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Research on the effects of natural events on property values has focused primarily on experiences in the United States and has shown that these impacts must be evaluated in the context of both the hydrologic regime and local urban economic situations. It remains unclear if these relationships exist with different flood regimes and under different institutional arrangements. The research reported here analyzes the impacts of flooding on property values in Paeroa, Te Aroha, and Thames, New Zealand. The results indicate different experiences in the three communities, but suggest several common trends. Each community has distinct housing submarkets that exhibit different housing value characteristics, independent of hazardousness, which may either mask or exaggerate flood-related impacts. In addition, initial local impacts of events vary, but eventually differences in flooded and non-flooded properties decrease. Thus, at least over the long term, hazardousness is not a factor in housing value differentials.

Much has been written about the impact of natural events on property values, with most studies focusing on flood and earthquake hazards in the United States (Brookshire et al., 1985; Donnelly, 1989, Montz and Tobin, 1988; Scawthorn et al., 1982; Tobin and Newton, 1986). It might intuitively be expected that the occurrence of a natural event such as a flood, would devalue affected properties, and that any measures taken to protect areas from the event would have a positive impact on property values. The results of research support these contentions, over the short term. However, as time from the event increases, the impact of the event diminishes to become insignificant, and eventually there may be no discernible impact at all. In addition, the impacts are not spatially uniform across an affected area, in this study a floodplain. Lower lying areas will experience greater flood depths and, therefore, greater damage which takes longer to repair. The questions arises, then, as to whether or not the length of the ‘interruption’ in normal market forces affects flooded properties over the long-term, in comparison to other properties.

Evidence from research undertaken in the United States on flooding and property values indicates that characteristics of the community’s flood experiences combine with urban economic factors to explain recovery. For example, in several case
studies, after an initial decline, selling prices for houses returned to and sometimes exceeded pre-flood levels in communities experiencing rare flooding. However, length of recovery periods varied significantly (Montz and Tobin, 1988; 1990). The initial drop in value and the length of the recovery periods were greatest for those properties flooded to greater depths. On the other hand, in an area of frequent flooding, property values for flooded properties reflected the number of times they had been flooded, but the entire market exceeded pre-flood levels rather quickly (Tobin and Montz, 1990). What remains to be investigated is whether these relationships exist in different places, with different flood regimes and different institutional arrangements for dealing with floods. To address this, these ideas were tested in three communities in New Zealand.

THE STUDY AREAS

The three communities, Paeroa, Te Aroha, and Thames, are located in the Waikato Region on the North Island of New Zealand (Figure 1). The situation of these towns at the base of mountain ranges (with development extending up the hillsides) was due, originally, to their function as service centers to nearby gold fields. Now Paeroa and Te Aroha are small rural service communities, while Thames has become increasingly important for its timber, fisheries and tourism. Population growth has varied for the communities, with Te Aroha experiencing the only real increase since 1976 (Table 1). The population statistics for Thames are a bit deceiving, however, because the demand for housing is very high despite a decrease in population. Thames has been experiencing an influx of retired people, which has changed the demographic structure of the community and has affected the availability of housing. Average house prices in Thames are higher than those in Paeroa and Te Aroha, reflecting this high demand as well as a shortage of sites for development.

Paeroa’s Flood History

Paeroa has experienced twenty-one floods since 1910, the largest in terms of discharge occurring in 1981 (Ericksen, 1986). The early response to flooding in the community was the construction of stopbanks (levees) which began in the 1920s and was completed in 1930. These were breached in 1936 (which may well explain the temporary abandonment of construction in the floodplain about that time), and again in 1954 and 1960 (Ericksen, 1986). Several factors came together in the intervening period to diminish the effectiveness of the flood protection scheme. Most prominent among these factors was the clearing of upland forests, which resulted in increased volumes and velocities of runoff and sediment, and the development of low-lying swamps, which removed their ability to absorb flood flows. By the time a new

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paeroa</td>
<td>1971</td>
<td>3431</td>
</tr>
<tr>
<td>1976</td>
<td>3796</td>
<td>+10.6</td>
</tr>
<tr>
<td>1981</td>
<td>3697</td>
<td>−2.7</td>
</tr>
<tr>
<td>1986</td>
<td>3549</td>
<td>−4.2</td>
</tr>
<tr>
<td>Te Aroha</td>
<td>1976</td>
<td>3290</td>
</tr>
<tr>
<td>1981</td>
<td>3418</td>
<td>+3.8</td>
</tr>
<tr>
<td>1986</td>
<td>3510</td>
<td>+2.7</td>
</tr>
<tr>
<td>Thames</td>
<td>1971</td>
<td>5780</td>
</tr>
<tr>
<td>1976</td>
<td>6769*</td>
<td>+17.0</td>
</tr>
<tr>
<td>1981</td>
<td>6456</td>
<td>−5.0</td>
</tr>
<tr>
<td>1986</td>
<td>6117</td>
<td>−5.0</td>
</tr>
</tbody>
</table>

*boundary extension
FIGURE 1 The study area

A flood protection scheme was proposed in 1965, the existing stopbanks were not able to protect against much more than a 20-year-flood.

The Waihou Valley Scheme (which affects Te Aroha and Thames as well as Paeroa) involves river control works to protect both urban and agricultural lands. In Paeroa, it includes channel widening and stopbank construction and increases the protection for Paeroa, along the main river, to the 100-year flood (Fowlds, 1991, pers. comm.). Construction on the Waihou Valley Scheme began in 1970 and is projected to be completed in 1993. Work on the Scheme in Paeroa was progressing in 1981 when the flood occurred, and subsequent revisions to the Scheme have been designed to avoid problems experienced in 1981, particularly with regard to ponding behind the stopbanks. It is generally agreed, however, that the 1981 flood would have been much worse without the portion of the Waihou Valley Scheme that was completed.

Despite the construction of stopbanks in the 1920s, it was not until the 1930s that development of the floodplain effectively started. This did not continue for long, but resumed in the early 1970s. 'This was stimulated by renewed economic growth, the dwindling availability of cheap hill-site sections, and the 1967 proposals for increased flood protection' (Ericksen, 1986, p. 69). Thus, we see a trend of increased occupancy of hazardous sites, fuelled in large part by government agencies using
such land for low-cost housing. In turn, the existence of this development strengthened the case for improvement of the flood protection system.

**Te Aroha’s Flood History**

Most development in Te Aroha took place between the river and the mountain, on gentle slopes along tributary streams. These slopes are alluvial fans which join to form an alluvial apron (Ahrend, 1986). Because the streams periodically overtopped their banks, they were eventually channelized and culverted to allow development to continue. This pattern of development and stream modification created an extremely hazardous situation that did not become widely recognized until 1985, despite earlier flood and landslide events that should have served as warnings.

The significant hazard in Te Aroha results from a combination of small tributary catchments, steep mountain slopes, and urban development near the tributaries which led to modification of the streams. In addition, there is ‘... the potential for serious soil erosion owing to the generally steep topography, the occurrence of weakened hydrothermally altered rocks, the complex pedology (with many soils now under a ground cover different from that under which they formed) and the high incidence of extremely heavy rainfall’ (Ahrend, 1986; p.34). This leads to landslides, flash flooding and debris flows, the most serious of which occurred in February, 1985. This event resulted in a mass movement that left approximately 40,000 m$^3$ of debris in the Town Centre. That figure does not include the debris left in streambeds nor in the main reservoir above the town (Ahrend, 1986). Indeed, a debris avalanche into the reservoir caused a flood surge that worsened the impact of the event. There were three deaths and several million dollars in damages.

While the mass movement is only one of many that have occurred in the area, it was worsened by engineering attempts to deal with tributary stream floods. Specifically, the piping and culverting of streams under the streets of Te Aroha limited their capacity to carry debris. Thus, this landslide is a classic example of human attempts to deal with one hazard (stream flooding) aggravating the impacts of another (debris flows). Indeed, consultants retained by the Borough to assess the flood/landslip hazard in Te Aroha contend that the major cause of flooding in the Borough ‘... can be attributed to the under capacity of man-made (sic) structures’ (Beca, Carter, Hollings, and Ferner, 1988).

The immediate response to the 1985 event was a call for additional structural works. If engineering mistakes contributed to the disaster, then additional engineering was needed to rectify the problems. Eventually, however, a combination of engineering works and regulatory controls was chosen, based in large part on the recognized problems of obtaining money from the central government.

**Thames’ Flood History**

Because of its location between hills and the harbor, Thames is in a particularly vulnerable position with regard to flooding. Rapid runoff from the hills, aggravated by logging and urban development in the hills, creates a serious flood hazard, given the several streams and the Kauaeranga River that flow through and near Thames. Silt is carried down the streams and presents an added problem to the flood waters. When flood flows combine with high tides in the Firth of Thames, the flood hazard is further increased. As an indication of frequency, Karaka Creek flooded six times in the 106 years preceding 1980 (Fenton et al., 1981).

Thames experienced flooding in April of 1981, resulting from the same storm that caused the flooding in Paeroa. Several streams overtopped their banks in Thames,
flooding the areas of town near them and, in places, washing away residential streets, along with sewerage and water pipes. Silt and debris were particular problems with this flood. Debris clogged some stream channels, causing water to overtop the banks and flood adjacent properties. Silt caused problems both in stream and out, and increased both the costs and time associated with post-flood clean-up.

Flooding, greater than in 1981, occurred again in Thames in February, 1985. This was caused by the same storm as the Te Aroha flood and debris flow. Silt was a particular problem because the rainfall followed a drought during which dry clay swept into streambeds. When streamflows increased, the clay displaced the water, and much of it was eventually carried away and into the town (Lawrence, 1991, pers. comm.). This was quite a different flood than in 1981. Water levels in some shops ‘... were lower than the 1981 floods, while others reported higher levels of water’ (Howarth, 1986; p. 10).

In response to the flood hazard, work on tributary streams has been undertaken as part of the Waihou Valley Scheme. This involves some channelization and stop-banks, built to a 50-year return level, used in conjunction with regulations on building in flood prone areas. The works, then, will decrease the frequency of flooding but do not provide protection from large floods.

METHODS OF ANALYSIS

In order to carry out this study, two sets of data were required. One set includes information on houses in each community, including characteristics of each house and selling prices and dates. The second set relates to the location of houses relative to the flooded areas. These data sets are discussed below.

Housing Information

Data on all single family residences were obtained from Valuation New Zealand which maintains computer files on all buildings in New Zealand. Characteristics of each house that are available on this file include: latest assessed valuation, section size, condition of buildings on the section (as rated by the valuer), zoning classification for the section, age of the house, building materials for external walls and roof, site size, and floor area. Site size refers to the area of the section that the house occupies, and floor area refers to the estimated floor space of the house. With a single storey house, site size and floor area are equal. These data make it possible to characterize the housing stock to take into account those factors that will influence the selling price of houses, irrespective of location.

A record of sales of houses for the period extending roughly from January 1979 until January 1990 was also needed. For Paeroa and Te Aroha, these records were obtained from the Rates Departments in the respective district councils, the Hauraki District Council for Paeroa and the Matamata-Piako District Council for Te Aroha. Each sale is recorded with the District Council for taxation purposes, so the data collected represent a virtual 100 per cent sample of all sales during the period of study. These records were not available in Thames, owing to a move made by the District Council and the related purging of old files. However, all sales are also filed with Valuation New Zealand and are eventually recorded on microfiche. These were available in the offices of a local land valuer in Thames. All sales prices were converted to a 1984 base year using the Consumer Price Index.

