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While natural calamities and disasters annually take a heavy toll of life and property, with improved communication and greater exchange of information, people around the world are becoming increasingly aware and concerned with such tragedies. Thus, one of the growing concerns of governments, public administrators, and concerned international agencies, is to meet the challenge posed by such disasters. While society measures itself to meet the complexities of the problem, advances and technological strides in the fields of meteorology, communication, agriculture, architecture and related sciences have helped and improved our understanding of the complexities of such natural phenomena.

Traditionally, an 'ad hoc' approach has been adopted towards disasters. External aid and intervention has primarily been directed at providing immediate assistance in the form of cash, food and clothing doles. However, it has now come to be recognized that the situation demands a far greater commitment and involvement. One of the major themes that is being propagated is for the initiation of preparatory measures. The very nature of the circumstances requires a concerted, inter-disciplinary effort, rather than isolated measures. Yet, due to paucity of funds, absence of infrastructure, lack of preparedness measures, difficulties of accurate prediction, lack of political will, and other similar factors, communities continue to remain vulnerable to the onslaught of weather adversities. This is particularly so in the Third World countries. While loss of human lives has been considerably reduced in the developed parts of the world, poorer societies continue to cope with increasing loss of life as well as property. This causes severe setbacks and frustration to their developmental efforts, perpetrating poverty and underdevelopment.

Within the poorer societies, there is a segment that is extremely vulnerable. Such population groups participate very marginally in the economy, and thrive on a precarious economic activity. Any disruption, disturbance or adversity on their environment reduces their capabilities, at times to the point of complete destruction. Such vulnerable groups consist of occupational entities such as small and marginal farmers, fishermen, artisans, weavers, small "petty" traders and landless labourers, who live on the threshold of survival. It is the purpose and attempt of this paper to draw attention to the plight and circumstances of this section of society, and to urge that any strategy of rehabilitation must first address itself to this critical population group. Governments, local and international aid and relief agencies must place their intervention and involvement programs in this context.

At the outset, the causes and circumstances of the precariousness of certain segments of society will be explored and identified. The concept of "exchange entitlement" will be presented, focusing on the starkness of starvation. Food is the most fundamental necessity, and the "entitlement" approach concentrates on each person's entitlement to commodity bundles including food, and views starvation as resulting from a failure to be entitled to a bundle with sufficient food. In essence, the principle being underlined is that, due to certain circumstances, the economics of certain population groups is disrupted such that they are no longer in a position to command the basic requirements of food.

The second part of this paper concerns itself with a relief strategy. It recognizes that it is the poor who suffer most in disasters, and they
are vulnerable in a more complete sense. It places disaster response in the context of development. Accordingly "the basic problem was the conceptual failure by aid organizations to link disasters to development. The concept of a disaster as a separate event requiring a rapid response of medical and material aid was not entirely accurate--(and)---even if this were totally effective---(it) would still not address the roots of the problem--poverty and underdevelopment." (Cuny, 11, 1983)

The final part of this essay considers certain concrete possible measures that could be undertaken by concerned agencies to mitigate the problem. Primarily, it is advocated that three strategies are available for disaster response. Those are (1) the opening of relief works, (2) provision of "input subsidies," and (3) insurance coverage.

The concept concerning "exchange entitlements" in the context of poverty, famines and starvation has been drawn from the monograph of Amartya Sen entitled "Poverty and Faminers." The strategy to relate relief with development has been put forward by F.C. Cuny in his book, "Disasters and Development." The final part of this essay is written by drawing on experience, awareness, and sensitivity to this area of concern.

Before proceeding further, it is appropriate to define our concept and parameters of 'natural disasters'. As Friggs, Barton, Dynes, and later Cuny and others have emphasized, a 'disaster' should be considered on the basis of its human consequences, and not on the agent that caused it. Unless and until an occurance causes injury, death, damage or destruction of any kind, it would remain only an occurrence of enquiry and scientific probe, but not one causing a disaster. Thus, "only when these natural phenomena cause damage to man and his artifacts can they be properly called 'disasters'." (Dacy & Kunreuther, 3, 1969)

Droughts, floods, earthquakes, hurricanes, etc., cause death, injury, damage and destruction. For those who survive such calamities, the adversity of the situation is far from over. More particularly, those living on the subsistence level in rural areas, are faced with circumstances of complete deprivation. Their income generating assets or opportunities may have been temporarily withdrawn or lost. Prospects of survival thus become bleak and grim. It is in this context that the concept of "exchange entitlements" is introduced. This approach focuses on the circumstances of the most vulnerable sections of society, and highlights the fact that any adverse impact on their position draws them to the prospects of starvation. It concerns itself with the powers and possibilities available to people to acquire food through a legitimate exchange function. This may be in the form of production, trade, exchange of skills, or labour. Starvation is seen as either a voluntary deprivation, or more important, a consequence or result of inability of a person to command or obtain food due to a collapse of his exchange ability or entitlement. Concern is, of course, for the latter category of individuals, rather than the former.

