

## BOOK REVIEWS

"OUR USUAL LANDSLIDE": UBIQUITOUS HAZARD AND SOCIO-ECONOMIC CAUSES OF NATURAL DISASTER IN INDONESIA. By Susan E. Jeffery. Working Paper No. 40. Boulder Colorado: Institute of Behavioral Science, University of Colorado, 1981. 53 pp.

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Two phrases are in use on the Indonesian island of Lembata and neighbouring regions which reflect the omnipresent threat of disaster. Two perennial hazards, "our usual landslide" and "our usual hunger", far from being climatic aberrations, are embedded in the yearly round of wet and dry seasons. Those phrases betray the fatalistic resignation with which the victims view their inevitable calamities.

Susan Jeffery from the Centre for Development Studies at the University of Bath in England sets these ubiquitous disasters in a framework which has **vulnerability** at its centre. Jove thundering in his heaven will never be silenced, but management of their affairs by humans repeatedly invites the worst outcomes: by maximizing the vulnerability. As her central theme, vulnerability is drawn from a review of literature on ecological upsets and explicated largely through a systematic case-study of a tsunami disaster on Lembata in eastern Indonesia in 1979.

The inhabitants had apparently been encouraged months before to move from the hazardous area to a new site on the other side of the island, to be made ready by government funds and action. They declined to move because they "had to wait for the harvest of their rice and corn." Deeper reasons did emerge, however, revolving around their coconut trees, their lifetime investments of labour, and no doubt those intangibles which make forced migration always unpalatable. The consequences were serious in terms of death and destruction, the "usual" landslide being unusually wanton.

Predictably there is no solution to the problem, although uprootings of population by public policy, and transmigration (common in Indonesia), are depicted as equally damaging to the ecological balance as the local human decisions which "produce" the disasters. The heavy hand of fate is really the blind force of modernization, the great disturber-of-the-peace. A reduction in vulnerability, on the other hand, also involves changes in settlement patterns which are out of step with the population-environment balance.

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Susan E. Jeffery

**"Our Usual Landslide": Ubiquitous Hazard and Socio-Economic Causes of Natural Disaster in Indonesia**

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The author sees vulnerability as a function of complex social and economic processes, and to make this clear she draws together two threads of argument. The first concerns people and the choices they make and are allowed to make. Put another way: drought is (partly) a consequence of human action, so, are floods, so are landslides; nor is it difficult to show the human role even in volcanic hazard when the focus is on human decisions about settlement. The rich mountain slopes, invigorated with fertile layers of mud, present to farmers an offer too good to refuse. Two harvests rather than one; three harvests rather than two. Fireside talk in a hundred peasant huts would weigh the odds: the chance of prosperity, the risk of volcanic outburst in a land, it seems, always on the brink of some calamity or other. And following the calamity, the rush to reoccupy the perilous scene.

The other thread used by the author is modernization, rationalisation, development. The peasants are caught on a irresistible ramp called economic progress which prompts central government to relocate whole villages in the interests of efficiency--and the avoidance of disasters. The colonial Dutch began the process, purportedly for ease of administration, but more likely for the trade advantages. I see the strength of this paper in its holistic view. Colonialization, modernization, traditional social structure, peasant myths and motivations, are woven together in a cogent case for the human cause of disasters.

As Charles Fritz had it, a disaster is an event that disturbs the vital functioning of a society, since it involves several separate systems: systems of order, of meaning and of motivation. Without mentioning system, Susan Jeffery draws most of those elements together in her analysis of the central concept of vulnerability. A balance of systems contains the seeds of its own instability; a finely-balanced ecosystem which has nurtured life for generations can be thrown awry by public policy and modernizing processes. Not simply population pressures--although that must be a product of modernization. Not simply degradation of the environment--although that must follow cash-crop production on a shrinking land-base. There is a complex set of factors, whose interrelationship is carefully worked up in the paper. One is reminded of the concept of Ecological Complex of Otis Dudley Duncan, with its three-way input of population, organization and environment. Jeffery's analysis of factors includes a treatment of the 'development of underdevelopment' which seems to explain the downward pressures in some undeveloped third world areas.

Disaster researchers do well to insist on social and economic factors as causes of disaster. It is vain, however, to suppose that human arbitrariness can be caught up in that rational net. Decisions to live in hazardous areas are not solely explained by pressures of modernization. This is well-illustrated by a holocaust of bushfires in



Southern Australia in February 1983 which took 81 lives and caused enormous damage in areas long regarded as fire-hazardous. In the absence of precautionary building regulations, and with bitter memories so fresh, victims have started rebuilding in just those areas--because that is where they want to live. This intangible factor interferes with the most skilful theorizing.

