

TOWARDS DEVELOPING AN ENVIRONMENTAL DISASTER RELIEF COORDINATION NETWORK IN TANZANIA

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Introduction

The paper presents a brief and tentative account of an environmental disaster relief coordination network in Tanzania. The proposal points to the need to establish a sound network based on the utilization of available local resources.

Generally a disaster may be described as a natural hazard whose occurrence within a specific period of time in a given place is potentially damaging to the total environment. In some instances, a disaster may also be man-made or man induced due to man's actions on the physical environment. In the final analysis, however, the actual damage is very much dependent upon a combination of social, economic and political factors.

A review of disasters that have occurred between August 1985 and April 1986 in Development Countries, for instance, shows drought, cyclones, hailstorms, floods, landslides, volcanic eruptions, earth-quakes, fires, armed conflicts, among others, as the major recurring disruptive forces to reckon with (UNDRO News 1986). Experience in Developing Countries points to a pressing need to develop and strengthen their capacity to handle natural hazards problems.

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As for Tanzania environmental disasters have in most cases inhibited socio-economic development inertia by impinging upon the welfare of the people and the security of their property. The most commonly reported and indeed frequent disasters include floods, storms, and drought (Daily News various, Ndorobo 1973, and Ngana 1980). Progress in science and technology, however, has contributed to the present day capacity to mitigate natural hazards although the story in Tanzania leaves much to be desired (Berry et.al. 1973, Burton, et.al. 1978 and Temu 1986). there is, for instance, no standard system of natural hazards information flow and as a result measures taken to combat disasters may mostly be described as 'too little too late'.

The primary objectives of this paper are two-fold. Firstly, to develop a disasters relief coordination network capable of coping with environmental disaster problems whenever and wherever they occur. This can be done firstly by training and developing a pool of expertise in all matters of disaster early warning systems (EWS), preparedness, mitigation effects of disasters and disaster relief administration to serve as focal points from village government to national level.

Secondly to introduce environmental protection in the socio-economic planning process by involving the relevant ministries, institutions and the masses in mitigating the disastrous effects of natural hazards in the long-term.

Background to Natural Hazards Assessment

Natural hazards are better studied in the field of Environmental Sciences. Disciplines in this field include meteorology, geophysics/geology, hydrology, geography and agriculture. These disciplines provide a direct link in the analysis of temporal and spatial

location and magnitude of disasters and form the basis for disaster early warning, preparedness and mitigation (Figure 1).