"The exchange entitlement faced by a person depends, naturally, on his position in the economic class structure as well as the modes of production in the economy. What he owns will vary with his class, ...(and the actual)...
exchange entitlements will be different depending on what economic prospects
are open to him, and that will depend on the modes of production and his
position in terms of production relations." (Sen 4, 1984) Thus, resource
and ownership patterns and relationships would determine the exchange entitle-
ment functions. For example, "While a peasant differs from a landless labourer
in terms of ownership, the landless share-cropper differs from the landless
labourer not in their respective ownerships, but in the way they can use the
only resource they own viz: labour power. The landless labourer will be em-
ploved in exchange for a 'wage', while the share-cropper will do the culti-
vation and own a part of the 'product'." (Sen, 4-5, 1984).

What is pertinent is that the difference in the level of renumeration
between the two is not too varied, yet the different economic functions performed
by the two can play a crucial role in times of crisis. Thus, in case of a
flood, parts of a particular farm may be affected, and crops damaged. This
in turn may reduce the demand for landless labourers, who may be rendered
jobless. The result, of course, is a collapse in their exchange entitlements.
On the other hand, a share-cropper, whose earnings lie in part of the produce
itself, would suffer more than a wage earning labourer, in case of crop damage,
at a stage when most labour requirements are over. For example, by unseasonal
rains on a harvested crop (wheat—for example).

Similarly, other economic entities, such as fishermen, local craftsmen,
 petty traders, weavers, etc., are all vulnerable to the vagaries of markets,
economies as well as weather. Any rise in food prices, shortfall of product
demand, or aberrant weather can lead to a collapse of their respective "exchange
entitlements." In terms of disaster management and relief, what is relevant
is that small levels of deprivations can lead to significant negative consequences.
These sections of society are in such straights, that they have very little,
if at all, to fall back on.

Thus, to fight and end starvation, one must bolster the entitlements,
be it "in the form of social security and--more importantly--through systems
of guaranteed employment at wages that provide exchange entitlements adequate
to avoid starvation." (Sen, 7, 1984) "In so far as food supply itself has
any influence on the prevalence of starvation, that influence is seen as working
through the entitlement relations. Starvation is to be seen as an individuals
inability to establish entitlement to enough food, the question of the physical
availability of the food is not directly involved." (Sen, 8, 1984)

To substantiate the exchange entitlement concept, and to suggest the
non correlation between starvation and non availability of food, Sen takes
the case of the 1943 Bengal famine. In the analysis of the data and information
available regarding the Bengal famine, it has been noted that in 1943, though
Bengal did not have a particularly good crop, it was not a poor one either.
In fact, the "current supply for 1943 was only about 5 percent lower than
the average of the preceding 5 years...and)...the per capita availability
index for 1943 is higher by about 9 percent than that for 1941." (Sen, 57-80,
1984) Considering this, it would lead us to surmise that the famine that
occurred was not the direct result of any shortage in the availability of
food. The explanation in any case appears to be far from satisfactory.
If, on the other hand, one were to place the argument in the context of the "entitlement" approach, a more predictable pattern of explanation tends to emerge. As one may expect, agricultural labourers would have been one of the worst to be affected, but not because of lack of food, rather because of their inability to command it. This inability was a reflection of the price situation and their income levels. While their wages in September 1942 stood where it was in 1941 December, and the price of rice (staple diet) stood only a bit higher, a wild upsurge in the rice price followed thereafter, without a matching movement of the wage rate. In fact, while the price index of rice rose to 221 by November, the wage rate actually fell in absolute terms—against the usual seasonal pattern—and the index of the exchange rate declined to 38...By July (1943) the index of the exchange rate had been below 30 for three months in succession...(On the other hand), one group that could not have suffered a deterioration of exchange entitlements vis-a-vis, rice, would have been the rice producers. ...To some extent, this would apply to sharecroppers as well, since the share is fixed as a proportion of the output, which in this case is rice. In terms of exchange rates, their position would have been distinctly less vulnerable than that of wage labourers." (Sen, 65-70, 1984)

To confirm the hypothesis, one may refer to a sample survey that was taken from five villages in Faridpur.