Jeffery's contribution in bringing together historical, ecological, economic and cultural factors which increase vulnerability will add to the understanding of those seeking the key to disaster mitigation.

**MAY DAY AT ST. JOSEPH'S FIRE AND EVACUATION AT A MAJOR CITY HOSPITAL.** By **Susanne Alldred, Robert Hiscott and Joseph Scanlon.** Ottawa, Canada: Emergency Communications Research Unit, Carleton University, 1982.

**John L. Bryan**  
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This interesting report presents an account of the fire and the evacuation which occurred at St. Joseph's Hospital in Hamilton, Ontario, Canada on May 1, 1980.

This report presented six major conclusions in relation to the study of the fire and patient evacuation in this large general purpose hospital. The first conclusion indicated the usual procedure in a fire in a hospital is to avoid evacuation, and the study questions this procedure, recommending the consideration of an immediate partial evacuation and relocation of mobile patients, or patients for which evacuation posed no medical risk. Thus, the study recommended a two stage evacuation, with a final stage, if necessary, of a relatively small number of the high medical risk patients.

The second conclusion in the report indicated the size and design of the stairways were inadequate for hospital evacuation, in view of the two way flow of personnel during the evacuation. Due to the multiple persons often required to evacuate a single patient it is necessary for the personnel moving patients to make multiple trips. The authors indicated in their third conclusion the evacuation drills in hospitals should include familiarization with the evacuation routes, especially the stairways. Some persons appeared to be unfamiliar with stairway locations, and the floors were not marked on the stairway side of doors, resulting in confusion and unnecessary movement on the stairs.

The fourth conclusion of the study indicated there should be some type of a communications system to enable the transmitting of the information concerning the conditions throughout the hospital from the fire threat, specifically in this case, the spread of the smoke. The fifth conclusion indicated that hospitals should be inspected for the



for a sociologist to ask. Jäger in this book written in German starts with a critical review of the attempts made to define "disaster" without, however, accepting any of the definitions cited. In order to make his point the author presents data about a large number of different kinds of disasters, and in each case his evidence indicates how adequate preparations would have reduced the damage or would have prevented the disaster in the first place. However, adequate preparation would involve--and this is the crucial point throughout his analysis--a basic change in the structure of capitalistic societies, given their extreme focus on profits. Jäger illustrates the effect of the profit motive by a number of examples: an airplane crashes because safety measures cost money; flagrant violations of fire prevention and protection in large stores. He cites the case in which a number of people died from typhus after having eaten a potato salad, because the warning of the communal administration had been issued too late since, according to the official evidence "the justified safety of people had to be weighed against the business interest of the company." The author rejects the common and widespread view that the occurrence of disasters is an act of fate, an external variable. He rejects the argument that railway accidents are attributable to human failure, asserting that the causes as a rule are a lack of precautions and control, of specific actions, and last but not least, the absence of money.

According to Jäger the fault is less to be found in the single case, but rather in the whole social system. He interprets disaster preparedness measures and civil defense as a stabilizing tool for the established society, where the enemy or disaster always comes from outside, as an act of fate. In this sense, civil defense contributes to acceptance of mischief as inevitable.

In industry, according to Jäger, safety measures are not well planned and lack the best technical refinement. He regards "technical failure" as a misleading excuse used in most cases by responsible administrators. More importance should be given to human life and health than to economic interests. We might applaud and leave the details to the good will and skill of experts. But such a position is precisely the focus of Jäger's bitter protest. For him the whole society, including the cultural background from which stem the experts' terms of reference, is as he names it an "acquisitive society" (*Aneignungsgesellschaft*) in which the capitalist principle of appropriating the surplus value of other people's labor is dominant. The conflict between capital and labor is suspended, last but not least by the civil defense laws, designed to let everything "go back to normal" after each disaster. For Jäger, the "normal" state of society is precisely a state of chronic disaster, a state in which nature and human work are suppressed by the interests of capitalism, while a non-working minority owns the money and power to control this society. Put symbolically, the society should not build a new hospital



along a very dangerous highway on which a high rate of accidents is a regular occurrence, but should rebuild the highway.

