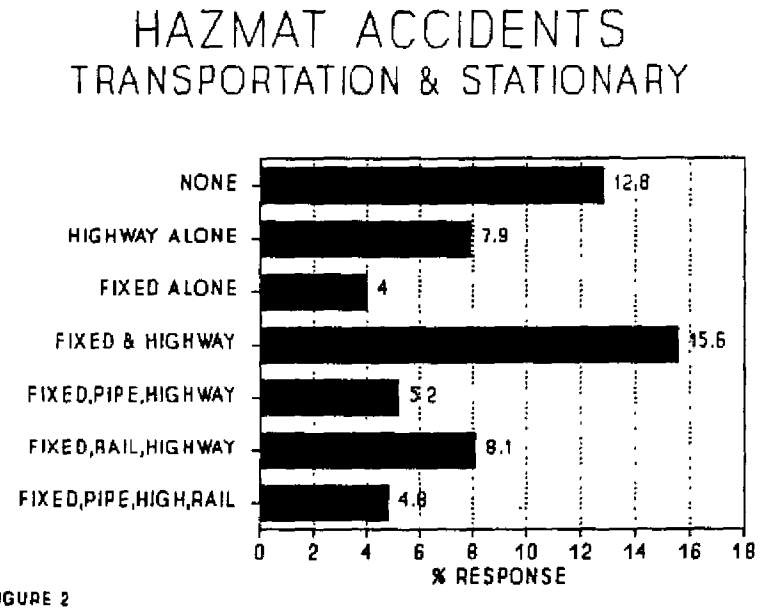

FIGURE 2

* 5.2 percent cited fixed facilities, pipelines and highway incident problems;

* 4.8 percent referred to fixed facilities, pipelines, highway and rail related events;

* 4.0 percent were involved in an emergency having to do with a fixed facility (HAZMAT) only.

Thus almost all of the EMOs have experienced emergencies with HAZMAT, and many of them both in terms of fixed facilities and HAZMAT transportation. Only some 12.8 percent have, thus far, been blessed in not having to face emergencies involving the production, use and transportation of hazardous materials.

The relative frequencies of involvements in disaster response yield a very high rank order correlation with having experienced a particular emergency at least once. The Spearman rho coefficient turns of to be .955 so that, as should not be surprising, the higher the percentage of experiences, the higher the percentage of EMOs involved in the response.

Table 11, as has been previously mentioned, does not differentiate between single and multiple occurrences of the particular events. It turns out, that the rank correlation between single and more than single occurrence is .596, high, indeed , but not as high as might be expected. Some examples, not exhaustively, will suffice to illustrate some of the differences between single and multiple experiences with given hazards. For instance, urban drought ranks first when it comes to one reported experience but 11th in terms of multiple occurrence (16.4 and 31.6 percent respectively). The occurrence of agricultural drought ranks second when it comes to single experiences, but 9th in the "more than once" category (15.5 and 44.1 percent respectively). An incident involving rail transportation of hazardous materials has rank 4 as a single occurrence, but rank 15 as a repeated experience. Winter storms of disaster proportions have a much higher occurrence ranking (rank 2) as a repeated event than they do as having been experienced but once (rank 16).

Apart from the relativizing rankings, one rule, however, holds for most of the hazards included in the roster: the percentages of EMOs reporting more than one such emergency experience is always greater than the percentage of those reporting a single occurrence, except for radiological incidents at a fixed facility, radiological incidents involving transportation and for volcanic eruption(s). In any case, the events which form an exception to the rule, a minor one at that, have been rather rare. In any case, the rank order correlation between repeated experiences and patterns of involvement in response is .946, while the Spearman coefficient amounts to .553 when the rankings are considered in terms of EMOs involvements and reported single occurrences of the particular emergencies.

The questions pertaining to the 29 specific types of hazards were followed by an open-ended probe to ask the respondents to identify other types of emergencies they may have experienced. Quite a few specific items, indeed, did show up but the percentages in each instance were below 1 percent. Examples might suffice: wind storms, insect infestations, bomb threat, ski lift evacuation, mountain rescue, mass casualties at a special (further unspecified) event,boating accidents, sinkholes, downburst, sniper incidents, high rise rescue, pesticide spill, bridge collapse and/or failure.