DESTITUTION IN FIVE SURVEYED VILLAGES IN FARIDPUR

<table>
<thead>
<tr>
<th>Occupation on 1-1-43</th>
<th>Total Nos. of Families on 1-1-43</th>
<th>Nos. of Destitute Families in each group on 1-1-43</th>
<th>Proportion of Destitution (%)</th>
<th>Nos. of Families in Each Group &quot;Wiped Off During 1943&quot;</th>
<th>Proportion Being &quot;Wiped Off&quot; During 1943 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peasant Cultivation and Share-Cropping</td>
<td>266</td>
<td>49</td>
<td>18.4</td>
<td>17</td>
<td>6.4</td>
</tr>
<tr>
<td>Agricultural Labour*</td>
<td>124</td>
<td>65</td>
<td>52.4</td>
<td>50</td>
<td>40.3</td>
</tr>
<tr>
<td>Artisan</td>
<td>20</td>
<td>7</td>
<td>35.0</td>
<td>2</td>
<td>10.0</td>
</tr>
<tr>
<td>Petty Trader</td>
<td>107</td>
<td>34</td>
<td>31.8</td>
<td>15</td>
<td>14.0</td>
</tr>
<tr>
<td>Crop-Sharing Landlord</td>
<td>16</td>
<td>1</td>
<td>6.3</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Priest and Petty Employee</td>
<td>11</td>
<td>3</td>
<td>27.3</td>
<td>3</td>
<td>27.3</td>
</tr>
<tr>
<td>Office Employee</td>
<td>20</td>
<td>2</td>
<td>10.0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Landlord</td>
<td>10</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Unproductive</td>
<td>18</td>
<td>8</td>
<td>44.4</td>
<td>3</td>
<td>16.7</td>
</tr>
<tr>
<td>Total</td>
<td>592</td>
<td>169</td>
<td>28.5</td>
<td>90</td>
<td>15.2</td>
</tr>
</tbody>
</table>

Source: Based on Mukherji (1965), Table 63, p. 178. (Sen, 74, 1984)
As we observe from the preceding table, as of January 1, 1943, the highest proportion of destitution was amongst the agricultural labourer families, followed by the unproductive class (beggars, etc.) who were similarly affected. In comparison, landlords, employees appear to have weathered the storm with complete advantage. We, thus, find a fair degree of consistency between the actual field observations and the entitlement approach. The position to command and entitle food should, and does, deteriorate for the labourers, artisans, fishermen, etc.; while it is sustained for those in comparatively favorable economic circumstances.

The pertinent question then is what brought about the "wild upsurge" of food prices, despite the general availability of food, thus causing a collapse in exchange entitlements. Among the prime reasons cited are, first, the fact that the price rise, coupled with demand factors, was essentially the result of the inflationary pressures of a war economy. Further, the demand forces were "reinforced by an indifferent winter crop." (Sen, 76, 1984), which was accompanied by vigorous speculation, panic purchases and hoardings. The market forces were further inflamed by administrative ineptitude, seen in the form of attempted and abandoned procurement schemes, and abolition of price control in the wholesale market. Ban on interstate movement of cereals and rice took away the scope to check the spiralling prices in Bengal. The war had induced an "uneven expansion in incomes and purchasing powers." (Sen, 77, 1984) Those covered by civil and military works, along with the subsidized distribution arrangements for Calcutta, were placed in a far better position to command food than the others. For example, the agricultural labourers, whose weak "position is also reflected in the fact that, while the famine killed millions, with agricultural labourers forming by far the largest group of those killed, Bengal was producing the largest rice crop in history in 1943." (Sen, 77, 1984) In conjunction with the general deterioration of the rural economy (in particular) the demand for other goods, such as poultry, milk, fish, handicrafts, etc., also went down, which plunged groups relying on these sub-sectors towards destitution as well.

To sum the principles and issues involved, "it is sometimes said that starvation may be caused not by food shortage, but by the shortage of income and purchasing power. This can be seen as a rudimentary way of trying to catch the essence of the entitlement approach, since income does give one entitlement to food in a market economy. While income may not always provide command in a fully planned economy, or in a 'shortage economy', in which a different system of entitlement might hold, the income centered view will be relevant in most circumstances in which famines have occurred...(But)... it offers only a partial picture of the entitlement pattern, and starting the story with the shortage of income is to leave the tale half told. People died because they didn't have income to buy food, but how come they didn't have the income?" (Sen 155-156, 1984)

The above analysis indicates that any form of disruption in the threshold economy of occupation groups can lead directly to a collapse and a breakdown of their exchange entitlements, and with such deprivation, they are plunged into the disastrous consequences of starvation. The factors leading to such a situation in the case of the 'Great Bengal Famine' of 1943 were a series of interrelated issues of inflation, high demand, and price increases. However, similar consequences can result from a set of different factors. What we
are concerned with is to identify such factors, and meet the challenge with all the socio-economic abilities at our command. A drought may lead to a crop failure, and resulting shortages in the agriculture labour market, fodder scarcity and distress sale of cattle. Floods could cause similar adversity, including damaging crops, work tools of local artisans and weavers, or destroying their inventory of raw material, and hurricanes would add fishermen to their list of victims, depriving all such groups of their means towards "exchange entitlements."