He attacks the American "Sociology of disasters" for the same fundamental shortcomings. He quotes from the literature, "ecological disasters aside, we no longer believe that man brings ruin down upon himself. Instead we view disasters as accidents of nature that cause social and personal chaos" (pp. 144-145). He also quotes another disaster researcher as defining disasters as "tragic situations over which persons, groups, or communities have no control--situations which are imposed by an outside force too great to resist...Non-predictability may be an essential characteristic of disaster" (p. 144). To Jäger these statements serve as examples of defeatist and quietistic acceptances in a disaster prone society. Even some researchers in the United States have noted how monopolistic aspects of coffee production aggravated the outcome of frosts in Brazil, of earthquakes in Guatemala, and of floods in Columbia.

In his discussion of behavioristic stimulus response theories of people helping each other and of administrators helping victims overcome chaos in given situations, Jäger regards both actors as blind and dysfunctional because all they try to do is to restore the status quo, the "normal" disaster-prone society.

It is the merit of Jäger's book that he has adhered to his leftist viewpoint in a strictly scientific way throughout his analysis. However, the phrasing of his socially critical theory is a problem even for German disaster experts and administrators. The scientific format used in a German doctoral dissertation, and a sociological phraseology colored with the emotional overtones of a bitter critique of the structure underlying an established social order, results not only in an interesting theory, but a document written in a "special" language. Yet Jäger's book is part of the modern European culture and his general position does not stand alone.

**THE MISSISSAUGA EVACUATION FINAL REPORT.** By Ian Burton Peter Victor, Anne Whyte et al. Toronto, Canada: The Institute for Environmental Studies, University of Toronto, Canada, 1981.

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Starting just before midnight on November 10, 1979, the Peel Regional Police Force and others carried out an evacuation of more than 200,000 residents of Mississauga, Ontario, a sprawling suburb city just west of Metropolitan Toronto in Canada. The evacuation began after a train derailment spilled a number of toxic chemical including chlorine.

The Mississauga Evacuation Final Report by eight persons



associated with an institute at the University of Toronto is the most comprehensive account yet of the incident. It includes more than 400 pages of lists, graphics, appendices and text on the emergency response, the experience of evacuees, the economic effects and other problems. The most useful and original material in this report is drawn from six surveys covering both evacuees and those at the fringe of the evacuation area. These suggest everything from the fact the evacuation was not a total one--a small but significant group refused to leave--to the fact persons outside of the designated evacuation area left voluntarily:

60 percent of the households located close to the accident but to the north (away from the direction the wind was blowing) evacuated either voluntarily or because they could not return to their homes. Some were not reassured about the 'safe' wind direction and others were confused about the location of the evacuation zone perimeter.

Though some left on their own, those who did leave often decided, perhaps a day or two later, they wanted back:

Evacuees will be persistent in trying to cross road blocks and their detailed local knowledge of the neighborhood will enable some of them to enter unnoticed.

There were some ingenious and successful attempts to enter the evacuation zone. Some boys walked along the railroad tracks; another boy borrowed a canoe and paddled across the Credit River.

More important these mere facts is the evidence different groups behaved in different ways. Those who refused to evacuate, for example, were generally older, better off and without young children. Those who went to evacuation centres--95 percent did **not**--were generally teenagers, lower income groups and older persons brought there by someone else. They were also, incidentally, persons who had a less happy experience than those who stayed with family, friends or in private accommodation.

The experience on the whole was a more exhausting one for those in the centres. They emerged tired, more dishevelled and more in need of a good bath and rest than did other evacuees. Many more of them would not wish to repeat the experience--25 percent say they would go to a hotel the next time.

Even those whose initial response was to converge on the scene--roughly half of the population saw or heard the initial explosions--were identifiable:

When families heard the first explosion and saw the flames, it was often the father and older boys who went to see what was happening. Mothers, girls and younger children stayed at home.

In the case of Mississauga checking out did lead to some difficulties. The amount of congestion at the scene led to traffic jams which made it difficult for those converging to leave again.

There were, of course, some other problems. One was access to



medication. Most persons apparently assumed they would not be away long. They left any medication--even birth control pills--behind. Since physicians were not easily located (they, too, had evacuated) and medical records were left behind as well, these persons found it difficult to get needed help. This may have been especially true for those with emotional problems, some of whom were already out from hospital on the weekend or discharged because the hospital was evacuated. Because there was no health communication system operating they were unable to contact their doctors to get psychiatric care if they needed it. Some of them had difficulty coping for the whole week. The aged, especially the aged and infirm, faced similar problems. Some had no access to medication. Some tended to be confused and isolated from other evacuees. Finally, there was the problem of pets. While most dog owners (88 percent) took their dogs with them, fewer cat owners (55 percent) did the same. Fish, rodents and birds were left behind. This meant an estimated 2,000 dogs, 5,000 cats and 8,000 fish, rodents and birds were left in the evacuated area. That led to enormous demands for access--it was finally arranged that the Human Society could enter homes with a police escort to care for pets. It also explains part of the persistence by some in crossing police lines.