Flood Area Delineations

Determination of a property’s flood experience involved different methods in
each community and was based on different sources of information because data on flood heights are not readily available. Paeroa was studied in detail by hazard researchers in New Zealand (Ericksen, 1986; Ericksen, Handmer, and Smith, 1988), so a great deal of data exist that allow the division of the community into flood hazard categories. Three categories were used: not flooded, water on section, and water in house. In addition, the depth of water in each house was estimated, based on data presented in Ericksen (1986) and derived from data files developed for ANUFLOOD in New Zealand (Ericksen, Handmer, and Smith, 1988). Depths ranged from 30 mm to 2 metres. The distribution of houses in each of the three flood categories is shown in Table 2.

In Te Aroha, experience with the 1985 event can only be extrapolated from a hazardousness survey that was undertaken following the event. The Landslip Hazard Survey (LHS) consists of eight hazard designations: 1 means no hazard, 2 through 4 have various ‘possibilities’ of being affected by landslips while 5 through 8 are considered to be high hazard areas (Mitchell, 1985). Those houses in categories 5 through 8 generally border tributary streams and are therefore likely to have been affected by the 1985 event. Thus, these designations serve as a surrogate for experience as they define location relative to the source of the flood (Table 2).

Houses in Thames were evaluated on the basis of flood experience: no flood experience, one flood, or two floods. In addition, because flood depths were measured at specific street locations for the 1985 flood, depths of water in houses could be inferred. Nonetheless, frequency rather than severity of flooding is the issue in Thames, and this is what is of concern here.

<table>
<thead>
<tr>
<th>TABLE 2</th>
<th>Number of houses in flood hazard categories</th>
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</thead>
<tbody>
<tr>
<td><strong>Category</strong></td>
<td><strong>Number of houses</strong></td>
</tr>
<tr>
<td>Paeroa:</td>
<td></td>
</tr>
<tr>
<td>Not flooded</td>
<td>770</td>
</tr>
<tr>
<td>Water on section</td>
<td>139</td>
</tr>
<tr>
<td>Water in house</td>
<td>244</td>
</tr>
<tr>
<td>Total</td>
<td>1153</td>
</tr>
<tr>
<td>Te Aroha:</td>
<td></td>
</tr>
<tr>
<td>Unlikely to be affected</td>
<td>400</td>
</tr>
<tr>
<td>Possibility of being affected</td>
<td>765</td>
</tr>
<tr>
<td>High probability of being affected</td>
<td>33</td>
</tr>
<tr>
<td>Total</td>
<td>1198</td>
</tr>
<tr>
<td>Thames:</td>
<td></td>
</tr>
<tr>
<td>No flood experience</td>
<td>1606</td>
</tr>
<tr>
<td>Experienced 1 flood</td>
<td>217</td>
</tr>
<tr>
<td>Experienced 2 floods</td>
<td>121</td>
</tr>
<tr>
<td>Total</td>
<td>1944</td>
</tr>
</tbody>
</table>
Data Analysis

The data were analyzed using various statistical tests, depending upon the questions being addressed. It must be noted at the outset that each community is investigated separately because of differences in real estate markets and other local economic factors that influence property values and therefore render inter-town comparisons difficult. It is appropriate to make intra-town comparisons, however, as long as differences in housing stock within towns are incorporated into the analysis. Discriminant analysis was used to evaluate these differences. It allows for determination of the extent of separation between flood hazard groups, based on several variables that best define the groups. Thus, the existence and importance of housing submarkets can be established.

The impacts of the events as they are (or are not) manifested over time are analyzed in two different ways. The first utilizes t-tests on matched pairs of 'before' and 'after' sales. This method is similar to event analysis in finance, wherein the effects of a particular event are evaluated by pairing prices before and after the event. If the event had a significant depreciating (or appreciating) effect, the results will show this. In essence, this method compares absolute differences in selling prices and tests whether or not the difference is statistically significant.

The second method is based on Palmquist's repeat sales analysis (Palmquist, 1982). In this case, the ratio of after event selling prices to before event selling prices serves as the dependent variable and environmental intrusions to the market (i.e., a flood) are the independent variables. Repeat sales analysis makes it possible to evaluate the contribution that independent variables (depth of flooding, hazard location category, and time between sales) make to explaining the variance in the ratio. While the repeat sales technique has been used for determining the effects of environmental variables on house sales, it has not been used specifically for flooding, but rather for permanent environmental impacts. However, given the frequency and severity of the flood hazard in the study areas, flooding may well be considered permanent, or at least a continual threat.

These methods of analysis allow for evaluation of both the spatial and temporal differences in markets and in selling prices. In addition, they incorporate intrusions to the market. The findings from these tests, when evaluated for each community, serve to explain the spatial and temporal dynamics of the residential housing market and therefore the impacts, if any, of flood events.

RESULTS: PAEROA

Housing Submarkets

The housing stock in Paeroa, which consists of the 1153 houses in the Valuation New Zealand data files, varies considerably from location to location. Indeed, when houses are grouped based on their flood experience, and individual variables are analyzed, differences in value, age, and size are apparent. Non-flooded houses tend to be larger and on larger sections than those in both of the flood categories, which are much the same size. As a result of these size differences, non-flooded houses are valued higher. Houses that had water in them are somewhat newer than non-flooded houses, but both of these groups of houses are much newer than those that had water on the section. Selling prices reflect these characteristics.

These differences, however, are not as clear when houses are grouped by hazard experience, using discriminant analysis. Four variables, assessed valuation, house condition (as determined by the valuer), age and zoning classification, contribute significantly to the overall discrimination.
between groups. With a canonical correlation of 0.38 and a Wilks’ lambda value of 0.83, these results suggest that submarkets based on flood experience exist, but some caution must be taken, given the strength of the association. In other words, there is not a large degree of separation between the groups.

Thus, while there are distinct differences between hazard groups, based on a set of four variables, neither the strength of association nor the classification procedure indicates much group separation. Housing submarkets exist in Paeroa, but they tend to be somewhat similar such that distinctions between them are small. Subsequent analyses of market trends must be made with these differences in mind.

**Changes in Property Values Following Flooding**

Tracking of changes in housing prices over time indicates wide fluctuations in response to local, regional, and national economic trends. Of importance to this analysis, however, is the significance of changes in value as they are seen before and after flood events. Houses that were sold twice, once before and once after the flood, were used for the t-tests and the repeat sales analyses. This includes 78 of the 208 houses sold more than once during the study period. The t-tests were run several times, first using all houses that were sold before and after, and then using subsets based on extent of flood experience. In addition, assuming that the effects of the flood will wane over time, two time periods were utilized. The first looks at sales within four years of the flood and the second deals with the entire study period. Given that flood protection works will have been mostly completed by this time, there may be a permanent alteration in perceptions of hazardousness. All of the results are shown in Table 3. In the four year period following the flood, ‘after’ house prices were significantly different from ‘before’ prices in the community as a whole and in the non-flood area. It is the latter which is of particular interest. In this case, ‘after’ flood prices were significantly higher than ‘before’ flood prices, suggesting that the flood did, in fact, have an impact. However, this effect is lost over time. Indeed, when looking at the entire study period, in only one case is there a notable difference, and that is with houses that had water in them. Thus, the trend seems to have switched with houses that incurred the greatest damage selling for significantly more long after the flood than before. However, given a probability level of 0.06, the significance of the difference in prices must be interpreted with caution.

In contrast to the comparison of absolute selling prices, repeat sales analysis evaluates the ratio of ‘after’ flood selling price to ‘before’ flood selling price for the same house. Although this technique has been applied to measure the effect of permanent disamenities, such as a highway (Palmquist, 1982) or toxic waste disposal sites (Kohlhase, 1990), it is being used here because it is assumed that equilibrium price levels were established after the flood owing to the soon-to-be-completed Waihou Valley Scheme. The model to be tested for the study period is:

\[
\ln(\frac{SP2}{SP1}) = f(TIME, DEP) + \text{error}
\]

where

\[
\ln(\frac{SP2}{SP1}) = \text{Natural log of the ratio of after flood}
\]
\[
\text{selling price to before flood selling price}
\]
\[
TIME = \text{The number of quarters between the two sales}
\]
\[
DEP = \text{Depth of water in the house (the disamenity)}
\]

Both variables proved to be significant (Table 4). These results suggest that the greater the depth the greater the ratio between post-flood and pre-flood selling prices. In other words, houses that
TABLE 3(a)
Results of matched pairs (T-Tests) of sales for Paeroa, within four years of the 1981 flood

<table>
<thead>
<tr>
<th>Area</th>
<th>Before flood selling price$^1$</th>
<th>After flood selling price$^1$</th>
<th>Difference</th>
<th>T-Value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Town (N=34)</td>
<td>37422</td>
<td>40552</td>
<td>3130</td>
<td>-2.84</td>
<td>0.008</td>
</tr>
<tr>
<td>Flooded Area$^2$ (N=10)</td>
<td>28117</td>
<td>30730</td>
<td>2613</td>
<td>-1.48</td>
<td>0.174</td>
</tr>
<tr>
<td>Water in House (N=7)$^3$</td>
<td>28969</td>
<td>32224</td>
<td>3255</td>
<td>-1.46</td>
<td>0.194</td>
</tr>
<tr>
<td>Nonflood Area (N=24)</td>
<td>41299</td>
<td>44644</td>
<td>3345</td>
<td>-2.40</td>
<td>0.025</td>
</tr>
</tbody>
</table>

1 In 1984 New Zealand dollars
2 Includes houses with water on the section and those with water in house
3 N of cases is not sufficient to insure statistical reliability.

TABLE 3(b)
Results of matched pairs (T-Tests) of sales for Paeroa, 1979–1990

<table>
<thead>
<tr>
<th>Area</th>
<th>Before flood selling price$^1$</th>
<th>After flood selling price$^1$</th>
<th>Difference</th>
<th>T-Value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Town (N=78)</td>
<td>35973</td>
<td>37179</td>
<td>1206</td>
<td>-1.38</td>
<td>0.171</td>
</tr>
<tr>
<td>Flooded Area$^2$ (N=27)</td>
<td>30317</td>
<td>31916</td>
<td>1599</td>
<td>-0.88</td>
<td>0.387</td>
</tr>
<tr>
<td>Water in House (N=16)</td>
<td>30968</td>
<td>35066</td>
<td>4098</td>
<td>-2.02</td>
<td>0.061</td>
</tr>
<tr>
<td>Nonflood Area (N=51)</td>
<td>38968</td>
<td>39965</td>
<td>997</td>
<td>-1.06</td>
<td>0.294</td>
</tr>
</tbody>
</table>

1 In 1984 New Zealand dollars
2 Includes houses with water on the section and those with water in house
3 N of cases is not sufficient to insure statistical reliability.

TABLE 4
Repeat sales analysis for Paeroa

<table>
<thead>
<tr>
<th>Variable</th>
<th>T-Statistic</th>
<th>Significance level</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEP</td>
<td>2.235</td>
<td>0.0283</td>
<td>0.06</td>
</tr>
<tr>
<td>TIME</td>
<td>-2.062</td>
<td>0.0426</td>
<td>0.05</td>
</tr>
</tbody>
</table>

experienced greater depths are worth more after the flood relative to before the flood. In addition, the negative coefficient on time suggests that the greater the time difference the less the price differential. This is in keeping with the t-test results showing that differences in selling prices decreased over time. However, it is the flood factor, depth, that is of greatest interest here. This result is the opposite of what might intuitively be expected, but is in keeping with the findings of Montz and Tobin (1990) who found that proportionately more properties flooded to the greatest depths sold above median prices, as compared to non-flooded properties and those experiencing less...
water. This was attributed to a combination of pre-flood values and repairs and renovation following flooding that increased the value of flooded properties relative to those that were not flooded or that experienced less damage.