As noted earlier, the traditional reaction of intervening agencies has been 'ad hoc' in nature. Essential supplies are rushed to the spot of concern, and distributed to the affected population. To leave the situation at this point would be to escape the fundamental problem at hand. One cannot abandon the stricken community after initial distribution and emergency care. One has to press further on. A current wave of thought and approach suggests that relief agencies should intervene in a far more comprehensive way, where relief is related to the overall development of the community in distress. We will now proceed to examine this approach.

The primary principle on which the development approach rests is that relief agencies must place their responses in the context of long term development, rather than extending immediate succor only. The underlying argument is that disasters and response to them must be seen in the larger framework of poverty. That it is the poorer nations, societies, communities that suffer more in disasters is simply because they are intrinsically more vulnerable. Thus, though disaster agents such as floods, earthquakes, droughts occur world wide on a random basis, "their potential for widespread disaster is more a function of the ability of communities to cope with these events--in terms of their social and economic systems, as well as their physical structures--than of the phenomena themselves." (Cuny, 14, 1983)

There is no denying that disasters are increasingly affecting the Third World countries. This increase is seen as a natural consequence of the negative chain of poverty. The roots of poverty are concurrently seen as the roots of vulnerability. High birth rates, increased marginalization of population, scarcity or underutilization of resources, use of marginal lands, occupation of flood plains, deforestation, soil erosion are all seen as manifestations of poverty, underdevelopment as well as vulnerability to disasters. Thus, recognizing poverty as the primary root of vulnerability to disasters in the Third World is the first step towards developing an understanding of the need for change in current disaster responses. "For, if the magnitude of disasters is an outgrowth of underdevelopment and poverty, how can we expect to reduce the impact with food, blankets and tents, the traditional forms of assistance." (Cuny, 15, 1983)

Considering the above, the 'development approach' identifies "a conceptual failure by aid organizations to link disasters to development." (Cuny, 11, 1983) Efforts to provide mere emergency aid are seen as misdirected, and the approach to view poverty and disasters as separate issues requiring separate responses is viewed as misplaced. As a matter of fact, it is pointed out that "emergency aid in certain cases was not only ineffective, but rather counterproductive. What is found wanting in the traditional emergency agency response is that while it provided immediate need requirements, it totally failed to "address the roots of the problem: poverty and underdevelopment." (Cuny, 11, 1983)
To "address the roots of the problem," two factors are identified:

(a) relating relief strategies to time of recovery, and
(b) criteria for assessing post disaster relief programs

According to this approach, "simply helping victims until they can get going has little overall impact on reducing recovery time, and, depending on how the aid is provided, may even prolong it." Such relief programs are typified by such actions as distribution of food, clothing, household items and tents. However, there are more sophisticated programs which "provide the resources needed, and generally concentrate on longer term objectives. For example, they may provide materials for reconstruction, cash or credit, and opportunities, (such as work schemes) for people to acquire resources to balance out what assistance they receive." (Cuny, 202, 1983) Such a strategy reduces "the time to full recovery." A third strategy "facilitates intervention in both, the emergency as well as the subsequent transition and reconstruction phases. That strategy is to identify and provide those resources or actions that can 'accelerate' recovery. This does not require any more sophistication than the second strategy, but it does require an understanding of disasters...agencies provide or restore the infrastructure of a community, provide the materials required and make opportunities for the victims." (Cuny, 202-203, 1983)

To ensure or satisfy that relief programs meet the requirements of the development approach, two sets of criteria or testing mechanism are prescribed. Essentially, they rest on the principle of determining the extent to which they contribute to the enhancement or development of the affected society. These criteria, which relate to both social and economic factors, are divided into groups of short and long term developmental contributions.