It would seem possible to subsume many of these additional reported emergencies under the categories explicitly listed. This was not done since the EMOs themselves, who provided such additional data, obviously did not do so themselves and thus viewed these types of events as not falling into the categories to which they previously responded. However, there may well be an alternative interpretation: the events reported apart from the "roster" explicitly provided may have been important enough or, for that matter, somehow unique so that the EMOs did not feel comfortable in subsuming them under the more generic headings and preferred to assign them a more specific, and thus somewhat less ambiguous, label. In fact, 9.2 percent of the EMOs mentioned one additional emergency beyond the 29 specifically listed, 2.4 percent identified two such events, and 0.7 percent referred to three disasters, or events which they considered of sufficient importance to mention and which were not, in their own perception, "covered" by the explicit roster of hazards.

In sum,

1. The experiences of the EMOs are quite heterogeneous as might be expected.
2. Some emergencies have been encountered more than once by most of the emergency managers; some have been experienced by only a few of them.

3. Among natural disasters, floods, tornadoes and flashfloods are very frequently reported as having been experienced at least once, radiological incidents are relatively rare while incidents involving hazardous materials represent a fairly high level of experience, both transportation incidents and emergencies at stationary locations of such materials.

4. For emergencies reported to have been experienced more than once by many EMOs, the percentage of those who were involved in the disaster response also tends to be high - not a surprising finding.

5. Basically, the percentages of those who cited repeated, rather than single, occurrences were higher, and generally much higher, than were the percentages of those who mentioned but one experience with a particular hazard. This is especially true for the most frequently identified emergencies.

6. The EMOs were significantly involved in disaster response whether the event occurred but once or more times. But they were much more frequently involved in disaster responses for those hazards which they experienced more than once.

This all may well imply that in communities with relatively little experience with emergencies and disasters, the officials serve mainly in the role of planners and not be directly involve in disaster response. Where emergencies have occurred with some frequency, the role may be more defined as that of a coordinator of the operational response. It, too, might be the case that actualizations of disasters provide the local/county EMO to expand his/her role from planning to response coordination especially if effective management of operational response proves to be somewhat less effective than it might be.

VI. THE THREAT OF HAZARDS

Questions 36 through 64, in turn, sought to ascertain the kinds of hazards local and county EMOs thought their areas had to face. The listing including the same twenty-nine (29) hazards which were incorporated into the probe about prior experiences and involvements in disaster response. The questions, in this segment of the instrument, involved two dimensions: whether or not a given hazard might potentially affect the community or area, and whether the hazard was to be considered a significant one.

In keeping with the HICA-MYDP approach, a significant hazard was defined (and the definition was included in the questionnaire) as one which (a) historically has affected the jurisdiction, (b) could result in loss of life or property, (c) the emergency management organization at the appropriate local/county level would be involved in response, and (d) specific plans exist or are needed to respond to the hazard.

Thus the first question concerning the potential threat has to do with the likelihood of the respective event, while the probe regarding the significance of the threat identifies some of these events as quite likely, likely to have important impacts on the area, likely to involve the emergency personnel were it to occur, and likely to have been planned for (or rather against) or requiring appropriate planning.

Table 14 contains the responses of the EMOs, and the hazards are again presented in the rank order of the percentages of reports on the part of those who viewed each event as potentially affecting their jurisdictional area.

Here, in terms of the ranking pattern, natural disasters yield an average rank of 16.7, while man-made, or technological threats yield an average of 13.6. And when it

comes to identifying significant hazards, the difference is somewhat increased: the rank average is 17.5 for natural hazards but 13.0 for technological ones.

No such differences emerged in the previous Chapter of the paper in which the respondents identified occurrences of various emergency/disaster events. Thus it would seem that threat to the jurisdictional areas is somewhat more often seen in terms of failures of, and problems with, human technologies (directly or indirectly) than in terms of natural disasters.

In this regard, the concerns with hazardous materials, their rail and highway transportation and such fixed facilities as may exist are of great importance, as are worries about air transportation disasters and incidents involving transportation of radiological materials - a matter which could be considered but a version of transportation of hazardous materials in general. Winter storms with their impact, tornadoes, floods and flashfloods (having been also experience by a majority of the respondents more than once) rank also quite high on this roster of worries.

Events likely to occur in the jurisdiction also tend to be viewed, on balance, as representing a significant threat. Perhaps in other words: the more likely such events are to occur, the more significant they are perceived to be if they occur. The rank order correlation amounts to .974, and the correlations, in Spearman rho terms between the experiences (as reported previously) and assessment of threat and of defining the threat as a significant one are also high: the coefficient becomes .862 between reported experiences and the threat posed to the community, and it is .867, slightly higher, for the relationship between the ranking of the hazards by their occurrence and by their perceived significance for the respondent's jurisdiction.