The results of the temporal analyses (t-tests and repeat sales analysis) lead to several conclusions. First, the impact of flooding on property values was temporary. Second, the repairs and renovations made to damaged houses increased their values, relative to earlier figures. Finally, either the flood was seen as a once-in-a-lifetime event or the flood control works provided by the Waihou Valley Scheme have provided security from flooding, or both. Any or all of these factors have minimized any hazard-related differences between house values.

RESULTS: TE AROHA

Housing Submarkets

The 1198 single family houses in Te Aroha have been divided into hazard categories based on their hazard designation. This served as the grouping variable for discriminant analysis. Five variables (floor area, assessed valuation, site size, number of vehicle spaces, and age) emerged as significant, suggesting that the groups can be differentiated based on a combination of these characteristics. As with Paeroa, neither within group correlation (canonical correlation = 0.34) nor between group separation (Wilks’ lambda = 0.88) is particularly strong. Nonetheless, these results provide weak evidence of the existence of housing submarkets in Te Aroha.

Changes in Property Values Following Flooding

T-tests using matched pairs of sales (i.e., houses sold both ‘before’ and ‘after’) were undertaken using two different time frames. The first looks at sales before and after the event (1985), and the second addresses the situation four years after the event. The results are listed in Table 5.

It is clear that the housing market underwent a downturn following the landslip. In all of the categories except one there is a statistically significant difference (at the 0.05 level) between pre- and post-event selling prices. No matter what the location of the house, post-event selling prices were significantly lower than pre-event prices, suggesting that the event affected the market as a whole and not one or another of its submarkets. Four years after the event, substantially different results are seen. There are no significant impacts anywhere in the community between before and after prices. These findings suggest that the landslip event did, in fact, have an adverse impact on selling prices for houses, but this effect was not restricted to the areas directly affected. By the end of 1989, the differences are gone.

Repeat sales analysis restricts the sample to houses sold both before and after the event. The model in this case is:

\[
\ln(\frac{SP2}{SP1}) = f(TIME,HAZZON1) + \text{error}
\]

where

\[
\ln(\frac{SP1}{SP2}) = \text{Natural log of the ratio of ‘after’ selling price to ‘before’ selling price}
\]

\[
\text{TIME} = \text{The number of quarters between the two sales}
\]

\[
\text{HAZZON1} = \text{The landslip hazard designation, by Mitchell (1985)}
\]

The results (Table 6) show that landslip designation (HAZZON1) is significant. In this case, hazard designation serves as a surrogate for location relative to the area affected by the event (e.g. the higher the designation the more likely to have been affected). Contrary to what might be
TABLE 5(a)
Results of matched pairs (T-Tests) of sales for Te Aroha, after the 1985 flood and landslip

<table>
<thead>
<tr>
<th>Area</th>
<th>Before flood selling price</th>
<th>After flood selling price</th>
<th>Difference</th>
<th>T-Value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Town (N=98)</td>
<td>37690</td>
<td>34280</td>
<td>3410</td>
<td>3.18</td>
<td>0.002</td>
</tr>
<tr>
<td>Nonhazard (N=35)</td>
<td>43658</td>
<td>39128</td>
<td>4530</td>
<td>2.65</td>
<td>0.012</td>
</tr>
<tr>
<td>Possibility of Landslip (N=58)</td>
<td>35257</td>
<td>32250</td>
<td>3007</td>
<td>2.03</td>
<td>0.047</td>
</tr>
<tr>
<td>High Prob. of Landslip (N=5)</td>
<td>24133</td>
<td>23893</td>
<td>240</td>
<td>0.11</td>
<td>0.920</td>
</tr>
</tbody>
</table>

TABLE 5(b)
Results of matched pairs (T-Tests) of sales for Te Aroha, four years after the 1985 flood and landslip

<table>
<thead>
<tr>
<th>Area</th>
<th>Before flood selling price</th>
<th>After flood selling price</th>
<th>Difference</th>
<th>T-Value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Town (N=46)</td>
<td>35480</td>
<td>36255</td>
<td>775</td>
<td>-0.66</td>
<td>0.516</td>
</tr>
<tr>
<td>Nonhazard (N=15)</td>
<td>41256</td>
<td>43558</td>
<td>2302</td>
<td>-1.24</td>
<td>0.236</td>
</tr>
<tr>
<td>Possibility of Landslip (N=28)</td>
<td>33221</td>
<td>33231</td>
<td>10</td>
<td>-0.01</td>
<td>0.995</td>
</tr>
<tr>
<td>High Prob. of Landslip (N=3)</td>
<td>27683</td>
<td>27953</td>
<td>270</td>
<td>-0.28</td>
<td>0.805</td>
</tr>
</tbody>
</table>

1 In 1984 New Zealand dollars
2 N of cases is not sufficient to insure reliability.

TABLE 6
Repeat sales analysis for Te Aroha, before and after landslip event

<table>
<thead>
<tr>
<th>Variable</th>
<th>T-Statistic</th>
<th>Significance level</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAZZON1 (Landslip Designation)</td>
<td>2.057</td>
<td>0.424</td>
<td>0.04</td>
</tr>
</tbody>
</table>

expected, the higher the designation (and therefore the more hazardous the location), the greater the ratio between post- and pre-event selling prices. That does not necessarily mean that these houses are selling for more than they did before the event, but rather that the post-event selling prices represent a larger proportion of pre-event selling prices. This is evident in Table 5 where the difference decreases with
increasing hazardousness, as does the significance of the difference.

Analysis of the impact of location on the housing market suggests the locational variable, hazardousness, is not as important as might be expected. The landslide in 1985 had a definite impact on the housing market with all houses selling for less after the event than before it. However, eventually no significant differences are apparent.

RESULTS: THAMES

Housing Submarkets

The 1944 houses in Thames can be categorized in a variety of ways, given the two floods that occurred in the 1980s. For this study, they are grouped based on experience with the hazard: no experience, experience with one flood, and experience with two floods. Housing in the experience groups can be differentiated based on individual housing characteristics. For instance, as experience increases, so does the proportion of houses that are valued below median valuation, are not zoned single-family residential, are in average condition, and sell below median selling price, etc. However, submarkets are defined by how these characteristics work in combination.

The results of discriminant analysis indicate four variables that differentiate between experience groups: zoning classification, section size, age and condition. Zoning classification is, by far, the most important variable. There is a stronger association within the groups (canonical correlation = 0.41) and a higher degree of separation between groups (Wilks' lambda = 0.82) than was seen before. It is fair to state, then, that housing submarkets exist in Thames, differentiated by experience with flooding, but the differences between groups are still not great.

Changes in Property Values with Flood Experience

Of the 729 house sales from 1979 to 1990, 240 sold more than once. T-tests using matched pairs of sales were undertaken three times in order to analyze the impacts of each 'event'. The impacts of each of the two floods were analyzed, as was the accumulation of experience from both floods. The results are presented in Table 7. Following the first flood, prices were significantly higher (at the 0.01 level) than before it for areas not flooded and for the community as a whole (included to indicate extent of overall impact). Flooded properties also increased in value following the flood, but the difference is not significant. This suggests that the 1981 flood caused flooded properties to increase in value at a rate proportionately less than other properties. Nonetheless, an increase is evident. These differences do not continue after the second flood. In this case, there were no significant differences (at the 0.05 level) in before and after prices, though it is interesting to note that flooded properties increased in value while non-flooded ones did not. Given that non-flooded properties represent most of the sales in the community, a decrease in value is seen throughout the community, a trend that might otherwise be attributed to flooding. While no significant differences exist in any of the experience categories, houses with no experience have tended to lose value over time. Those that experienced either one or two floods generally increased in value, though not significantly.

These findings are supported by the repeat sales analyses which were undertaken for two time periods (before and after the first flood and before and after the second flood). The overall model is:

$$\ln(\text{SP}_2/\text{SP}_1) = f(\text{TIME, FL}_81, \text{FL}_85, \text{EXP}) + \text{error}$$

where
### TABLE 7(a)
Results of matched pairs (T-Tests) of sales for Thames, 1981 flood

<table>
<thead>
<tr>
<th>Area</th>
<th>Before flood selling price¹</th>
<th>After flood selling price¹</th>
<th>Difference</th>
<th>T-Value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Town (N=41)</td>
<td>42183</td>
<td>50662</td>
<td>8749</td>
<td>5.07</td>
<td>0.000</td>
</tr>
<tr>
<td>Not Flooded (N=34)</td>
<td>44585</td>
<td>52854</td>
<td>8269</td>
<td>4.49</td>
<td>0.000</td>
</tr>
<tr>
<td>Flooded (N=7)²</td>
<td>30513</td>
<td>40010</td>
<td>9497</td>
<td>2.22</td>
<td>0.068</td>
</tr>
</tbody>
</table>

### TABLE 7(b)
Results of matched pairs (T-Tests) of sales for Thames, 1985 flood

<table>
<thead>
<tr>
<th>Area</th>
<th>Before flood selling price¹</th>
<th>After flood selling price¹</th>
<th>Difference</th>
<th>T-Value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Town (N=149)</td>
<td>49177</td>
<td>47603</td>
<td>1574</td>
<td>-1.65</td>
<td>0.101</td>
</tr>
<tr>
<td>Not Flooded (N=138)</td>
<td>50606</td>
<td>48723</td>
<td>1883</td>
<td>-1.92</td>
<td>0.057</td>
</tr>
<tr>
<td>Flooded (N=10)²</td>
<td>28750</td>
<td>34054</td>
<td>4304</td>
<td>1.17</td>
<td>0.273</td>
</tr>
</tbody>
</table>

### TABLE 7(c)
Results of matched pairs (T-Tests) of sales for Thames, as a function of flood experience

<table>
<thead>
<tr>
<th>Area</th>
<th>Before flood selling price¹</th>
<th>After flood selling price¹</th>
<th>Difference</th>
<th>T-Value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Experience (N=122)</td>
<td>51331</td>
<td>49305</td>
<td>-2026</td>
<td>-1.94</td>
<td>0.054</td>
</tr>
<tr>
<td>One Flood (N=17)</td>
<td>43890</td>
<td>44113</td>
<td>223</td>
<td>0.07</td>
<td>0.942</td>
</tr>
<tr>
<td>Two Floods (N=9)²</td>
<td>30298</td>
<td>33242</td>
<td>2944</td>
<td>0.77</td>
<td>0.464</td>
</tr>
</tbody>
</table>

1 In 1984 New Zealand dollars
2 N of cases is too low to insure reliability.

\[
\text{Ln(SP2/SP1)} = \text{Natural log of the ratio of 'after' selling price to 'before' selling price}
\]

\[
\text{FL81} = \text{In or out of the 1981 flood}
\]

\[
\text{FL85} = \text{Depth of flooding in the 1985 flood}
\]

\[
\text{EXP} = \text{Extent of flood experience (i.e., none, one or two floods)}
\]

\[
\text{TIME} = \text{The number of quarters between the two sales}
\]
The independent variables were incorporated as appropriate. For instance, only FL81 was used when repeat sales following the 1981 flood were analyzed, while FL81, FL85 and EXP were used for analysis of the 1985 flood. The results are presented in Table 8. In no case were any of the hazard related variables significant contributors to the ratio of 'after' selling prices to 'before' prices. However, TIME contributes to the differential in the analysis of the second flood. Specifically, the results indicate that the greater the time difference between sales, the greater the price differential. This occurs independently of the existence of the flood hazard.

In sum, it appears that flood experience did not have any depreciating impact on affected housing in Thames. The market as a whole and individual submarkets are generally experiencing increases in values. The 1981 flood may have decreased the increase for flooded properties over the short term, but the 1985 flood did not have the same effect.

