

'DESIGN FOR NEED'

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'PREPLANNING FOR DISASTER'

I am said to belong to one of the design professions, but because my more recent work has moved so far away from visual design, I had begun to wonder during the preparation of this talk whether my principal qualification to take part in the Symposium would be the result of confusion between the acronym you all know and our own DRU which you will probably not have heard of - Disaster Research Unit.

I am greatly encouraged, however, to find I am amongst some non-designers and amongst designers ~~so~~ interested in non-visual design matters having more to do with social problems. I have even become bold enough to make no apology for not bringing along anything for you to look at. It is apparent, therefore, that the world problems being contributed to at this Symposium require more expertise than any one profession, or allied group of professions, can offer. This paper is of necessity the product of work by all members of the Disaster Research Unit and our human and economic geographers are even further removed from the 'design' professions than I am.

The study of precautionary planning for disaster relief provides a problem arena so large and a spectrum of required expertise so wide that we are as yet nowhere near the full complement we require, to deal with the range of activity we have identified. We have been able to do little more in two years than an analysis of the problem as we see it, and to put together a framework for research needs we have identified and have been able to test in a number of overseas assignments.

What is the meaning of disaster and what is the disaster process? What are the basic principles of disaster mitigation? Requests from stricken countries for shelter, clothing, food and medicines are responded to by international organisations and governments who by supplying the items required can relieve the immediate suffering. But, we have asked, has the disaster problem been solved or does relief of this kind serve in fact to increase vulnerability to future disaster occurrence? The need for shelter has been answered by supplies of tents or 'pseudo-tents', but such so-called temporary housing has soon become permanent, lasting for months or even years after the disaster event and has discouraged local initiative to use local materials in self-build solutions. Similarly, massive supplies of relief food create dependency on imported food supplies and discourage local gardeners and farmers from cultivating land. Such distortions of the existing socio-economic conditions reduce capacity for self-reliance and by doing so increase vulnerability to further disaster occurrence.

Disaster relief policies must be directed towards the mitigation of future disaster occurrence to encourage a greater self-reliance for coping with disaster events. This is not to say that immediate relief requirements are not vital or that there is no need to give considerable attention to the pre-planning for contingencies occurring during the disaster event, but what is required in addition is an understanding of the disaster process and the need for a continuing programme between disasters of measures for mitigation. These measures must be integrated into development plans thus not only reducing vulnerability to disaster occurrence, but also acting as an insurance for development itself.

Vulnerability is not a static concept. Populations and communities have different levels of vulnerability depending on their bio-physical conditions

and socio-economic status. Evidence shows that the locations of prime importance for sustained mitigative activity should be those areas where the populations' vulnerability to disaster is greatest because its socio-economic resource is low. This concentration on socio-economic resource is probably a more important consideration than the intensity of the disaster agent itself.

Disasters are not just unfortunate isolated events but are recurring phenomena, for example, Managua was damaged by earthquake in 1885, 1931, 1968 and 1972. An earthquake can therefore be expected at some time in the future. This tends to be reflected in the lives of a vulnerable population to a greater or lesser degree depending on the frequency and nature of the occurrence. For example, the movement of cattle from low land to high land at the onset of flood season, the clustering of dwellings on high land and construction of buildings on 'stilts'. This local adjustment process should be encouraged wherever possible and certainly not be allowed to disappear due to, for instance a superimposed reliance on imported building forms, materials and methods. Just as people consciously or unconsciously respond in their everyday lives by action or attitude to the possibility of disaster, so similarly should disaster aid be applied.

Self-reliance must be encouraged by the utilisation and deployment of local resources and techniques, and injections of aid made which will increase awareness of local capability in this respect and assist in the understanding and establishment of methods for the process. Most precautionary planning of this kind costs very little. It is probably true to say that in any location or region, there are resources of materials, supplies and skills which for want of pre-coordination can be deployed immediately in the crucial emergency period.

But as I have already indicated, by paying attention to these aspects of preventive precautions, we cannot ignore the fact that the extreme natural phenomena of earthquake, tropical cyclone (hurricane and typhoon), flood, volcanic eruption and tsunami do occur, and do occur in the midst of already concentrated populations who may already have lost many of the constituents of self-reliance that we would hasten to preserve; or who's vulnerability has already been increased by the pressures of population, economic fluctuation or mere desire to forget a 'primitive' past and to adopt the vestiges of an 'advanced' society.

It has been shown that disasters are on the increase and that, moreover, losses from disasters are increasing to an even greater degree due principally to the concentration of populations and development and the processes of vulnerability that I have referred to. If this is the case, then it will be only too easy for short-term precautions to show an effectiveness. Where losses are greatest, improvements are easiest. What must be demonstrated eventually is the increased difficulty of showing effectiveness from these methods because of the advancing and increasing effectiveness of long-term and comprehensive preventive precautions and the resulting reduction in losses thus making short-term improvements more difficult. *As above*

But, for as long as short-term precautions are necessary, and I see that as being longer than our remaining lives, what else must be done.

The time phases of disaster events have been shown as warning, impact, emergency, rehabilitation and reconstruction which will vary according to the nature of each occurrence. A strategy for precautionary planning to correspond to these phases has resulted in a distillation of activities to the essential phases of physical and social precautions before disaster impact and emergency and rehabilitation during and after impact. Precautions

applicable to the latter two phases are dependent on the results of impact itself and therefore can be considered only in terms of contingency planning - which is the identification and preparation of a range of aids to decision-making for use during and immediately after the event.

Physical precautions before an event will include building and civil engineering construction and regional planning; social precautions will include the preparation and dissemination of warnings and methods of public information in attempts to achieve appropriate responses to warnings when receipt has been achieved. Contingency planning will take steps to identify the anticipated needs of shelter, warmth, clothing, first aid, vaccines, food and water and the means of receiving precise information about events and needs, the assessment of relief priorities and recognition and preparations for the distribution of all available resources. The establishment of administrative and financial contingency arrangements are central factors to successful achievement in all aspects of precautionary planning which must proceed as an integrated strategy, not as piecemeal or erratic activity.

I hope that by describing this 'umbrella' approach to disaster I have succeeded in demonstrating the analysis of the subject that has been essential before the identification of specific preventive, precautionary or relief projects.

I was often concerned that my work as an architect was at the most, only a partial answer to a much larger problem or that, more unfortunately, in one building as an answer to one set of problems, there was the creation of many more social or environmental problems. ~~I think~~ It is of paramount importance, first that the interest, concern and activity that is rapidly increasing in disaster response, should not abate but that second, each participant must understand the ecological nature of the disaster process, the contradictions

that ensue, the problems that can be identified and the importance of achieving a comprehensive compatibility, an accepted philosophy, for us all to work within. Having done that, the valuable input of the design professions can more easily be recognised and identified but moreover, there will be the realisation of 'across the board', interdisciplinary problem solving.

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