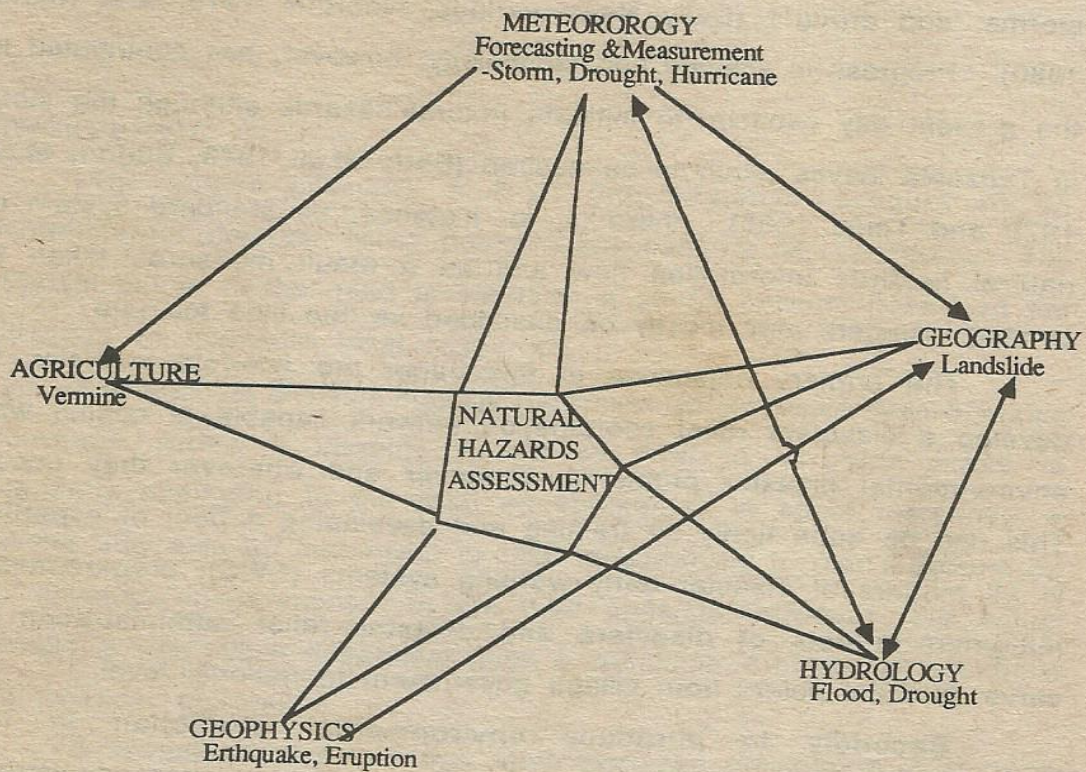


Fig 1 Synthesis of Natural Hazards

In Tanzania, a meteorologist, for instance, is capable of weather forecasting for both short and long term periods given over 2000 rain gauge stations, one international forecasting station and several local ones (Temu meteorologist, Pers. Comm.). He is also capable of providing data on storms, hurricanes and drought. The information on storms is essential in predicting the occurrence of landslides in soil erosion prone areas which is the domain of a geographer. The same

information may be used by a hydrologist to predict stream behaviour which is a precursor to floods in floodplains, and an indicator of drought in the catchment area.

A geophysicist is able to locate and assess the occurrence in time and space and magnitude of earthquakes and volcanic eruptions by using a network of seismographs, a feature not available in Tanzania (Dr. Iranga, physicist pers. comm.). Such information, however, may be relevant to a geographer who may use it to foretell areas likely to be blanketed by lava and ash. The same information may be used to predict the falling of acid rain which may lead to environmental degradation by 'killing' the life-support systems.

An agriculturalist is able to predict areas suitable for vermin breeding especially quelea quelea and red locusts basing his interpretation, in part, on the changing weather patterns as predicted by a meteorologist. Furthermore, on the basis of the land use type in a given area, he is able to predict environmental degradation resulting from land mismanagement which enhances the likelihood of drought hazard.

From the theoretical plain, it is clear that if an efficient communication network is developed amongst these specialists at all levels of administration in Tanzania, natural disasters may no longer take the people and the state unawares. It is important to note that a reliable risk assessment of a potentially disastrous hazard is a prerequisite for a sound disaster mitigation programme and proper organisation of relief operations. Given that different communities behave differently in response to hazards there is need to engage social scientists, preferably an economist and a sociologist or anthropologist in the above exercise.

An Environmental Disaster Relief Coordination Network Model

In designing an environmental disaster relief coordination network for Tanzania a number of assumptions are made. They are:

- (i) Existence of a good organisational structure of government from national to local level to facilitate coordination and accountability.
- (ii) Existence of a potential for a 'bottom up' approach in development planning through the re-established local government and cooperative unions planning machineries. This would facilitate the introduction of environment protection in the plans.
- (iii) Availability of a pool of a potentially resourceful manpower at all levels of the state administration capable of serving as focal points.
- (iv) Availability of national and international institutions capable of carrying out disaster early warning, surveillance and monitoring and mitigation activities.
- (v) Existence of a potentially good system of education from primary through secondary education and folk development and teachers' colleges to University level to facilitate training of disaster management staff when environmental education is introduced in the system.

It is proposed that the environmental disaster relief coordination network should constitute four stages namely village, district, regional and national levels (Figure 2). At each stage three operations namely disaster identification, assessment of elements at risk and taking appropriate action should be conducted. Based on a suitable early warning system, the network should be supported by the

willingness to report as well as an appropriate communication method. Essentially between one stage and the next there should be a two-way communication system to ensure that the message is received and reply is sent in 'good' time for action. (Figure 2).