CONCLUSIONS AND IMPLICATIONS

While the experiences of the three communities are different, there are several common trends that can be seen in the results of this study. It is intuitively obvious that the occurrence of an event such as a flood or landslip would cause property values to decrease because of the damage that must be repaired. In addition, it might well be expected that all property values, not just those in the flooded areas, would be affected because attention is focused on the impacts of the event. In fact, this was found to some extent in all three communities, but the impact was temporary. In Paeroa, for instance, properties not flooded experienced significant increases in selling prices for a time following the flood, while flooded properties did not. Eventually flooded properties increased in value, relative to their pre-flood prices. The entire community experienced a decline in selling prices in Te Aroha following the landslip event, though the decline was less marked in the most hazardous areas. Thames provides the distinct exception to this trend. Indeed, following the 1981 flood, there is no evidence of a decrease in values. Following the 1985 flood there is, though the entire community was experiencing a downturn that was most apparent with nonflooded properties.

These results appear to be contradictory. However, findings elsewhere suggest that, at least in some case study communities, flooded properties sell for more than pre-flood values following a flood, and indeed experience a greater proportional increase than non-flooded properties, partly due to pre-flood values as well as to repairs and renovation following an event (Tobin and Montz, 1990; Montz and Tobin, 1990). The same appears to be occurring in Paeroa and Te Aroha. The repairs made to damaged houses increase their value over time, especially if the event is seen to be a once-in-a-lifetime event either because of its recurrence interval or because of protection works. Of course, this is not to say that the owner of the affected house experiences a windfall, or any profit at all, given the money that was required to make the repairs. In Thames, the market is so influenced by supply-demand considerations, with many people moving in from outside the community, that this influence on property values very likely overshadows any caused by the flood event. Indeed, the decrease following the 1985 flood may as easily have been caused by non-flood factors.
In the end, the immediate depreciating impacts of floods and landslips are minimized as damage is repaired and houses are upgraded. Given that these impacts are not long-lasting, it appears that hazardousness is not an important consideration in house buying decisions.

The Importance of Local Submarkets

The spatial analyses undertaken for this research project illustrate that housing submarkets within communities must be considered in any evaluation of trends. While the distinctions between some submarkets may be small, their existence requires that comparisons be made within and between submarkets but not across them. Specifically, if submarkets were not considered in this research, it would be possible to show that hazard-prone properties sell for less than properties in less hazardous sites. However, they comprise different submarkets, with houses of different age, size, and amenity characteristics. Thus, it turned out that housing characteristics and not hazardous locations serve to explain differences in housing prices — a fact that would be lost without consideration of submarkets.

Similarly, local market trends may suggest a depreciating effect from an event when that may not be the case at all. Local housing markets fluctuate widely, as do submarkets. If a downturn in housing prices for the market coincides with a flood, it may be attributed to the event. Again, that may not be the case at all, as was seen in Thames where properties decreased in value following flooding. Thus, submarkets must be evaluated because spatial differences in housing stock as well as in hazard experience may account for trends that may otherwise be seen as community-wide.

Notes

This research was undertaken while I was a visiting Research Fellow at the Centre for Environmental and Resource Studies, University of Waikato, Hamilton, New Zealand. I should like to acknowledge the institutional and financial support of the University for the project. In addition, I am most grateful to Neil Ericksen for his contributions to the research as it progressed and for his helpful comments on drafts of the paper.

1. The analyses dealing with houses having a high probability of landslip yield questionable results because of the small number of sales that could be used.

References


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**Burrell E. Montz**

Department of Geological Sciences and Environmental Studies

State University of New York at Binghamton

P.O. Box 6000

Binghamton

New York 13902-6000

USA
Food as an Instrument of War in Contemporary African Famines: A Review of the Evidence

JOANNA MACRAE and ANTHONY B. ZWI

Famine is conventionally portrayed as a natural disaster expressed in terms of food scarcity and culminating in starvation. This view has attracted criticism in recent years as the political, legal and social dimensions of famine have become more clearly understood. This paper draws upon these criticisms to understand the particular conditions of famine creation in conflict situations. Following an examination of six contemporary African famines, it is suggested that the use of food as a weapon of war by omission, commission and provision has contributed to the creation of famine in recent decades. Despite the optimism for peace engendered by the demise of the Cold War, the momentum for conflict would seem to be sustained by internal factors, including economic and environmental decline, political instability and ethnic rivalry. Within these conflicts, the strategic importance of food is likely to remain central. This study highlights the need to link concerns with food security and public health to those of development, human rights and international relations.

Africa has become synonymous with famine in recent decades. It has also been the battleground for some of the world’s most bloody and intractable conflicts. In this article we explore how conflict and food security are related, and suggest that the deliberate targeting of food production, consumption and distribution has played an important part in creating and exacerbating recent famines.

The work draws on a three month research project, which reviewed published and unpublished literature concerning the nature of famine and conflict in Africa. Case study material from human rights agencies, governmental and non-governmental agencies and academic sources was collected regarding the use of food as a weapon by omission, commission and provision, and six country studies prepared for Angola, Ethiopia, Liberia, Mozambique, Somalia and Sudan, each of which has experienced severe famine and prolonged conflict, and has been considered to be under threat of famine in 1991/1992. Countries which have previously experienced both famine and conflict, such as Uganda and Nigeria, but which are not currently at risk of famine, were not the focus of the work. The authors then sought to examine the ways in which the international community has responded to conflict-related famines and to explore the limitations of existing international legislation and policy.
The article is divided into two major sections. The first is a summary of the findings of the country studies in which the use of food as a weapon by omission, commission and provision is outlined. The second is a discussion of the policy and planning issues arising from conflict-related famines.

CONFLICT IN AFRICA:
A SUMMARY OF FINDINGS

Conflict in Africa has changed fundamentally since the colonial period. The traditional rules of war and local means of conflict resolution have come under acute strain as the stakes of conflict have increased under dramatic environmental and political pressures. The instability of subsistence life throughout Africa has been caused by a multitude of factors, some predating colonialism, others following in its wake; while still others represent the product of climatic change and environmental degradation. This instability has been accompanied by an increase in violent conflict.

While resource questions underlie many conflicts, the causal link between environmental change and violence must be understood within a wider political and cultural framework. Access to, and control over, resources is the key to the maintenance of a particular way of life, including cultural and political identity. It follows, therefore, that threats to the physical means of production which occur in violent conflicts may have severe repercussions for the overall survival of communities and their way of life (Duffield, 1990a; Turton, 1989).

Changes in the mode of governance and the emergence of nation-states have resulted in the nationalization of localized conflict, as governments seek to protect particular economic and political interests (Duffield, 1990a). This trend has been maintained by international forces, which have incorporated nationalized conflicts into global struggles to gain political hegemony. Military and economic support by the United States, the former USSR and, in southern Africa, South Africa, has sustained the internal and inter-state conflicts which have haunted the continent.

A diverse range of conflicts have been spawned under these conditions, leading governments to mount violent counter-insurgency campaigns among their own populations. Counter-insurgency wars throughout the world seek to inflict not simply a military defeat, but to disempower the opposition, to deny it an identity and to undermine its ability to maintain political and economic integrity (Summerfield, 1991). This remains true of civil wars and those where external forces seek to undermine the legitimacy of governments such as those in Angola and Mozambique. Schutz & Slater (1990) have referred to struggles of this latter type as 'anti-Marxist insurgencies'. Attacks on food are often accompanied by attacks on health services, as experienced in Mozambique (Cliff & Noormahomed, 1988) and in Sudan and Uganda (Dodge, 1990). The conditions of war also threaten the future ability of communities to participate in the economic and political life of the country, as whole generations of children are deprived of access to education. The violation of women by rape and the re-emergence of slavery have further contributed to the process of social dislocation and the disempowerment of war victims.

The demise of the Soviet Union may have irrevocably changed the nature of such superpower-related conflicts, but there is little to suggest that other forms of conflict, equally devastating, will not emerge as part of Africa's legacy. Conventional approaches to conflict analysis have tended to focus on the international, macro-level dimensions, ignoring the local level rationale, and the impact of low-intensity strategies on households and individuals (Deng & Zartman, 1991; Stockton, 1989). Without an understanding of the local political and
cultural complexities, and of the motivations of individuals and groups for sustaining struggles, the means of preventing and resolving them, as well as of relieving their effects, will remain elusive.

This lack of political analysis has been paralleled in recent approaches to food security issues in Africa. The human rights dimension of famine has also been underplayed in favour of environmental factors, seen as politically neutral. The public face of famine is thus maintained primarily as an enviro-economic crisis, rather than that of a legal, social and political disaster. Although each conflict and its effects are unique, some common trends in the aetiology of conflict-famines in Africa are discernible.

Food serves three primary functions in insurgency and counter-insurgency ('low-intensity') wars: political, economic and military. By undermining the ability of communities to produce and procure food they are rendered destitute, dependent on the state or welfare agencies, and thus politically compliant. Attacks on the food supply may also serve economic interests. Rangasami (1985) has pointed out that in all famines there are both victims and beneficiaries. Merchants and other powerful groups, often allied to political and military interests in conflict situations, may make substantial profits out of scarcity.

The military function of attacks on food is the most obvious use of food as a weapon in low-intensity wars. Rebel forces are dependent upon civilian populations for food and shelter: in the eyes of a threatened state, the distinction between opposition military personnel and the civilians who provide them with support becomes blurred. As a result, civilians come to be seen as a legitimate target for attack: this is part of the explanation for the rising proportion of civilians killed in conflict in the latter part of this century. Civilians may be forced to leave their homes and fields in search of food and security.

Comparing different famines in different wars in different countries, each with their own histories, must be a cautious undertaking. With the exception of Liberia, and the most recent phase of the conflict in southern Somalia, it is the similarities of the African conflict-famines examined, rather than their differences, which stand out. In each of the other five country studies, famine was not simply a consequence of conflict, but represented its goal (Duffield, 1990a). In the country studies we categorized attacks on food under three headings: omission, commission and provision.

Omission

Omission describes instances of food misuse where governments fail to monitor adequately and plan for food security in all sections of a country; it identifies the failure of governments to manage food reserves and to instigate and facilitate appropriate emergency measures.

Facilitation of relief operations

In 1988, the United Nations passed a resolution urging governments to facilitate the delivery of humanitarian assistance to the victims of disasters (UN resolution 43/131). It invited all states to profit from the international community's ability to provide aid and assistance, and identified the need for cooperation from national governments in coordinating and expediting aid to their citizens. In both this and a subsequent resolution (UN resolution 45/100), the UN's right to intervene remains compromised, however, by the continued acknowledgement of the primacy of national governments, whose sanction is required to mobilise humanitarian assistance. Where governments operate in the interests of the broader community this may present few difficulties, but where governments fail to protect the interests of the mass of the people, or worse still, are repressive or discriminatory,
this creates substantial problems in making relief available.

Perhaps the most famous example of government non-cooperation in delivering relief assistance, was the refusal of Ethiopia's President Mengistu to allow relief assistance to flow into Eritrea and Tigray during the 1984 famine (Jansson et al., 1987). Donor unwillingness to violate national sovereignty and channel assistance across the border was partially responsible for the displacement of over 400,000 Tigrayans alone across the border to Sudan (ibid).