The authors of this report suggest such problems should be considered by planners. Arrangements should be made for special medical service. Plans should be made to deal with pets. And persons can be warned before they evacuate that they may be out for some time and should bring things they will need including medication.

In the surveys, the evacuees were asked specifically if knowing that the length of the evacuation could not be predicted, they felt they should have been told it could last for several days. The response was overwhelmingly yes.

Despite the leading nature of the question, the result seems reasonable.

All these difficulties--useful guidelines for others--do not obscure the fact the evacuation was enormously successful and it was successful because people looked after themselves.

95 percent of the evacuees found their own accommodation and made their own travel arrangements. They were out of the homes for periods ranging from 1-8 days.

Most evacuees were heading for specific pre-arranged destinations and the homes of friends or relatives. Twenty percent stayed within 5 kilometres, and 60 percent within 10 kilometres.

Since the evacuation was a step-by-step one which steadily expanded, many evacuees could anticipate what was coming and phone ahead to make arrangements. The amount of telephone calling was, of course, enormous.

Most dramatic of all, however, was the speed at which persons left their homes after being notified there was a danger.



Families in the first zone were asked to leave within two hours of the accident....60 percent.... left....within 15 minutes....within one hour, 90 percent of the homes within the first zone were evacuated.

There were a number of reasons for the speed. It was the weekend. Families were together. There was little traffic. In addition, Mississauga has excellent traffic arteries--it is crossed by Canada's largest and busiest highways--and most persons have cars. Nevertheless it is impressive and tends to support those who argue massive city evacuations can be done at high speed using private vehicles.

How was all this accomplished? Who made the decisions? Why did people leave? The last question is easiest to answer. They left because they could see, hear and smell the disaster and because they were told by friends, families, neighbors, police and the media they should get out.

Many sought to confirm the (original) message by checking it through another channel. They would check friends' reports against the media or would try to telephone someone in charge; they would cross-check TV reports with radio.

In Mississauga all the checking produced one consistent message: get out. Most did. The data confirm growing evidence effective warnings must be repeated and duplicated.

The other questions--the ones about the decision-making process--are not as easily answered. This report leaves the precise answers in doubt. The initial decision--to evacuate the immediate area--was made by the first police supervisor responding to the scene. The second decision--to evacuate the first residential area--was made by the Peel chief of police. The decision to evacuate the Mississauga General Hospital (the study calls it a 'watershed' decision) was the chief's decision as well. The police force were in charge right from the start and stayed in charge until the evacuation was well underway. This can be partly explained by the fact the police have had a general emergency contingency plan since the chief's experience years ago with hijackings at Malton (now known as Toronto International Airport). It can also be explained by the fact three of the key agencies--police, the ambulance service and the Red Cross--have worked together during previous incidents including a local fire and small-scale evacuation.

The police disaster plan was the only formally declared plan in effect for the week, and it provides the framework within which the rest of the emergency response developed.

(Though it was the plan in effect, it was not entirely followed. It calls for persons being evacuated to be told how long they can expect to be out and advised about what to take. This was not done. It was also not checked against other plans: one major location was used as a shelter for evacuees although a social service study had suggested it would not be satisfactory.)



By day two, however, control over the incident shifted to a select group of persons including the mayor of Mississauga, the regional chairman of Peel and a provincial cabinet minister, the provincial Solicitor General, as chairperson. It is never quite clear precisely how this situation came about and why this cabinet minister was in the chair. The authors say

...time, place and participants in the decision to limit the group are unrecorded.

They also say the Solicitor General was on hand because there was a threat to life even though Ontario's emergency planning calls for the Ministry of Environment to deal with toxic spills. The story is, in fact, more complicated and some of the background is missing here. Ontario is the only province in Canada without emergency legislation (it repealed the act that did exist) and it is far from clear which provincial department should have been in charge. The matter did lead to debate among members of cabinet both in the case of Mississauga and during an earlier incident, a tornado at Woodstock. The Solicitor General won the debate.