Essentially, there are three touchstones for measuring short-term contributions: (1) The extent to which they "alleviate suffering caused by a disaster." (2) Irrespective of details and levels of development, each individual society has built itself a system or mechanism to deal with setbacks. The development approach requires an examination as to how far such "coping mechanisms" have been enhanced, and strengthened. (3) Finally, it is to be determined whether a relief strategy "shortens the length of time between emergency and full recovery." (Cuny, 159, 1983)

As for long-term criteria, longer or broader tests are prescribed. One is to review whether the program was or will be instrumental in developing "local leadership and contributed to the building and strengthening of institutions and enhancement of skills within the society." Secondly, it should be ascertained whether the program contributed to "developmental goals or set in motion activities that would help attain these broader objectives." Finally, the developmental contributions should be measured by the degree of increased safety of the community. A post disaster program that simply returns a society to the same state of vulnerability that it had prior to the disaster would obviously fail the test." (Cuny, 159, 1983)

In spite of the apparent comprehensiveness of the development approach, there appear to be problems with its emphasis and focus of attention. The prime concern here appears to be removal or reduction of poverty, through development oriented relief programs. Considering the depth and intensity
of poverty, the approach appears to be somewhat ambitious. To alleviate suffering due to a disaster is one matter, removal of poverty is entirely a different effort. This is particularly so in the context of our analysis of vulnerability vis-a-vis "the exchange entitlement" approach, where the basic issue of survival emerges in its starkest manifestation.

To combine emergency relief within the fold of development requires a great degree of sophistication, preplanning, expertise, and vast infrastructure to organize developmental efforts on such a large scale. To identify organizations that can meet the requirements of such a challenging and complex task is indeed difficult. Perhaps the local government (i.e., the national government) is the only organization that is competent to undertake such a job.

The standards of development, or criteria, set by the approach are not only difficult to achieve, but the strategies to achieve them have evaded the world so far. Apart from this, the criteria of development may also be questioned. The interpretation of development and its measures would vary from organization to organization, depending on their respective ethos and background. Governments, economists, and international agencies have propagated and attempted one strategy after another. Yet for the past half a century or so, the peoples of the Third World continue to live in poverty and destitution. Another difficulty is that the task determined by the development approach requires the continued presence of the organization for an extremely long time. To develop and sustain "local institutions," and "leadership," and to provide "increased degree of safety" would be a commitment for years. Do such organizations have the capacity and will to undertake such a commitment? Finally, would local politics permit such intervention—particularly when emerging Third World countries are suspicious and wary of prolonged foreign presence in remote, poor, rural areas?

There is also the problem, the fundamental problem, of resource constraint. When we refer to disasters, the magnitude under reference is to large vast tracts of land as being affected. Not one or two, but dozens of villages, and thousands of people, and millions worth of damages. Does any international body set aside funds for "disaster-relief-and-development," to cover such an area, or commitment of this magnitude, over a number of years? Is there any agency that retains professional and skilled personnel, with interdisciplinary aptitudes, in such large numbers, who can implement the projects over a long period of time?

Finally, it may be mentioned that the "development approach" decries, and almost ridicules the existing aid pattern of "food, blankets and tents." Such intervening reactions are viewed as being inadequate in their "impact on poverty and underdevelopment." It must be clearly understood that two sets of problems require to be addressed. Firstly, the immediate crisis, i.e., the emergency of deaths, injuries, and homelessness. Subsequently, the more fundamental issue of what we have conceptualized as deprivation, destitution and breakdown of "exchange entitlements." While the latter is more serious, it in no way negates or minimizes the requirements of the former. Immediate, post disaster relief is thus essential, but its purpose is not to reduce the impact in the long run. Its purpose is to provide succor to a stricken population, which is experiencing the "trauma and shocks" of a disaster, where family members, friends, and neighbors may have died, been injured, or maimed, where homes and property may have been destroyed, and
economic capacities and opportunities withdrawn. Food, clothing and shelter is provided to assist the population to 'survive', and not for it to achieve major goals of poverty alleviation and development.

The basic problem in the approach is that it does not directly address the problem at hand. The fundamental arguments and hypothesis are based on experiences relating to non-drought disasters, and are applied more specifically to the housing problem. However, we are not easily led to a position where we can translate the principles advocated here to other situations. How, for instance, will a fisherman with a lost or damaged boat or gear, or a weaver with a damaged 'loom' or 'pit', an agriculturist with a damaged crop, with no sustenance to raise the next crop (which may be months away), be helped and allowed to recover? To alter production technologies, or introduce innovation would be considered development, but where is the time, the funds, the infrastructure or personnel? What is required is a change in focus and criteria of strategy. It would perhaps be pertinent to place relief strategies more in the context of 'rehabilitation' rather than development. Aid, apart from immediate emergency responses, should be structured such that it assists the stricken population to recover, recuperate and get back to their earlier position of socio-economic activities and levels. To induce long-term development in a disabled society or economy, already handicapped by resource constraints in all practical terms seems well neigh a tardy proposition, if not impossible altogether.