In 1988 the government of Sudan refused agencies access to war-displaced communities in Southern Kordofan; tens of thousands of people, weakened by the conflict-famine, were denied aid, leading to some of the highest starvation death rates ever reliably recorded, with 7.1 per cent of the displaced population dying every week at the peak of the crisis in Meiram (Keen, 1991). In 1990, the World Food Programme estimated a shortfall of 1.2 million metric tonnes of grain in Sudan, while the government acknowledged a national shortfall of only 75,000 metric tonnes (Sudan Update, 1991). It would appear that the war-displaced around Khartoum and conflict-affected communities, particularly in the Nuba mountains, have been severely affected by this omission to declare a food emergency and facilitate the delivery of aid.

In Angola, the government blocked attempts to establish a safe corridor for relief supplies which traversed rebel-held areas on a number of occasions. The delay in implementing the Special Relief Program for Angola (SPRA) slowed the establishment of village-level relief operations, forcing communities to move to the towns.

The importance attached to sovereignty enables governments to withhold the right to assistance which their citizens could otherwise claim from the UN and other humanitarian agencies. Without government consent, bi-lateral and multi-lateral agencies are unable to operate within a nation's borders. Similarly, NGOs who seek to provision famine-affected areas despite government policy may face expulsion or other penalties, jeopardizing their operations in other areas of the country. If they remain committed to providing assistance, they may seek to channel assistance through a third party. The Emergency Relief Desk (ERD), based in Khartoum, Sudan, provides one such example; the ERD channelled assistance across the border into rebel-held territory in neighbouring Eritrea and Tigray from 1985 to 1991, without the permission of the Ethiopian authorities. The identity of the NGOs who managed the consortium remained confidential throughout its operation, thus protecting their interests within government-held areas of Ethiopia (Hendrie, 1989).

While in some areas opposition forces have established relief organisations which have successfully channelled food aid, in all the conflicts studied rebels share responsibility for omissions which have led to famine. Their failure to participate in cease-fire agreements has limited the implementation of effective relief programmes. Such failures are particularly important in those famines which coincide with a total collapse of government: in Liberia, and more recently in Somalia, the peaks of the food crises have coincided with the failure of governmental structures. It is unclear in such situations who is responsible for ensuring the legal right to adequate food. In these circumstances rebel forces, who control large areas of the country, have a particular responsibility for providing the citizens under their control with access to humanitarian supplies.

Management of existing food resources

Governments also have a responsibility to prevent famine by utilizing national surpluses effectively and encouraging accurate national food security planning. In Sudan
the government has failed on both fronts. The export of the strategic grain reserve prior to the 1991 harvest created a dependence on the import of grain to meet the nation’s food requirements. The income generated by these export sales was channelled to the military, leaving the government with insufficient funds to import food to meet the deficit (Afria Watch, 1990a). By blocking aid, the only alternative means of breaching the food gap and of re-building strategic grain reserves, was withheld. There have also been suggestions that government staff responsible for preparing agricultural reports and monitoring food security worked in a climate of fear: their findings were politically sensitive, and they perceived themselves to be at risk of imprisonment or of losing their jobs if they delivered reports contradicting government policy (Buchanan-Smith et al., 1991).

Governments have exploited the structural vulnerability of regions such as Eritrea (Bondestam et al., 1987), Tigray (De Waal, 1991) and Southern Sudan (Keen, 1991), which have traditionally depended on imports of grain from other areas of the country. By blocking commercial and relief grain flows into deficit areas, governments have created actual scarcities of food, resulting in the collapse of marketing systems, forcing communities to move out of the regions.

De Waal (1987) has estimated that in the 1984–1985 famine in Darfur, food aid met only 10 per cent of food consumption needs, the remainder coming from the depleted harvest, wild fruits and grasses and that bought with wages from labouring and the sale of assets. Insufficient research has been carried out to assess the role which food aid plays in preventing starvation in counter-insurgency famines. It is clear, however, that the creation of absolute scarcity, which results from attacks on production and marketing systems, as well as on the means of coping with such crises, may render civilian populations in conflict-famines more dependent on food aid than those affected by environmental disasters. Thus, the failure of governments to initiate appeals and facilitate relief operations in sufficient time constitutes a major abuse of the right to adequate food.

Commission

We define acts of commission as attacks on the means of producing and procuring food. Actions which undermine agricultural production and hinder coping strategies, including attacks on relief convoys, safe corridors and markets, are also listed in this category. Campaigns of terror, designed to depopulate specific areas, are not explicitly included, although their negative effects on the food security of those forced to abandon their assets and means of livelihood cannot be over-emphasised.

Attacks on food production and consumption are central to the process of famine creation. The tactics employed in the different conflicts studied showed alarming similarities. The most important feature of these attacks is that they quicken the pace of destitution by blocking coping strategies, thus pushing communities further from the threshold of survival. De Waal (undated) has suggested that food aid is less important than peace in relieving famine. For example, the cease-fire that accompanied Operation Lifeline in 1989 enabled communities to plant and to implement other strategies to survive the famine.

Attacks on Production

Scorched earth tactics have been widely employed both by ground troops and by aerial bombing. Accurate data concerning such attacks are difficult to collect and assess; De Waal (1991) has, however, reported that 142,000 hectares of land in Tigray were destroyed by Ethiopian government forces in only 2 months in 1980, while Bondestam (1987) records a further 90,000 tisimdi of land destroyed in Eritrea in 1987.
These figures provide an indication of the impact of crop burning by ground troops and aerial bombardment with incendiary devices and napalm in recent African conflicts.

The threat of aerial attack forced farmers in Tigray and Eritrea to cultivate at night, thus limiting their productivity (Hendrie, 1991). In Angola the threat to peasants working in their fields was so acute as to prompt the army to insist that they accompanied workers to the fields; when military escorts were not available, farmers were not able to tend their crops. Grain stores have also been subject to attack by both government and rebel forces in all countries; these attacks have acted as a disincentive to community efforts at establishing grain stores, a traditional feature of food security structures (Spooner and Walsh, 1991).

In southern Sudan the most important attack on production was the confiscation and killing of large numbers of livestock, the central feature of the rural economy. The long-term effects of these raids may be more severe than those of one-off attacks on sedentary farmers. Pastoralists exchange livestock for grain, and in drought years are severely affected when the terms of trade decline as the market becomes swamped with crisis sales. These sales are, however, managed by herders who usually selectively sell livestock according to age and sex in order to protect the core of the herd, which acts as a base for future production. Raiding and killing of livestock is not selective and may severely deplete herds, plunging communities into destitution. Thus pastoralist communities may be forced out of subsistence production permanently if they lack sufficient resources to rebuild their herds.

In Somalia, government troops attacked herders at wells and watering points. Wells were frequently poisoned and water tankers destroyed. These attacks forced pastoralists to move their herds nearer to towns in search of water and protection; this has occurred also in Sudan. This has resulted in abnormal concentrations of livestock in certain areas, intensifying environmental degradation and increasing the threat of disease (UN/GoS, 1990). Changes in grazing patterns have also been recorded in Eritrea: Bondestam et al. (1987) records how the war cut off some of the best grazing, forcing communities to move to new pastures, which were often unsuitable for the particular kind of livestock, traditionally grazed in lower areas. The imposition of curfews in government-held areas further limited the range of grazing as people were unable to look for stray animals after dark (ibid).

The use of mines has had a devastating effect on the agricultural and pastoral economy of large areas of Africa. In Eritrea 10 per cent of agricultural land had been taken out of production by 1987 because of mines (Bondestam et al., 1987). Over 1 million mines have been planted in Somalia (SCF, 1991), and Angola is home to one of the largest number of mine-disabled people in the world. Like UNITA, Renamo has also used anti-personnel mines with devastating effect: mine-related injuries, like direct atrocities, reinforce community awareness of Renamo presence, and place a substantial burden on already over-stretched medical resources (Vines, 1991). Mines represent a threat to sedentary farmer and pastoralist alike, and large numbers of livestock have joined the human victims. The laying of mines represents a serious threat to future production — their deactivation is a skilled and hazardous job. In Afghanistan those trained in the art are often unwilling to utilize their skill, recognizing the danger (McGrath, 1990); Ahlstrom (1990) estimated that one person would die and two would be injured for every 5000 mines deactivated, let alone those accidentally detonated by the unwary.

Mines also limit the ability of communities to migrate, yet movement is often the
key to survival in production crises, as it enables people to seek wild foods, grain, markets, employment and security. In southern Sudan access to wild foods was curtailed, particularly around garrison towns (Africa Watch, 1990a); people were unable to leave the towns because of road blocks and mines, and trees and bushes, the source of berries and bark, were felled to deny opposition forces access to cover. Garrison towns were encircled by double rings of mines, the first laid by the army, the second by rebels: those attempting to flee risked explosion or being shot by both sides (ibid).

Wild foods also serve as a means of exchange for other commodities, including grain. In southern Sudan, those most affected by the famine frequently had their wares confiscated, thus denying them a potential source of income (Hutchinson, 1991). Similarly, in Eritrea, collection of wild foods was reserved for army forces who lacked other sources of provisions (Africa Watch, 1990b). In Angola, community attempts to gather wild foods were blocked by UNITA (Africa Watch, 1989).

Restrictions on movement affect groups differentially according to age, gender and wealth. Men may avoid movement to particular areas to avoid enforced conscription, detention or harassment by opposition forces. Women may face assault and rape, and their perception of this threat has limited their freedom to move. Fear of harassment by government troops was cited as the primary cause of restriction on movement by Eritrean populations interviewed by Bondestam et al. (1987). Tigrayan fear of resettlement and forcible conscription similarly led to their opting to walk for 4–6 weeks across the Sudanese border, rather than seek relief in government held towns, 2–3 hours away.

Those fleeing attacks on their homes and property have also been subject to further military action by aerial bombardment and by ground troops. Refugees returning to Sudan from Ethiopia were greeted by aerial attacks. The strafing of refugees has also been reported in Tigray (Hendrie, 1991), Eritrea (Africa Watch, 1990b) and Somalia (Africa Watch, 1990c).

Road blocks are often established with soldiers attempting to extract bribes which the poorest may be unable to afford. In Ethiopia, taxes and ‘voluntary contributions’ were forcibly sought from populations seeking food and refuge in government-held areas; these acted as a further disincentive for people to travel (Hendrie, 1991). In Liberia, displaced rural communities were stripped of their food and remaining assets by rebel troops before being allowed to enter Monrovia (Africa Watch, 1990d).

In periods of production failure, subsistence communities’ dependence on markets intensifies, as households seek to realise assets such as livestock and jewellery in exchange for grain. Markets also provide employment and trading opportunities, and act as important centres for the exchange of information, vital to the decision-making process which determines survival. The collapse of markets, therefore, serves as a key indicator in assessing the impact of counter-insurgency wars on food security (De Waal, 1990b).

Restrictions on movement contribute to the breakdown of the marketing systems, as merchants fear transporting produce into insecure regions. Markets have also been the direct targets of attack as military forces seek to disrupt the social and economic cornerstone of rural communities. Operation ‘Red Star’ in Ethiopia in 1982 is, perhaps, the best example of such tactics, as the army sought to isolate Eritrea from surplus-producing areas within Tigray, and to block flows of food from Sudan (Hendrie, 1991). The threat of such attacks prompted the rebel forces to hold markets on only one night each week, on the assumption that the air force would be unable to bomb all markets simultaneously. This meant that merchants were unable to effectively
circulate between markets, and spent several idle days each week. Holding markets under cover of darkness brought other problems, as people could not clearly see what they were buying, nor how it was measured. Aerial and ground attacks also destroyed scales and grain mills vital to the maintenance of the grain trade (De Waal, 1990b).