Table 14

THE THREAT OF HAZARDS AND THEIR SIGNIFICANCE

Rank	Event	Threat	Significant threat
1	Hazmat/highway	97.8	91.5
2	Power failure	95.2	68.8
3	Hazmat/stationary	89.9	76.9
4	Winter storm	88.7	75.8
5	Radiological/transp.	85.8	63.0
6	Hazmat/rail line	82.8	75.6
7	Urban fire	82.6	67.9
8	Air transport	82.0	69.9
9	Tornado	81.2	68.7
10	Flood	80.6	61.5
11	Railway transport	78.5	64.7
12	Flashflood	69.7	52.6
13	Urban drought	68.9	39.9
14	Agricultural drought	67.5	42.9
15	Hazmat/pipeline	67.4	53.6
16	Civil disorder	66.7	37.4
17	Wildfire	58.4	43.4
18	Earthquake	54.4	32.4
19	Dam failure	46.1	29.4
20	Hazmat/river	44.4	34.2
21	Hurricane	39.9	32.0
22	Radiological/fixed	38.8	24.4
23	Nuclear facility	28.0	18.1
24	Subsidence	19.7	10.3
25	Landslide	18.9	8.0
26	Mine disaster	16.0	10.4
27	Avalanche	6.0	1.7
28	Volcano	5.3	3.1
29	Tsunami	4.3	2.3

Prior involvements in disaster response also produce high (rank order) correlations with both threat perceptions and the assessment of the threat as a significant one: the corresponding coefficients are .857 and .882, suggesting a somewhat greater, though just by a small extent, tendency to define as significant those threats in the management of which the EMOs had been previously engaged.

One central finding permeates the data: generally more of the EMOs, and often many more, perceive a threat, and even a significant one, to their jurisdictional (local/county) area from a particular hazard than reported having experienced it at least once previously.

This suggests, if anything, heightened sensitivity to, or concern over, risks in the future and, perhaps, a sense that some disasters which have yet to occur are likely to actualize somewhere along the line. It, too, may naturally reflect an indirect, even subconscious, prodding of the larger body politic and of the relevant Government levels that more needs to be done to prepare our communities to face future hazards and to prepare them better. In any event, such an emphasis is certainly also not misplaced since the complexities of modern life, and the broadly perceived threats to the wellbeing of our people, cannot but be of profound concern to the EMOs. And furthermore: as the general standard of living increases, as it does even though at a relatively slow pace, there is more to lose in any given disaster than would have been the case some years or decades ago, and this holds not only about property (which is, after all, inherently replaceable) but also about population growth and the distribution of our people across the national landscape.

And so:

1. More than 80 percent of the EMOs identify ten (10) of the hazards as a potential threat to their communities and more than two thirds of them consider six (6) of the hazards to pose a significant danger: to wit, highway and railway transportation of hazardous materials, incidents involving fixed facilities dealing with, or processing, hazardous materials, power failures, winter storms and tornadoes. On this list, four of the hazards involve technological threats and two are of the natural disaster variety.

2. Hazards posing a threat to the community also tend to be seen as significant ones.

3. The future threats, in the way of guestimates by the EMOs, exceed the reports of prior emergency experiences with the respective hazards.

4. Experiences with prior emergency of a given kind are, at least in terms of rankings of the different events, highly related to perceptions of threat and to the imputation of significance to such dangers.

5. Prior involvements in disaster management, in rank terms, are also highly related to threat identifications and even (if slightly) more so to the designation of a particular threat as a significant one.

VII. MAJOR RESOURCES

Eleven items were identified as critical resources. The EMOs were asked to indicate whether updated inventories existed, whether there may exist shortfalls in any of the resource areas, whether they may have identified potential sources or suppliers, whether they have written agreements in place with respect to the acquisition and flow of such resources, whether priority allocations have been planned and whether any of these resources might have to be rationed in some manner in the event of specific shortages.

In all, 86.0 percent of the EMOs said that there was a specific individual in their organization with responsibilities for resource management. Some 26.3 percent reported that their resource data base was computerized.

The data of Table 15 show that more than two thirds of the EMOs maintain updated inventories of three of the key resources: manpower, emergency transportation and heavy equipment; and the maintenance of inventories falls below 50 percent only with respect to construction materials, emergency clothing and emergency finances.