In keeping with the above approach and premise, our prime focus must be on rehabilitation and concern in relief activity must be directed at that section of society which participates only marginally in the economy. As pointed out, their position is extremely precarious, and forms the most vulnerable section of any society. These are 'entities' such as landless labourers, shepherds, weavers, small and marginal farmers, small fishermen, village artisans and local small traders. Subsistence is their way of life, and any adverse change in their circumstances tends to plummet them immediately over the threshold of survival. A strategy therefore has to be evolved that would confront this problem. A strategy that will ensure sustenance till such time as the affected groups are in a position to resume normal activity. Usually the time gap that requires to be covered is from the point of disaster to the commencement of the next sowing cycle, i.e., for those groups that are connected with agriculture. For other groups, such as craftsmen, fishermen, the time period is dependent on their lost equipment, etc. being repaired or replaced. Further, any strategy that is conceived would have to be sensitive to the diverse requirements of the respective "occupational groups." Considering this, a three dimensional approach is suggested in order to assist and provide relief to our identified, vulnerable segment of society. The three sets of relief activities suggested are:

(1) opening of well conceived relief works
(2) provision of input subsidy, and
(3) insurance

As we have observed, there are numerous factors that could adversely affect the livelihood of the poor communities. These factors could be socio-economic, like hoarding, blackmarketing of essential commodities, causing price upsurge, or economic displacement could be caused by natural phenomena and disaster agents. Whatever the factors may be, its consequences on a certain
class of people can be extremely adverse. To sustain such individuals and
groups, an intervening agency can initiate and open relief works that provide
interim employment to the displaced or incapacitated people. However, for
a successful strategy, a great deal of preplanning is required.

In a comprehensive disaster management system, a great degree of prepara-
tory measures is called for. One of the fundamental measures in this regard
is the identification of disaster prone areas. With reference to historical
and geographical records 'vulnerability analysis' is carried out and risk
maps are prepared. It is suggested that a shelf of detailed projects for
relief works should be prepared and kept ready for implementation in times
of need and emergency. These plans should be prepared keeping in view local
conditions and requirements, and kept by local governments, or agencies at
the county, district or town levels. The prime criteria while formulating
such schemes should be that (a) they should be labour intensive, and (b) that
they should be located close to the village, habitation sites from where labour
is to be drawn. However, one must be extremely cautious in the planning and
initiation of such works. They should not be too extensive in coverage or
outlay, since, when the next agricultural crop is due for sowing, or when
other inputs are available, and normal, usual economic activity is ready to
be resumed, these works will be abandoned. To keep the works labour intensive,
the funding outlay for the projects should be kept at 70:30 ratio, i.e., 70%
of the outlay should be for labour payments and 30% for material costs. Pro-
jects and schemes should cover such sectors as; minor irrigation, afforestation,
soil conservation, construction of percolation tanks, road repairs, water
supply schemes etc. It must be emphasized that such works are necessarily
of short-term duration, and are primarily resorted to provide a basic minimum
level of sustenance for the affected population. The creation of assets is
incidental to the prime principle of relief and rehabilitation, which is pre-
dominant. Thus, the labour intensive, low capital and short duration nature
of the works.

Small and marginal farmers, weavers, artisans, and similar occupation
groups live in or on the brink of poverty. With any disruption in their pre-
cariously perched economic cycle, it is extremely difficult for them to return
and resume their respective activities. The disruption can be in the form
of lost or damaged crops and equipment. Their difficulty to resume normal
activity lies in the lack of capital to purchase or obtain the necessary inputs,
such as seeds, fertilizers, yarn, fishing nets, and similar raw material.
Normally, out of sheer desperation, such groups are forced to take recourse
to the local, non-formal system of credit, i.e., from local rich landlords
or merchants. Such credit is normally given at exorbitant rates of interest,
indebting them for generations to come. As a matter of fact, rural indebted-
ness and credit (or lack of it) is a constant source of poverty sustenance
in many parts of the Third World.

In order to stimulate those occupational economies, and to break the
negative cycle, government, or the aid-giving agency should make efforts to
provide and supply such "seed" items at subsidized rates. Credit could also
be provided at cheap interest rates and easy return conditions to those groups
to purchase the necessary 'inputs'.