Sieges of key towns and cities represent one of the most dramatic restrictions on movement and the ability of populations to secure adequate food. Towns typically provide the base for government troops within the conflict zone; their incursions into the surrounding rural areas may force civilians to seek refuge and employment in towns, bringing them under government control. Government-held towns are subject to siege by opposition forces who may seek to starve the military into submission by restricting flows of food into the town. A particularly lengthy siege took place around the Eritrean capital of Asmara, as the Eritrean Peoples Liberation Front sought to recapture the city, and lasted a little under a year, causing unknown numbers of civilian deaths (Africa Watch, 1990b).

Within towns, military and commercial interests may become allied; profiteering has been widely reported in garrison towns in Sudan, Eritrea and Somalia. Such practices further inflate grain prices, restricting the entitlement of the poorest to staple foods. Attacks on relief supplies by military personnel to maintain grain prices is reported to have occurred in Torit, southern Sudan in September 1988 (Africa Watch, 1990a). Keen (1991) also describes the complex series of commercial and private interests served by maintaining the blockage on food into the region. Civilians living within garrison towns are also liable to have their property and food looted, as was experienced in Monrovia (Liberia), Asmara (Eritrea) and Hargeisa (Somalia).

Garrison towns are also often centres for relief, as governments may restrict the delivery of food aid into rural areas held by rebel forces. Food aid has been attacked in all the countries studied. Both government and rebel forces frequently argue that their attacks on relief convoys are justified because they serve as a cover to supply the opposition forces with weapons and other provisions. This problem becomes particularly acute if food aid does indeed move as part of a military convoy. In southern Sudan the military insisted that relief trucks required protection from rebel attack, and humanitarian supplies often became incorporated into military convoys, which were moving army personnel and military equipment. The threat of aerial attack on relief convoys in Eritrea and Tigray led to lorries travelling at night, slowing their movement considerably, and reducing their coverage and efficiency by half (Hendrie, 1991).

Feeding centres have also been targeted. Camps in Somalia, which house Ogadeni refugees, have been frequently attacked by Somali National Movement rebels, on the grounds that opposing Western Somali Liberation Front troops are provisioned within the camps. The attacks were selective according to age and gender — with a larger proportion of young men killed, but they undermined the sense of security of the entire community. The militarisation of the camps led to the withdrawal of the United Nations High Commissioner for Refugees in 1989 (Africa Watch, 1990c). Similarly, Ethiopian air-force MIG bombers strafed ICRC feeding camps in Tigray, dropping incendiary devices and napalm, killing 52 people and destroying an orphan centre (Hendrie, 1991).

Forced Resettlement

The military activities of both government and rebel forces have displaced large civilian populations. All displaced communities, particularly those within camps and towns, are at risk both from the lack of access to their lands and means of subsistence, and from the changed disease environment.
Where people maintain their freedom to move in and around the area, however, they can trade grain for other commodities, and may be able to supplement rations with wild foods. They can also take advantage of employment and trade opportunities, or claim patronage from kin, and may thus be able to access health and other welfare services.

Forced resettlement of populations has been characterised by high levels of violence, inadequate logistical and health planning, and restrictions on people’s ability to diversify their sources of food and income. Ethiopia’s resettlement programme is the most publicised example of such a policy (see, for example, Clay & Holcomb, 1985). One of the aims of the programme was to depopulate large areas of northern Wollo and southern Tigray, areas of rebel activity. Transport arrangements were appalling, with large numbers of people dying from crush injuries and dehydration. The lack of adequate food and health services in host areas placed enormous stresses on the indigenous communities.

In October 1990, the Sudanese government forcibly removed the population of Hilat Shook, a settlement around Khartoum for displaced southerners. They were relocated 25 miles away from the city centre and left without adequate access to water, food and employment. In Angola, Africa Watch (1989) estimated that the majority of the 600,000 people living in UNITA-held areas had been abducted and forcibly resettled. Government forces also moved hundreds of thousands of people out of rural areas into militarized towns, ostensibly for ‘their protection’, but also to deny UNITA a base and prevent communities from providing details of government troop movements (Africa Watch, 1991). More recently, UNITA has been accused of failing to allow displaced populations to return home in order to ensure that relief aid is channelled through the organisation, and thus maintain the population’s dependence upon it (Brittain, 1992).

In Mozambique, Renamo has brutally enslaved large sectors of the population, forcing them to work as agricultural labourers or porters. The Mozambican government relocated substantial numbers of people: initially in an attempt to collectivise agriculture but, as the war progressed, also in an attempt to provide security and services to these populations. In certain areas the resettlement programme may have been motivated by the desire to remove potential sources of support from the insurgents.

Such population movements undoubtedly represent one of the most severe health and nutritional risks to war-affected communities. They also constitute a threat to future food security, as it will take considerable time for farmers to rehabilitate their farms after prolonged absence. If others settle their land this may provide a recipe for future conflict.

Displaced communities are among the most vulnerable groups in counter-insurgency famines. Populations forced to move away from their homes by the dual pressures of hunger and violence have often been stripped of their assets and suffer harassment as they attempt to move in search of food and security. They become dependent on the goodwill of their host communities to provide employment and to facilitate their access to food supplies, including food aid. This dependency renders displaced communities vulnerable to exploitation — the re-emergence of slavery in southern Sudan is the most extreme example of this. Slaves are often inadequately fed, or may receive no food in return for their labour, and risk severe punishment or even death if they try to escape (Keen 1991; Hutchinson, 1991).

Provision
Food may be selectively provided to government supporters, to those from...
whom support is sought, or to lure sections of the populations to areas controlled by the military. Selective provision of food is poorly documented, perhaps reflecting donors’ reluctance to publicise the abuse of food aid, as well as the difficulties of distinguishing between abuses as part of a ‘hearts and minds’ campaign, and the humanitarian activities of either side.

Differential provisioning of military and civilian populations has been reported in Somalia where food aid, donated by USAID, was regularly diverted to the armed forces and government bodies. Only 12 per cent of the food aid reached the civilian population for whom it was destined (Askin, 1987).

In garrison towns held under siege, differential provisioning is commonplace. In Wau, southern Sudan, Fertit people were encouraged to steal grain at the expense of Dinka communities (Africa Watch, 1990a). Similarly, merchants in Meiram refused to sell grain to displaced Dinka, despite their severe undernourishment; food aid in the area was diverted to Baggara herdsmen to use as fodder (Keen 1991). In Asmara, the capital of Eritrea, the government militia were paid in grain, and all military personnel received larger rations than civilians (Africa Watch, 1990b).

Food has been used to lure civilian populations into areas controlled by government or rebel forces: in Tigray, for example, feeding centres acted as collection sites for the government’s resettlement programme. Similarly, by blocking relief aid into rural, rebel-held areas and centring relief efforts in garrison towns, famine-affected populations may be forced to move into government-held areas.

Food is regularly used as part of propaganda campaigns. Thus in Liberia, Charles Taylor sought to regain the support of Mandingo Muslims by distributing sheep and extra rations of grain (West Africa, 1990a). The differential provisioning of refugees from the Ogaden proved a major source of conflict among the indigenous communities, reflecting the importance of providing compensatory aid for host communities (Duffield, 1990a).

Main Findings From Country Case Studies

The country studies aimed to establish whether strategies of ‘low-intensity’ warfare had contributed to contemporary famines in Africa. It can be seen from the literature reviewed that deliberate interventions in food marketing, distribution and aid flows and attacks on production have contributed to, and in some cases caused, successive famines in Ethiopia, Angola, southern Sudan, Somalia and Mozambique. In many of the famines identified, terror and attacks on food systems were superimposed on natural disasters such as drought. In Liberia, the initial phase of a counter-insurgency war gave way to widespread banditry; here food was not systematically used as a proxy weapon, but the small size of the country and comparative accessibility of rural areas enabled rebel and government troops rapidly to depopulate large swathes of the country-side, precipitating a food security crisis among the displaced communities and in urban centres.

It is not always possible, however, to ascertain whether it is fear or hunger which ultimately drives war-affected people to flee their homes and farms: in most cases one can safely assume a combination of the two. Much of the work reviewed is descriptive and lacks quantitative estimates of the impact of conflict on food supply. It also tends to be selective and the stories of many communities have not been documented. Such weaknesses are inherent within such violent and unstable environments, and much more work needs to be done to establish more effective systems for monitoring food insecurity in conflict areas.

The work of De Waal (1990a) and
Duffield (1990a) does, however, offer the beginnings of a model which traces the complex impact of low-intensity war on the socio-economic structures which support food production and distribution. Attacks on health care, the denial of education and technical services, and the traumatization of large sectors of the civilian population all compound this negative impact.

Migration patterns associated with flight from terror differ from the coping strategies normally employed during enviro-economic crises. The magnitude of these population movements brings particular health risks, and the absence from conflict areas is often longer-term than those incurred during enviro-economic disasters, where families seek to return quickly to their homes and farms to plant (De Waal, 1987). The tactics of low-intensity warfare aim to control civilian populations, by restricting movement and rendering communities destitute through asset-stripping; the choices open to famine victims are steadily narrowed, and they are rendered more dependent upon a potentially hostile commercial sector and market economy to sustain themselves and their families.

Mark Duffield (1990b) has argued that this process of commercialization may not be easily reversed once there is peace. He has suggested that in the case of Sudan, the decapitalization of Dinka assets and their enforced dependency on the labour market served powerful political and economic groups, who will have an interest in protecting the newly established status quo.

It is no longer sufficient to analyze the shorter-term sequelae of counter-insurgency warfare and the impact of the use of food as an instrument of war on the aetiology of famine: the implications for conflict prevention and post-conflict rehabilitation also require urgent consideration.

**POLICY & PLANNING ISSUES**

**Existing legislative structures**

The country studies reveal the role of rebel and government forces in actively promoting famine, as well as demonstrating the failure of governments to prevent famine within their own borders. These actions represent a severe abuse of the right to food encoded in the 1977 United Nations Convention on Economic, Social and Cultural Rights. They also contravene the Geneva Conventions governing the protection of civilian populations and the protection of humanitarian supplies [Additional Protocol 1, Article 54(1); Protocol 1, Article 54(2); Additional Protocol 1 Article 70; Additional Protocol II, Article 18] (Mourey, 1991). UN resolutions 43/131 and 45/100 sought to strengthen the sanction against governments who failed to assist victims of disasters and other emergency situations. The use of food as a weapon also contravenes Article 3 of the Declaration of Human Rights, which proclaims that everyone has the right to life, liberty and security of person. Furthermore, Article II of the Convention on the Prevention and Punishment of the Crime of Genocide (1948) defines genocide as ‘... any of the following acts committed with the intent to destroy in whole or in part a national, ethnical, racial or religious group such as, the killing of members of the group, the causing of serious bodily or mental harm [and] deliberately inflicting on the group conditions of life calculated to bring about its physical destruction, ...’ (emphasis added).

**Policy approaches to conflict-related famines**

Donor nations are paying increased attention to the role of good governance in promoting development, and are including human rights on the conditionality agenda. The aid conditionality debate draws on two
parallel historical trends. The first was primarily economistic: the Bretton Woods institutions sought to respond to the debt crisis and economic decline in the Third World by introducing a series of structural adjustment programmes (SAPs), which aimed to support the free market economy and stabilise national expenditure. The maintenance of aid was conditional upon the acceptance of structural adjustment programmes, yet their imposition led to major negative outcomes, including an apparent decline in the health and nutritional status among the poorest (Green, 1989).