It could be the authors were reluctant to go into the politics of decision making because their report was for the provincial government--in fact for the Solicitor General. But this explanation seems unsatisfactory. It has already been stated by others that the Solicitor General did an excellent job in his position as chairperson. The study also does not even point out that the federal government found itself out of the command structure. Local members of Parliament were among those not on the select list of persons invited to the control group meetings.

There is another obscurity. It is far from clear whether there exists in Ontario legal power for a police or even provincially ordered evacuation. Peel Regional Police Force have taken the position they could not legally order people to leave. The province says the power does exist under common law. The authors barely touch this debate perhaps because this matter is before the courts.

The authors do not ignore the fact the control group did run into one serious problem. During the first few days it was inclined to trust the expertise of railway and chemical company personnel. This assumption was shattered on November 14 when a puff of something, possibly chlorine, occurred. After a lengthy debate--and some intensive questioning of the Chlorep industrial response team, the control group began to keep close watch on the "experts":

The Air Resource Branch of the Ministry of the Environment would henceforth scrutinize the Chlorep plans.... the Branch.... in effect took charge of the pumping operation.

One crucial finding of this study--the survey evidence is very convincing--is that many evacuees relocated more than once:

Thirty percent of the evacuating households (22,650 families) c



not remain at their first destination... Eight percent went on to a third and a few people went to four destinations.

This was even true--though it's not mentioned here--for hospital patients. Some were moved and moved again when medical politics led some to be moved from Mississauga General to a nearby hospital although it too was close enough to be threatened and was later evacuated. This continuing movement suggests it may be more useful to move first evacuees well beyond any possible future danger areas. Otherwise the problems may accumulate. It is conceivably the weakest aspect of Mississauga's step-by-step approach and it needs further discussion.

Those who read and re-read the report--one read will not suffice--will find other matters of interest. For example:

the municipal government's social service agency was slow to get involved though it did handle telephone queries. Volunteer groups looked after the various shelters;

there was some friction between various volunteer groups--the police in one case had to settle a dispute;

the media, especially radio, played a key role--22 percent learned of the incident over radio, 26 percent learned of the evacuation that way;

word of mouth was more important, however--69 percent heard they were being evacuated by word of mouth, 46 percent directly from police;

costs are estimated as US \$68.7 million, figures worked out on the basis of interview data from the surveys, from officials and from business in the area. The estimates are not balanced with offsetting gains;

when the railway offered some compensation for out-of-pocket expenses most persons were prepared to accept even though the company insisted they sign a waiver foregoing other claims.

The report has a few omissions:

the fact publicity was handled by the police with assistance of provincial officials and that this annoyed the fire authorities who felt their role (after all they dealt with the fire) was underplayed;

the fact elementary schools were found inadequate for adults--facilities are designed for a smaller population;

the fact the responding police forces had conflicts (especially at the junior supervisor levels) and had communication difficulties (only Peel was in on the common provincial police radio channel);

the fact respirators and air packs were in such short supply; some had to be procured from as far away as the Canadian Forces Maritime Unit in Halifax (and that many did not know how to use them).

Others, aware of other aspects in the incident, would no doubt point out different gaps.

Despite these gaps, this report's strength is its comprehensive



presentation of such data (the sample design, questionnaires, results are included in appendices). There is a great deal of material here for anyone to work with, some of it in raw, therefore useful, form. The report's weakness is that common to all case studies. It is not generally fitted into the general or even Canadian disaster literature. The few references are usually to other work by the institute or other work on Mississauga. On occasion it is a bit discouraging when the authors say the pressure to return prevented police making patrols looking for looters or when we are told police evacuation tactics give "special emphasis...to the prevention of panic." Presumably Peel Regional Police Force despite its planning and its general efficiency adopted the presumptions so common to disaster response, so rare to disaster experience. It would have been interesting to know more about these and other similar assumptions: were they for example imbedded in the plan?

In their introductory section, the authors list some of the individuals, agencies and groups they dealt with in preparing their report. These include: five federal agencies; six provincial departments; eight regional governmental bodies; three municipal agencies from Mississauga, more from the eastern and western municipal neighbors; more than 50 church groups; five volunteer agencies and more than 50 service clubs. The list goes on. Perhaps the most remarkable thing about the evacuation in Mississauga was the fact that the involvement of all these organizations led, in general, to so little friction, so few serious mistakes. The report documents a remarkable episode in emergency response.