Subsidy should be calculated after deriving the total cost of each input
item, and the rate of requirement. Thus, for example, if agriculture input subsidy is to be provided, then it must first be calculated as to what are the basic necessary requirements for one acre of land (irrigated or dry)--such as seed (type and quality), and fertilizers (dosage and mix). The normal current market rate for such a package, or input kit would be worked out, and then, depending on the fund capacity of the donor or relief agency, and the number of farmers, or area to be covered, the rate per acre could be derived, and assistance rendered. This would not only stimulate and help the resumption of agricultural, or concerned activity, but would also sustain the normal market in the area. Similarly, whenever possible, inputs or subsidies could be provided to the other affected occupational groups. The loss of cattle or other animals, or damaged looms, fishing vessels, and gear, etc., can thus be compensated for, and inducement provided for repair or purchase and resumption of normal activity.

There is no denying that any concerted effort towards disasters would lay priority towards saving human lives. With technological and meteorological advances, it has now become possible to caution and warn threatened populations of some kinds of approaching or impending disasters with a fair degree of accuracy. This is particularly so of floods and hurricanes. Earthquakes are more difficult to anticipate, and at present no reliable, accurate method exists. As for droughts, it is possible to forecast a dry spell. With such scientific aids, there is an expected reduction in the loss of lives--this is particularly so in the developed nations. On the other hand, the increase in property losses due to natural calamities has been steadily increasing; even in the developed world. The normal types of property losses in Third World countries are: agricultural outputs, cattle, livestock, houses, public buildings, utility services, fishing vessels, working equipment and material for artisans and weavers. It is being increasingly argued that a comprehensive way to cover such losses would be through a system of insurance.

Many advocates of insurance, however, place their 'schemes' in the context of housing, industrial units, and similar building structures only. While the importance of such losses are not to be ignored, it must be appreciated that housing, as an investment for the poverty groups of the Third World is indeed very low. Normally, such dwellings are made from local earth and material such as thatches. Within the context of poverty, and the economics of a disaster, though relevant, loss of houses is not such a critical factor. The real issue that we have identified is poverty, destitution, and survival, emanating from a breakdown of the individual's "exchange entitlements." Therefore, the concept of insurance should be placed and studied in this context.

"Insurance companies are only interested in marketing policies, for which diversification of risk is assured. If the entire portfolio of a particular insurance firm covers individuals in the same general location against the same disaster, then it is either feast or famine." (Dacy & Kunreuther, 240, 1969)

"When an insurance firm starts issuing policies, it either has to amass enough capital to be used as a reserve fund for handling unusually large pay-outs, or it must reinsure with other companies. Either of these actions will be costly. By building up reserves, the firm will suffer an opportunity loss reflected in the difference between their own rate of return and the return on the non-risky investments in which their reserve capital will be held. Reinsurance is also expensive, since transferring policies to other companies
involves an additional underwriting expense. Thus, the insurance rate would have to include one of these added costs." (Dacy & Kunreuther, 242, 1969)

As noted, introduction of insurance only in risk areas would increase the premium costs. There is also the factor that in Third World areas where insurance in the rural sector is a new concept, both for insurance companies as well as the population. In some countries, insurance of certain crops, livestock, cattle, poultry, etc., has been introduced. But the consumers are mainly big landlords, and large cattle and poultry owners. The same applies to the fishing sector. As a matter of fact, even if there is willingness to join such insurance schemes, poor farmers and occupation groups who live on or below the "poverty line," simply do not have the financial capacity to bear an extra burden of premiums. This incapacity is further coupled with a fatalistic attitude--perceiving life as a matter of destiny, where the gains and losses have simply to be borne, and where the element of 'choice for self-determination' is totally absent.

Yet, the underlying requirement for insurance is strong. It spreads the costs of risk on the one hand. Secondly, expectation of easy and cheap relief money inadvertently encourages risk. People occupy flood plain zones, vulnerable coastal areas, etc., in full confidence that losses would be adequately compensated. Insurance ensures that such risk attitude is discouraged. Considering the inherent difficulties, on the one hand, and its need on the other, perhaps one pragmatic way out would be for government to intervene and share the cost of premiums with the consumers. With government intervention, it would be possible to spread the coverage of insurance on a wider scale, particularly with the full involvement of government machinery for extension work. This would also increase the confidence of insurance companies. It should not be ignored that, in the Third World, 70% of the population is employed or dependent on the rural economy. Therefore, the principle of such 'aid' would be (a) to assist the potential victims during times of disaster and adversity, and (b) provide a measure of economic security to the rural sector as a whole. As a matter of fact, insurance in the rural sector has been introduced in many Third World countries. Despite the initial problems of trial and error, the programs are steadily increasing in scope and coverage.