In parallel with the economic rationale for the adoption of structural adjustment programmes, there has been a deeper political motivation for the adoption of particular criteria of good governance. The introduction of market reforms has been seen as contingent upon the adoption of Western-style democracy, which would boost private investment and increase the accountability of the state. The human rights records of Third World governments has come under closer scrutiny and served as a proxy indicator for levels of democracy. Conditionality policies increasingly seek to reward ‘good governments’ with additional development funds and to support legislative, constitutional and penal reform (Chalker, 1991). Those governments which fail to conform to donor criteria may be subject to cuts or suspension of aid until suitable reforms are implemented. It is important to recognise, however, that democracy per se does not guarantee accountability or prosperity (Overseas Development Institute (ODI), 1992). The maintenance of elected parliaments rests upon economic stability, and the ability to resolve conflicts which may emerge as different groups claim their right to increased autonomy or secession (Rupesinghe, 1990).

Increasingly, levels of military expenditure are also being included in aid conditionality criteria (Chalker 1991). While this is welcome in many respects, it has been argued that the levels of actual military expenditure are relatively low in Africa, and that this has left African states vulnerable to outside intervention, particularly from South Africa (Eboe Hutchful, quoted Awu-Asmoa, 1991). While there are grounds for optimism that such external interventions will decline as apartheid is dismantled and the East-West thaw continues, it remains an important ethical and legal question whether the right to defend state borders and to maintain internal security applies differentially between North and South. Furthermore, the conditionality debate does not address the responsibility of Northern governments for decreasing global military expenditure levels, or controlling the development and expansion of its military-industrial complex (Zwi & Ugalde, 1992). Indeed, concern has been expressed that the demilitarisation of the North could lead to the dumping of excess military equipment in the Third World (Awua-Asmoa, 1991). Absolute expenditure on military equipment may not serve as an accurate indicator of the levels of militarisation if cheaper sources of military technology become available through Third World military suppliers such as Chile and Egypt, or if non-conventional technologies such as chemical weapons remain available on the world markets. Careful monitoring of such transactions, matched by effective means to block sales which contravene international law, are therefore vital.

The inclusion of human rights on the aid agenda is a welcome and long-overdue development. Dreze & Sen (1989) in their now seminal work have clearly demonstrated the role of democracy and press freedom in famine prevention, pointing to the political risks to an elected parliament of widespread starvation. However, it is as yet unclear whether conditionality will be evenly enforced and whether foreign policy considerations will continue to outweigh those concerning human rights.
To date the human rights dimension of the conditionality debate has remained secondary to broader economic policy pursued under adjustment programmes. Where human rights issues have been addressed, concern has focused on the monitoring of individual civil and political rights. The remit of human rights agencies such as Amnesty International and the UN Centre for Human Rights in Geneva reflect this concentration on the protection of largely ‘negative’ rights, that is those which seek to limit the state’s control over the life of the individual. Far less donor attention has been paid to the importance of protecting ‘positive’ rights, such as the right to adequate food, health and education. The failure of the donor community to address this broader human rights dimension has been attributed to their reluctance to accept the costly obligations associated with the Right to Development.

So far, conditionality has taken the form of a one-way dialogue, which omits international responsibility for improving the global environment within which national policy must operate. Conspicuously absent from the agenda are economic obligations on the industrialised countries to ensure fair trade, to reduce the Third World’s debt burden and to improve measures to protect the global environment. All of these factors may have a substantial impact on a nation’s ability to create the political, economic and environmental conditions within which its population can thrive.

It is important, therefore, that the playing of the human rights card in controlling aid allocations does not serve as a screen, behind which donors can shift their interests according to new political considerations. This is of particular significance at a time when Western interests are diverting attention away from the South towards Eastern Europe and the states which once constituted the Soviet Union. It is also important to evaluate human rights and democracy criteria within the African context and with reference to the particular difficulties associated with high rates of illiteracy, poor infrastructural and transport systems, the high levels of militarisation of certain regions and the lack of indigenous human rights institutions.

The British Government excludes humanitarian assistance from ODA conditionality believing that ‘... ordinary people should [not] suffer twice’ (Chalker, 1991). In practice, however, the separation of emergency relief from long-term development aid (and the subsequent differential application of conditionality criteria) is problematic. Firstly, it suggests that the withdrawal of development aid does not increase populations’ vulnerability to disasters such as famine, and that people do not therefore ‘suffer twice’. Secondly, by excluding relief aid from the political agenda it suggests that the provisioning of food aid is an apolitical act, motivated exclusively by humanitarian concerns. Clearly, however, donors are aware of the vital political role of food aid and have used it to political ends. In 1984, despite the failure of the Nimeri regime to declare a famine, USAID mobilised food aid to avert a crisis for the Sudanese government. In 1985, USAID was willing to support the cross-border operation into the northern region of Ethiopia, despite its questionable legality, in order to remove the potential destabilising influence of nearly 4 million Eritrean and Tigrayan refugees from Sudan (Hendrie, 1989). By 1990 the complexion of the Sudanese government had changed, and donors were no longer willing to bypass conventional protocols about waiting for formal declaration of the famine within Sudan; it has been suggested that donors were using food aid as a political weapon to cause a major food crisis, and so undermine the government (Sudan Update, 1991).

In 1983, many if not most of the 100,000 famine deaths occurring in Mozambique could have been averted had food aid been provided by risking personnel and vehicles...
in areas under attacks from Renamo or by providing food to the Mozambican government to distribute (Green, 1986). The aid agencies had made a political decision, however, not to grant such aid: when they did a year later, in a more adverse security situation, deaths were sharply reduced. If such informal conditionality does operate on relief aid, donors have a responsibility to acknowledge the policy and to defend it publicly.

While donors apparently seek to encourage greater accountability of recipient governments, they are increasingly bypassing governmental structures in the belief that alternative structures offered by non-governmental organisations are more responsive to the needs of Third World communities. Between 1975 and 1988, the British Overseas Development Administration (ODA) increased its support for NGOs from £5 million to £42 million (Duffield, 1990a). The accountability of NGOs to their clients may be no better than that currently offered by governmental structures. Beneficiaries are rarely included in the planning and evaluation of relief programmes, and have no direct route to the agencies who fund NGO activity to voice their concerns or frustrations with a particular initiative (Hanlon, 1991).

In countries where bilateral development aid has been suspended, donor relief aid is commonly provided through multi-lateral agencies such as the World Food Programme and the United Nations High Commissioner for Refugees and Northern NGOs (NNGOs), such as CARE, Oxfam, and Save the Children Fund. NNGOs are seen as neutral channels for humanitarian assistance without political allegiance, and may implement operations which, under international law, multi-lateral and bilateral agencies might not wish to support directly. However, many NNGOs also fear alienating national governments in order to protect their long-term development and relief interests in government-held areas of the country. Thus, they too may be forced to seek a third party through which they can channel aid to famine-affected areas, as occurred with the Emergency Relief Desk.

The reliance of the international community on private agencies to implement disaster relief programmes may exert a pressure on NNGOs to refrain from publicising the conditions which have created famine and which block relief operations. It has been suggested that NNGOs' role as contractors to bilateral and multi-lateral agencies may serve to maintain their silence if they fear that their comments are likely to elicit sanctions (Duffield, pers. comm.). Within their home countries NNGOs may face constraints in publicising the political causes of contemporary famines. In Britain the charity laws limit the advocacy work of agencies to 'apolitical' campaigning activities, and charities may fear alienating their constituents if they reveal the full extent of human involvement in the process of famine creation. There is thus a need to develop appropriate development education messages to reach the public in the industrialised countries.

Northern voluntary agencies often rely upon indigenous relief agencies, such as the Eritrean Relief Association (ERA), the Relief Society of Tigray (REST) and the Sudan Relief and Rehabilitation Association (SRRA) in southern Sudan, to deliver relief into rebel-held areas. Such groups may have clear political allegiances. The provision of food into rebel-held areas may serve numerous functions over and above the humanitarian: by maintaining food supplies civilian communities are able to remain in their homes, or at least within the region. This is significant not only for their own health, but also serves to legitimise the rebel force. The ability of such forces to feed the people under its control is a primary concern in wars which depend on popular support. As Green (1986) puts it '... providing food aid saves lives and bolsters the authority of the political institutions
through which it is provided. Not providing it kills human beings and erodes the political strength of those who are unable to feed their people . . . ’ (p. 301). Secondly, food aid may be used to feed military personnel. While this may help reduce the likelihood of grain stores being plundered or homes raided, food aid which sustains a particular fighting force can determine the outcome of the conflict. Interestingly, the UN agencies have recently agreed to provide food for both government and UNITA forces in Angola. Where rebels do not benefit from the legitimising role of food aid they may be forced to accept a premature or unfavourable settlement as occurred in Biafra (Gorndeker & Weiss, 1989), and in Zimbabwe (Sanders, 1982).

NNGOs and organisations such as the ICRC are increasingly being forced to bear the public face of donor policy as they become the proxy means of maintaining aid flows. They face a multitude of ethical and political influences, yet their programmes are not subject to open scrutiny and public accountability, nor are they bound to evaluate the impact of their programmes. Most important of all, there is no international ombudsman to whom the intended beneficiaries of such programmes can appeal if they have reason to complain. The criteria according to which donors decide on the suitability of provisioning particular forces or the means of delivering aid are not always guided by international law, and are only subject to scrutiny by their home parliaments.

Agencies may also face dilemmas about which rebel-held areas they choose to supply. For example, would humanitarian aid in Renamo-held areas of Mozambique be as appropriate as that given to ERA in Eritrea? Which populations should suffer the ‘double punishment’ of violence and hunger? Some agencies such as the ICRC are bound under their constitution to be impartial in their provisioning of aid and therefore attempt to provide relief to both sides. In an attempt to be ‘neutral’, however, such action may inadvertently lend support to forces which do not operate in the interests of the community, but which nevertheless gain some credibility by being seen to be associated with the provision of food to the population.

The contradictions in donor attitudes are compounded when they refrain from delivering developmental inputs into rebel-held areas, on the grounds that by developing infrastructure they would be seen to be supporting a particular faction. However, Hendrie (1989) has remarked that because food aid can be monetarised and serve non-humanitarian purposes, it may serve military functions more readily, whereas programmes which support agricultural rehabilitation are less susceptible to military manipulation.

**Intervention**

In some instances bi-lateral and multi-lateral donors have been prepared to run the gauntlet of overtly supporting cross-border operations, despite the lack of government approval. Such transgressions of national sovereignty include the EC’s and USAID’s funding of the cross-border operation into Eritrea and Tigray.

There have been few international attempts to intervene militarily in peacekeeping operations in Africa, following the contentious role of the UN in Zaire in the 1960s. The armed intervention of the Organisation of African Unity (OAU) has been limited to Chad in 1981, which subsequently failed, leading to the re-introduction of French troops the following year (Awua-Asmoa, 1991). More recently, the Economic Community of West African States (ECOWAS) dispatched a peacekeeping (-making) force to Liberia. Despite the numerous problems the ECOWAS Monitoring Group (ECOMOG) has faced, it has played a valuable role in restoring peace and stability to the country. In
October 1991 French and Belgian troops arrived in Zaire, apparently to protect their own nationals, but they have also played a role in protecting those seeking to flee the violence in Kinshasa, and probably played a part in keeping Mobutu in power.

The European Community and United Nations have been attempting with little success to slow the increasing cycle of violence in Yugoslavia. It is clear that there are no easy answers. The establishment of a temporary safe haven for Kurdish communities after the Gulf War demonstrated the clear interface between security and providing humanitarian assistance to the victims of conflict and persecution. Yet it also illustrated the difficulty of sustaining such interventions without major changes in national political conditions. The Kurdish example does, however, provide an example of the international community justifying humanitarian intervention on the grounds that the government was unfit to provide for and protect its own people. Such actions have yet to be incorporated into permanent international legislation regarding the protection and provisioning of victims of disasters, and it is unlikely that in less visible conflicts donors would be willing to repeat the Kurdish experience, which was mounted at a huge financial cost.