In turn, only emergency finances are referred to among the shortfalls by a slight majority of the respondents (51.1) while other resource deficiencies are mentioned generally by one fifth to one third of the EMOs. How the EMOs arrived at a judgement that a particular resource would be potentially insufficient and thus constitute what has been termed here "a shortfall" cannot be ascertained, but at the minimum, these are claims regarding shortfalls and whether they reflect some realistic assessment or but a more general viewpoint does not change the value of such information.

Table 15

RESOURCE INVENTORIES AND SHORTFALLS

Resource	Inventory	Shortfall
Manpower	82.6	30.3
Emergency transportation	72.8	23.9
Heavy equipment	71.5	23.3
Medical, sanitation supplies	61.6	24.6
Emergency housing	60.2	31.6
Emergency fuel	58.9	28.0
Emergency food	55.2	30.7
Emergency water	51.7	30.4
Construction materials	35.3	27.5
Emergency clothing	35.2	35.0
Emergency finances	33.4	51.1

Potential sources or suppliers of critical resources have been quite often identified and a fair number of written agreements appear to be in place to provide such needed resources under emergency conditions. Yet, for any of the resources such agreements do not exist in a majority of the jurisdictions and, more typically, they characterize some 10 percent to one somewhat over one third of the programs, with agreements regarding manpower being the only resource on which agreements exceed 40 percent (44.6 percent). Table 16 sums up the information.

Table 16

SOURCE IDENTIFICATIONS AND WRITTEN AGREEMENTS

Resource	Source identified	Agreement
Heavy equipment	70.7	30.9
Manpower	70.0	44.6
Emergency transportation	69.3	30.0
Emergency housing	58.7	34.7
Medical, sanitation supplies	58.1	30.6
Emergency fuel	58.0	22.3
Emergency food	57.6	26.8
Emergency water	53.3	21.4
Construction materials	44.7	9.7
Emergency clothing	43.3	16.3
Emergency finances	38.5	16.9

In about one in ten to one in three of the jurisdictions some priority allocation plans for resource utilization have been developed in light of competing local demands, though many more respondents believe that some of the resources (especially food, water and fuel) would have to be rationed for public use. The results are provided in Table 17.

Looking across the data, some truly interesting findings emerge. For example, the rank order correlation between maintaining up-to-date resource inventories and perceptions of likely shortfalls has a rather high negative value of -.664. This might suggest that more, or better, inventories are kept of resources less likely to prove insufficient in an emergency situation. But an almost opposite perspective seems also quite compelling: the resources may prove more sufficient precisely because better inventories are in place.

Table 17

PRIORITY ALLOCATIONS AND RATIONING PROSPECTS

Resource	Prioritized	Rationing
Manpower	34.5	17.0
Emergency transportation	30.0	25.3
Medical, sanitation supplies	26.3	40.1
Heavy equipment	25.0	19.0
Emergency food	23.3	70.9
Emergency fuel	22.5	66.6
Emergency water	21.5	73.6
Emergency finance	13.3	33.0
Emergency clothing	11.3	28.5
Construction materials	10.4	21.8

Along similar lines: the rank correlation between development of priority allocation plans and the perceived need for possible rationing is also negative, that is, -.254, and so is the correlation between shortfalls and the development of priorities regarding resource utilization, -.534, while the correlation between shortfall identification and the possible need for rationing has a positive coefficient of +.364.

What does all this suggest? More and better inventories exist for critical resources less likely to prove insufficient, and perhaps this is, to repeat, chiefly due to the very fact that inventories get developed and are maintained; priority allocations tend to be made for resources less likely to have to be rationed; perceived shortfalls refer to resources less likely to involve priority allocation planning, but the probable shortfalls are more likely to involve resources which may need to be rationed. It might well be construed to mean that the EMOs might be taking the easy way out, that is, dealing with problems that are more

manageable and dealing less with problems that could present serious difficulties in a disaster environment.

On the other hand, a strong argument can be made to say that some problems are less vexing precisely because the EMOs have taken steps to deal with, and overcome, what would otherwise be very serious difficulties. The data, of course, do not directly support such a speculation or any other, but one cannot escape the sense that there is some such meaning behind the pattern of the data. A more detailed analysis, not here carried out, may shed some light on this by considering the interrelations of these items.