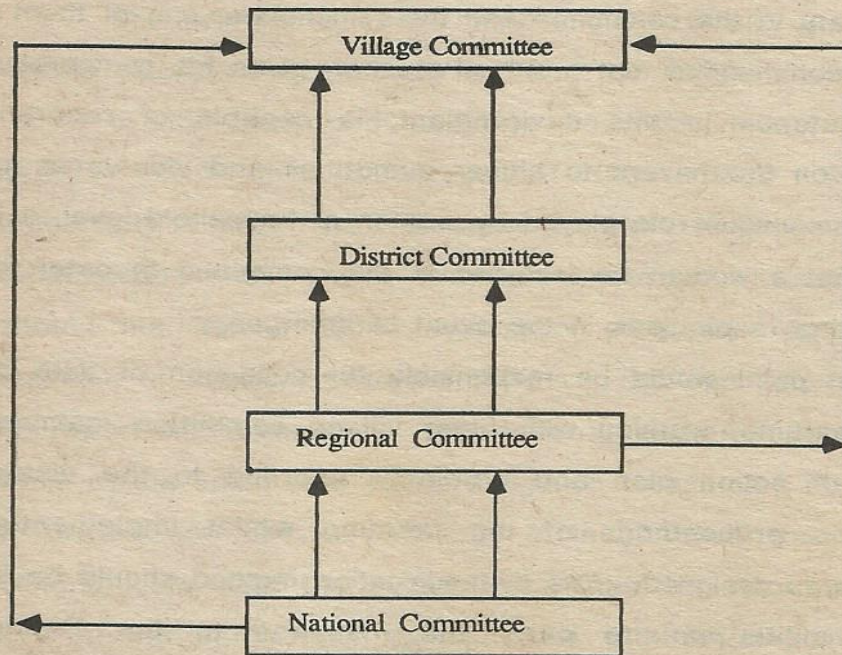


Fig. 2 Natural Disaster Relief Network

Village Level:

In Tanzania, village leadership is built on democracy and self-determination within the limits of law of the land. The villages and Ujamaa Villages Act of 1975 was designed to entrench and consolidate village self-government in the law. It is against this background that we propose the village as a nucleus for setting up a disaster relief coordination network for the nation.

At village level, it is proposed that a small committee be created and charged to deal with natural hazard(s) characteristic of the area. This committee should preferably be composed of the village chairman, as the chairperson, a primary school teacher, as the focal point and secretary to the committee and three members, one of them a woman. It is recommended that a school teacher, given his comparative academic competence in this environment, is capable of reporting fairly accurately on the hazard to higher authorities and vice-versa for action. Given the unique role played by women at household level, it is recommended that a woman be included in the committee to cater for women and children aspirations in the event of emergency.

The focal point would be responsible for collection of data on disaster early warning, working with other village committee members in developing an action plan and promptly reporting to the district authority on the proceedings of the meeting whilst implementing mitigation measures designed. The communication method should be by dispatching a militia-man to carry the message to the District Headquarters by hand.

District Level

At the district level, participatory democracy in Tanzania was set in motion by the 1971 decentralization policy. Following from this move, medium and high level skilled manpower were posted in the districts.

In view of the availability of experts, it is proposed at this stage that a small committee to handle natural hazards be constituted. The committee would consist of the District commissioner as the chairman, the District Administrative Officer as the focal point and

Secretary, the District Executive Director, the District Water Engineer, the District Agricultural Development Officer, District Land Development Officer, the District Medical Officer and one representative from the Women Organisation .

The primary tasks of the committee would be firstly to forecast natural hazards and secondly to carry out mitigation measures.