The threat and challenge posed by mounting annual losses due to natural calamities, has increasingly drawn the attention of governments the world over. Floods, droughts, hurricanes, earthquakes, etc., which carry immense destructive power and energy have caused extensive damage to life and property. This is particularly so in Third World countries who can ill afford the resulting setbacks to their socio-economic efforts and achievements. It is not that the number of disaster impacts has increased over the years. While their occurrence remains indiscriminate and random, the mounting losses are due to the increase in human socio-economic activity. With expanding population and density, there is a greater demand for resources. Consequently, people have 'encroached' upon areas which increase overall vulnerability. Occupation of flood plain zones, deforestation, soil erosion, are some examples of such activities which enhance the risk factor. On the other hand, technological advances have improved our understanding, and to some extent our ability to cope with the problem.

The traditional approach to a disaster has been to rush emergency aid, such as food, medicines, clothes and temporary shelter material to the distressed
area. However, the incompleteness of this response pattern has now been generally accepted. A more comprehensive approach has emerged, which is conceptualized as 'disaster management'. This addresses the issues involved in a larger perspective, where response strategies are not only formulated for post disaster periods, but attempt to encompass 'disaster preparedness' in a systematic manner. Such measures include, vulnerability analysis and risk mapping, contingency planning, rehabilitation, improvement of forecasting, warning and communication systems, and community preparedness in the form of training and increasing general awareness of "do's-and-don'ts" in times of crisis. Each of these measures calls for a great degree of thought and planning, and requires specialized skills and technology.

In the analysis presented in this paper, we have concerned ourselves with only one aspect of the problem, which relates to the post-disaster rehabilitation situation. At the outset it was observed that within any society (particularly so in Third World countries) there is a residual population group that is extremely vulnerable, and survives on the subsistence level. By focusing on their precarious circumstances, it was emphasized that any negative effect on their economies would plunge them towards destitution, unless external aid was available. Such groups were identified through the concept of "exchange entitlements" and deprivation, i.e., an economic entity has various resources, or means at his command to sell, and exchange in return a "bundle" of goods, which includes food and other items. Should any factor disrupt and deprive the entity of their 'exchange entitlement', then the resulting collapse can lead to a situation of destitution and starvation. Such a situation could be the result of a number of factors. However, within the context of our concern, it was noted that natural phenomena can cause an impact in such a manner as to lead to a complete breakdown of their economies. The purpose of this exercise was to suggest that relief activity should primarily be focused and directed at alleviating the circumstances of this class/group of people.

In the context of post-disaster relief programs, it has been suggested that against the ad hoc response of emergency aid, a development oriented approach would provide a better alternative. This theory suggests that a disaster situation should be addressed in such a manner as to dovetail development programs with relief strategies. The details of this approach were analyzed, and it was observed that the criteria of a good relief program was laid in terms of realizing major developmental goals, such as institution building, development of local leadership, etc. Overall, the approach aims at achieving an impact on poverty and underdevelopment through a relief strategy.

Certain shortcomings of this approach were pointed out and presented. It was considered that such a policy appeared too ambitious in its aims, and tended to direct its focus on issues that did not appear to be so immediate. This was particularly so in the context of extending aid to the more vulnerable sections of society. The basic difference between the development approach and that suggested in this paper was in terms of 'reason' for relief. While the former emphasizes development, this paper concerns itself with the issue of destitution and rehabilitation. Thus, while the development approach suggests carrying out relief works, its guiding principle is to develop the area and community. This paper suggests that relief works should be opened to provide means of sustenance, where development is incidental. And in this difference lies the difference in planning of relief works.
Finally, three strategies were presented as means to alleviate the distress caused by natural calamities. These were, (1) opening of relief works, (2) input subsidy and, (3) insurance. The basic principles of these strategies were outlined and developed. These could be formulated in greater detail, depending on local circumstances, capabilities and capacities of intervening agents.

It is hoped these strategies would cover substantial ground in meeting the challenge posed by disasters. These strategies do not concern themselves with the task of risk reduction, or decreasing the losses of life and property by direct disaster impacts. What they fundamentally attempt is to introduce measures and efforts to reduce the economic impact of such disasters on certain vulnerable occupational groups or classes. The underlying basis is the grim recognition that despite technological advances in the foreseeable future, society will continue to suffer adversity, death, damage and destruction through the intervention of extreme natural phenomena. However, the endeavor is to stave off deprivation and destitution by resorting and sustaining fundamental exchange entitlements.

BIBLIOGRAPHY