In part, the speculation previously proposed is somewhat weakened by the fact that some 78.3 percent of the EMOs reported having made some provisions for obtaining resources during an emergency. The data come from a response to an open-ended probe following the explicit questions about the eleven resource categories included in the instrument. But the responses remain somewhat unspecific, at least the major ones. Thus 19.5 percent of the EMOs refer to various forms of "mutual aid," a pattern of less than formal agreements with others; 16.2 percent mention disaster plans, EOPs or appropriate Manuals; 11.8 percent are quite specific in citing agreements (not necessarily written) with local suppliers (business, industry) and vendors, with transporters and the like. Almost 10 percent of them (actually, 9.8 percent) refer to agreements with various government agencies. Telephone lists or computerized resource lists are explicitly mentioned by 5.0 percent of the respondents as a way of accessing potential sources and suppliers of needed resources in a disaster situation.

1. On the national scale, critical resource management is clearly something of a problem. In many jurisdictions and at least with respect to some resources, up-to-date inventories do not exist, and even though sources and suppliers of resources of the likely shortfall variety may have been identified (and in many jurisdictions this too has yet to be accomplished), written agreements which would formalize the flows of resources when needed are relatively infrequent as are plans regarding allocations of scarce resources when they would be most needed.

2. Even in jurisdictions in which inventories are reported and shortfalls are identified there appears to be some tendency to address resource issues which seem more easily amenable to intervention than to deal with the more problematic resources, or else, and perhaps even more likely, the active steps the EMOs took to handle the more serious problems have succeeded in reducing their severity.

3. Yet, in 86.0 percent of the instances a particular professional or employee is responsible for resource management, an admittedly very difficult task but one which, perhaps, might be facilitated by its better definition in terms of goals to be achieved and how to go about achieving them.

VIII. EMERGENCY OPERATIONS CENTERS

Only 9.2 percent of the EMOs said that there was no EOC in their jurisdictional areas. And 88.8 percent responded that an EOC did exist. Without doubt, an EOC where all appropriate personnel with emergency management responsibilities, from whatever agency as well as from relevant governmental level, can assemble and coordinate their efforts is yet another critical resource. Some of the EOCs have coordinating responsibilities beyond the jurisdictional area in which they are located. Table 18 provides the relevant data.

Table 18

EOCs SERVING BEYOND JURISDICTIONAL LOCATION

	Percent
State EOC	5.5
Alternate EOC	8.0
Substate regional ("central") EOC	7.8

Fourteen questions, adapted from the HICA-MYDP instruments, were used to ask the respondents to identify some of the key characteristics of their respective EOCs. Table 19 is ordered by the percentages of responses to each of these items. It shows that most of the facilities are protected against unauthorized entry and that they have a capability of receiving alerts and warnings from both State and Federal authorities on a 24-hour a day basis. More than three out of four are located outside of flood plains, and just about as many are activatable within about 15 minutes.

Table 19

SOME CHARACTERISTICS OF THE EOCs

	Percent
Protected from unauthorized entry, theft. vandalism	79.5
Capable of receiving alerts and warnings from State and Federal authorities	77.3
Located outside of flood plains	76.3
Capable of 15-minute activation	75.1
Has own independent heating, air conditioning, ventilation system	52.4
Protects equipment against power surge	51.0
Operated on a 24-hour a day basis	50.2
Has at least 50 square feet of space per person for all officials and staff	48.4
Has own independent sanitary facilities	44.7
Has own independent mechanical generator with connected 14 day fuel supply	41.4
Stocked, or has access to, food,medical operational supplies and communications repair parts (for 14 days at least)	30.7
Has independent water supply	27.6
Provides EMP protection	14.4
Is mobile (such as a trailer)	10.3

By contrast then, but a few of the extant facilities are mobile or can provide protection against the electromagnetic pulse (which particular configurations and deployments of nuclear weapons could cause), and many do not have an independent water supply or necessary supplies of water and food or needed repair parts, at least not for the postulated two week period.

The picture which emerges is one of EOCs as rather rudimentary facilities which fall quite short of what might be desirable and, under the most severe conditions, even prudent. But this in itself does neither deny their utility nor their value, and it establishes the kinds of benchmarks relative to which further enhancements in the EOC capabilities can, and most likely will, be pursued. To a significant, though naturally imperfect, degree some key standard operating procedures have been developed for the EOC or whatever direction and control facility. The data are given in Table 20.

Table 20

STANDARD OPERATING PROCEDURES

SOPs	Percent
Identification of responsibilities of direction and control staff	78.0
Outlining communications procedures and protocols	74.2
Outlining operations at less than planned staff levels	63.1
Providing for direction and control staff augmentation by volunteers, if needed	60.5

Many of the EOC-type facilities have dual, or even multiple, use. Some 71.6 percent of the EMOs reported that the EOC, or the area that serves as the EOC, is used for other functions as well. Indeed, in many instances the additional function is clearly the primary one. The most frequent responses are provided in Table 21. Public safety, police and fire operations and communications areas are often cited in this regard as are other more specific office or meeting room uses of the area.