In the proposed network, however, this committee is also charged with the evaluation of the village committee report, technically assess the vulnerability land resilience and assess the rehabilitation cost. As a technical committee closest to the people it should maintain a sound system of early warning, surveillance and maintain of natural hazards problems. The committee is also expected to report immediately to the regional authority on the proceedings while at the same time taking mitigation measures. Due to the need for a forward and backward linkage in the network the committee should communicate with the village committee by dispatching a policeman and at the same time communicate with the regional committee by using a radio call, telephone or telex.

Regional Level

The organisational set up at the regional level would essentially be similar to that at district level. Member to the committee would as well be limited to technical ability and political power.

The Regional Administrative Officer would serve as the focal point and secretary while the Regional Commissioner would be the chairman. Other members of the committee would include the Regional Development Director, Regional Water Engineer, Regional Agricultural

Development Officer, Regional Land Development Officer, Regional Medical Officer and a representative from the Women Organisation.

The committee would basically be responsible for providing a regional coverage on the early warning system, surveillance and monitoring of disasters. Further it would be charged with the evaluation of the district plan of action technically assess the vulnerability and resilience, cost the needs and finally carry out mitigation measures and relief administration (Figure 2). The committee would promptly submit its plan of action to the district committee and to the Central Government for further action. The communication method would be by radio-call, telex, telephone or where appropriate by a local radio station.

National Level

It is proposed that at national level the office of the Prime Minister and First Vice-President handle disasters problems.

The committee would constitute the Head of the Disaster Unit who would serve as the focal point and secretary, a Principal Secretary would be the chairman and one expert from each of the following institutions would serve as members: Directorate of Meteorology, Ministry of Water, Ministry of Energy and Minerals, Ministry of Agriculture and Livestock Development, Ministry of Lands, Natural Resources and Tourism, University of Dar es Salaam, Sokoine University of Agriculture, Ministry of Defence, Ministry of Home Affairs and representatives from relevant Non-Governmental Organisations and United Nations Organisations.

Although the nature of the tasks for this committee is similar to the lower one, the difference is one of degree. This committee should be capable of maintaining functioning systems of early warning, surveillance, monitoring and mitigation of disasters at national level. In the event of the crisis, the committee should be responsible for evaluating the regional plan of action and carrying out mitigation measures and relief administration (Figure 2). This event will close the functioning of the network but not the struggle against nature. As new experiences are gained during the battle for survival, better methods to combat disaster problems will be discovered and tested.

Education as a Corner-stone for the Functioning of the Network

The need for environmental education from village to national level cannot be over-emphasized. The primary objective should be to define the role each member of the society (at all levels) is likely to assume in the event of a disaster.

At village level mass education would be through community participation i.e. learning by seeing and doing. Hence the issue of the people's awareness to disasters may be approached by use of word of mouth coupled with action. The early warning system at this level would be people's behaviour in response to the hazard based on socio-economic indicators (Curry 1984).

As for the members of the village committee, the subject of natural hazards could be offered in folk development colleges, primary and secondary schools as well as teachers' colleges. These institutions could cater for both pre and post-school training.

It is worth noting that from the district level upwards the personnel is drawn from technical colleges and University. For this group, environment education could be introduced in more detail in colleges and University curricula to meet the national training needs and priorities. The early warning systems employed at these levels include manual and automated equipment and machines.

As for the serving bureaucrat, a sensitization programme on natural hazards geared to enlightening them on the impact of environmental hazards on the population and the economy should be launched. This would take the form of seminars and training workshops.

At all levels, however, it is recommended that guided visits to the affected areas would sensitize the community on the importance of natural disasters early warning systems in disaster preparedness and prevention. It is worth noting that the importance of adult education at all levels cannot be over-emphasized.

Conclusion

By way of conclusion, it may be stated that the proposed network, badly requires Government material and financial support as well as the political will in order to enable Tanzania excell in natural disaster early warning, preparedness and mitigation. Finally, there is need to create a national policy on natural disaster problems in order to facilitate an efficient functioning of the network. Such a policy would, among other things, set national standards for natural disasters based on the uniqueness of each hazard and its spatial location in a socio-economic context.

Acknowledgement

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