Table 21

ADDITIONAL OR PRIMARY USES OF EOC AREA

Use, Function	Percent
Meeting room	21.5
Classrooms, training rooms	16.5
Emergency response staff offices	13.4
Police operations/communications	9.6
Emergency dispatch/communications	7.6
Fire operations/communications	5.0
County sheriff's operations/communications	4.0

But there are, on the whole, many other functions involved. Examples might suffice since each involves but a few of the respondents. The EOC is also used as the county courthouse (1.9 percent): in other words, the county courthouse houses the EOC and the courthouse function is self-evidently the dominant one. The area is used for storage purposes, as a lunchroom, as an animal control center, as the coroner's office or offices, as an alternative school. It is located in a fire station, it is used as lockers and showers area, as offices for city or county administrators, as a museum or art gallery, as a library, as the grand jury room and the like.

Some points perhaps merit highlighting.

1. There does exist an EOC or some direction and control facility in by far most of the jurisdictions from which responses were obtained in this study.

2. Basically, however, the EOCs are rather simple, rudimentary, in their characteristics so that a great deal of enhancement and improvement is possible, and perhaps needed.

3. Most are operated on a 24-hour basis, though by far not all, and most can be activated within about 15 minutes, and most are thus capable of receiving alert and warning messages from governmental authorities, State and Federal, at any time.

4. Quite a few of the EOCs are not dedicated areas but are used for other purposes on a more routine basis and, in fact, it is the EOC function that tends to be secondary (which is neither surprising nor bothersome in light of the pressure on space utilization) to the primary or other activities which the EOC-defined area subserves.

IX. SHELTERS

In all, 67.1 percent of the EMOs asserted that their jurisdiction is in possession of current Shelter Survey information. But one in four, 25.3 percent, responded to the question in the negative. Many jurisdictions, 76.2 percent, have also planned for suitable locations to be used as registration and reception centers for shelter facilities, 16.5 percent reported no such plans.

Emergency housing, of course, also constitutes a kind of shelter. In a previous Chapter (Chapter VII) it has been already shown that 61.2 percent of the respondents stated that updated inventories of housing in the event of an emergency were being maintained, that this might prove to be insufficient in times of need (31.6 percent), that potential sources of additional housing to bridge the difference between what is available and the likely shortfall have been identified (58.7 percent), and 34.7 percent mentioned that written agreements regarding emergency housing were in place.

In an attack environment, the EOCs, if they were to continue their activities, would also have to serve as shelter for the direction and control personnel. At the minimum, they could serve as fallout shelters since it certainly cannot be expected that EOCs, any more than other structures save those constructed solely for that purpose, would survive primary weapons effects.

The EMOs were asked about the protection factor of their respective EOCs. The data are shown in Table 22. Quite obviously, only about one third of the EOCs are characterized by a PF of 40 or more, and very few, indeed, have a PF of 1000 or more (3.8 percent).

Table 22

PROTECTION FACTOR OF EOCs

Protection factor	Percent
Less than 40	14.2
PF 40 to PF 100	12.9
PF 100 to PF 1000	14.7
PF 1000 or higher	3.8
Don't know	42.4

But most surprising is the finding that so many of the EMOs did not know the possible PF of the facility. In fact, if those who did not answer the question, 5.1 percent, are likely to be respondents who also did not know, as seems probable, but didn't want to mark the "don't know" response option, it is fair to conclude that almost half of the EMOs were unaware of the fallout sheltering potential of the EOCs in their jurisdictions. Needless to say, in an international environment in which a nuclear war seemed more probable, were it not actually imminent, the EMOs would be eager, and able, to determine the capabilities of their EOCs in short order. What the finding, however, may well underscore is the observation that certain types of information, no matter how otherwise valuable, will not be absorbed and retained or even acquired when there appears to be little need for it, when such information appears to be irrelevant.

It is findings such as these which repeatedly indicate why educational and informational campaigns in general, not just FEMA's, do not lead to significant changes in public awareness or understanding. Here, in fact, the professionals in the emergency management community are uninformed and it is obviously reasonable to argue that this is, indeed, due to the irrelevance of such information under normalcy conditions when so

many things need to be known and done about situations and hazards much more salient at the time than the remote possibility of a nuclear confrontation.