Conflict Resolution

The international community has also been slow to participate in conflict resolution. The UN Security Council has rarely been active in mediation, and conflict-resolution in Africa has more commonly been associated with the withdrawal of a regional power than with the offices of the United Nations (Rupesinge, 1990). With the East-West thaw, there is the potential for the UN Security Council to adopt a more co-ordinated and consensual approach to conflict resolution. However, following the Gulf War, it is uncertain what form such conflict-resolution may take.

A major obstacle to conflict resolution to date has lain in the sacrosanct nature of national sovereignty, and the reluctance of the international community to facilitate the division of nation-states along secessionist lines. The effectiveness of UN efforts at mediation in the future will depend upon achieving a flexibility of response in the resolution of conflicts, which should not exclude options such as secession and independence. These options are of limited appeal to its members, many of whom face similar secessionist claims in their own countries. However the emergence of important precedents in the Baltic States and Eritrea are dramatically challenging the notion of the primacy of maintaining nation-states in their existing form. It is also important to bear in mind that the politics of the UN, where a state or set of states dominate policy, may mean that not all claims will be treated equally.

It is therefore especially important that regional methods of conflict resolution are strengthened and maintain a degree of autonomy. The OAU, ECOWAS, and SADCC all provide potential structures for active mediation and peace-keeping roles, and may serve as powerful voices at the United Nations to support proposals for change. Allied to such attempts at regional conflict resolution should be attempts to stimulate regional demilitarisation, regional development activity and other forms of regional cooperation (UNDP, 1991).

NGOs have played a mediating role in some recent conflicts, particularly in negotiating cease-fires, the most notable example being the successive cease-fires under Operation Lifeline in southern Sudan. NGOs can also play a role in local conflict resolution. An Oxfam project in
southern Sudan provided a livestock vaccination programme which cut across ethnic lines, providing an incentive for peace. Similarly in Kitgum, Uganda, the avoidance of strict targeting of relief aid allowed whole communities to rebuild their lives without generating further conflict between the different ethnic groups (Duffield, 1990a).

**Conflict — a policy and planning issue**

Both actual and potential conflict need to be included explicitly in policy and planning approaches. Agencies such as the World Bank and IMF have avoided accommodating the impact of conflict in their planning; this has been attributed to their desire to remain neutral and to avoid interfering with military budgets (Green, 1987). If adjustment programmes are to consider military expenditure in future, this should be accompanied by sensitive planning which in analyzing the social and economic conditions in the country takes account of the impact of actual or potential conflicts.

An example of the failure to include conflict in policy and planning measures is the World Bank's removal of food rationing and subsidies in Mozambique. This is a conventional item in structural adjustment policy: in areas not affected by conflict, the removal of subsidies is thought to boost production and stimulate the market. But in Mozambique the reasons for low production levels lie not simply in poor agricultural and marketing policies, but in the interruption of production and marketing by the war, especially through direct targeting by Renamo. Thus peace, as well as reform, is required to restore food security.

The dearth of quantitative data regarding the macro- and micro-economic impact of conflict compounds the difficulty of effective planning in pre-, present and post-conflict situations. Few studies match that of Bondestam et al.'s (1987) detailed analysis, which quantifies the number of livestock lost and the acreage of land out of production because of conflict. Yet this information is as crucial as weather-monitoring in determining actual and potential harvests. Early warning indicators in counter-insurgency famines would require the monitoring of forcible resettlement, differential employment opportunities and military attacks on markets. Human rights surveillance (where it includes food issues) is not systematically incorporated into famine early warning and relief, and the two fields remain locked in parallel rather than interacting. Collection of such data is dependent upon local security conditions and the availability of a network of trained informants at the local level, who can combine details of the impact of natural shocks with information about the current security situation. Encouraging local participation in famine early warning systems need not be confined to low-intensity war famines, but in such famines it may provide the only logistically feasible way of collecting data in a volatile and insecure environment (D'Souza, 1989).

There are undoubted political constraints to combining the two issues at the local level; assessments of the impact of attacks could be liable to manipulation on both sides. However, the testimony of war-affected refugees has been used to justify the suspension of development aid: Gersony’s reports on Somalia, and Survival International’s report on resettlement and villagisation in Ethiopia are but two examples. Testimony could then serve as an important source of qualitative and quantitative assessments of immediate and future food security within countries.

The effectiveness of local early warning systems depends on both the training of local workers to translate anecdotal material into quantitative estimates of need, and the willingness of donors to trust indigenous assessments rather than relying exclusively on highly technical reports, often prepared by expatriates. The relative cost-effectiveness
of such systems in identifying famine at the early stages may encourage donors to accept them as the most economically effective (D’Souza, 1989).

For such systems to be truly effective, donor concepts of famine will need to shift away from that of starvation towards understanding and responding to broader concepts of food security and insecurity. Prevention of the terminal stages of the famine process would include supporting coping strategies, further analysis of the benefits of cash versus food aid (Wilson, 1991) and disease control. More important still are measures which address the underlying causes of famine, including conflict, and promote development on an equitable basis.

Local participation in rehabilitation planning is also important. Earlier it was suggested that the tactics employed in low-intensity wars sought to disempower particular groups. The trauma and destitution accompanying conflict present development planners with a particular challenge. It is vital that needs are analyzed within the gender context: large numbers of female-headed households characterise war-torn populations, and women face greater difficulties than their male counterparts in gaining access to development resources and in securing adequate land to meet their families’ needs. Famine affects women harder than men; in addition to their agricultural responsibilities they collect water and fuel, a time-consuming and dangerous task in areas affected by both drought and conflict.

Demobilisation of troops is also a major issue, and the establishment of effective policing to discourage and control banditry are also important in maintaining future food security and averting conflict. Green (1987) has described the important macro-economic impact of the development of a parallel economy, associated with high levels of banditry and violence, in Uganda. Duffield (1992) too has drawn attention to this issue. There are concerns that similar patterns will emerge in Mozambique. Renamo’s support of smuggling and other criminal activities in the north of the country could become permanent features of the post-conflict economy (Ken Wilson, pers. comm.). The threat to food security lies in communities becoming isolated from the mainstream economy and from development programmes because of the high levels of violence. The development of a black market economy also constitutes a threat to macro-economic stability if governments are unable to control and tax trade in natural resources and other commodities. Populations may fear to farm, or their labour be controlled by force. Demobilisation and demilitarisation must be seen, therefore, as a development cost which contributes to future food and personal security.

In addition to developing a model which reacts to the crises prompted by conflict, there is a need for a proactive response to the causes of conflict and the factors which sustain it. Prevention of conflict must be included within the design of development projects. Implicitly this may already be included in terms of considerations of equity, yet explicit acknowledgement of actual tensions between ethnic, religious and political groups may be vital in ensuring that violent conflict is avoided. Nnoli (1990) and Horowitz (1989) have urged development planners to recognise the effects of differential development patterns in creating sources of tension among communities who are under environmental and economic stress. The example of northern Somalia or southern Sudan should act as a powerful reminder to development planners of the perils of differential development and relief inputs.

Public Health Issues

The role of public health in preventing excess famine deaths is increasingly acknowledged (Shears, 1991; Toole and Waldman,
The changed disease environment associated with massive social upheaval (Prothero, 1977) may be more significant than moderate malnutrition in causing excess famine deaths, and therefore demands appropriate preventive health measures. Lechat (quoted in Shears, 1991) has identified different types of disaster, which may have a rapid or slow onset, and be either natural or man-made. Shears (1991), in describing the health and nutrition features of different types of disasters, indicates that man-made political disasters with a slow onset, such as low-intensity war (unlike high intensity wars or natural disasters such as earthquakes which have a rapid onset), lead to low early mortality, high levels of malnutrition, and are characterised in the later stages by high morbidity and mortality. The late mortality reflects health problems often associated with large outbreaks of communicable diseases in crowded camps, and the decline in nutritional status because of interrupted food supplies. The inter-relationship between malnutrition and susceptibility to disease remains poorly understood and there is an urgent need for further research in this field.

In descriptive reports of the health conditions in a variety of famine and refugee populations, particularly those in relief camps, diarrhoeal diseases, acute respiratory infections, measles and malaria have consistently featured as the principal causes of morbidity and mortality (Shears, 1991). Morbidity and mortality are thus shown to result from conditions already common in the populations affected: the rates are, however, increased, and the resistance of those affected is reduced.

According to De Waal (1989), two opposing models can be put forward: the 'food crisis model' which states that starvation is the main cause of death, and the 'health crisis model' which suggests that increased transmission of communicable disease, independent of nutrition status, leads to most mortality. Emphasis mainly on the 'food crisis model' may lead to inadequate attention being devoted to other public health inputs such as immunisation and communicable disease control, water supplies and sanitation, and primary health care services. These models and their implications warrant further research. The development of effective surveillance systems will be part of the requirement for understanding the impact of conflict and population movement on health.

Special attention to the problems of women in famine situations is required from relief planners and epidemiologists. Rivers (1982) has noted that although women are physiologically more resistant to a decrease in caloric intake, they often experience higher rates of malnutrition than their male peers. Female children in pastoralists groups in Africa were 50 per cent more likely to suffer from wasting than their brothers. In the Punjab, second and third degree malnutrition in girls exceeded threefold that found in boys. This observation suggests that selective distribution of food takes place within families.

Even less attention has been paid to the epidemiology of violence and its health impact (Zwi and Ugalde, 1989; 1991). The study of the nutritional status of counter-insurgency famine victims remains largely limited to those areas where relief programmes functioned, illustrating the importance of health workers documenting rates of starvation and severe malnutrition. Conflict may generate specific patterns of disease, which demand particular health and health education inputs. One under-recognised example is that of rape by military personnel, widely reported in many conflicts and bringing with it the threats of sexually transmitted disease, including HIV infection, unwanted pregnancy and untold stress for the victims. Similar problems confront women forced into transactional sex as the sole means of providing for their families, often as a result of conflict (Zwi & Cabral, 1991).
Mental health needs of conflict-affected communities requires more attention from health workers. The trauma of war compounds the physical losses: Summerfield (1991), for example, describes the impact of conflict on the mental health of Nicaraguan villagers and demonstrates mental health morbidity lasting for many years. Although little research has been done, it is clear that the effects of trauma may have an important effect on the ability of communities to re-establish their homes and farms. Furthermore, children who have been active in combat, or who have witnessed atrocities may be more prone to resolve future conflicts — domestic or political — by violence, an effect of brutalization and deindividuation.

Health workers and services have been the target of military action in many of the conflicts studied. Health professionals outside the conflict area must therefore remain alert to the threats that violence poses for their colleagues, and seek to defend their rights. It is also important that health workers recognise the role that violence plays in creating famine and promoting health crises and that they analyze the causes as well as the effects of conflict. The development of appropriate teaching materials and the inclusion of human rights issues on medical and paramedical curricula will be crucial to achieving this objective (Zwi & Ugalde, 1989; 1991a).

CONCLUSION
Insurgency and counter-insurgency wars by their very nature will primarily affect civilians and threaten their food security. The logic of military strategy allows for the provision of rules (Hampson, 1989), but their enforcement is another matter entirely. The drafting of more appropriate legislation, which acknowledges the presence and rationale of internal conflict, could, however, provide more adequate guidelines for the provision of humanitarian assistance to the civilian victims of war (Duffield, 1990a).

For those communities faced with violence, whether committed by their own governments or perpetrated by external forces, the resort to armed conflict may represent the only apparent option for collective survival. Anti-government forces are rarely able to mount conventional wars; but their placing of civilian populations at centre stage raises ethical questions and dilemmas and places a responsibility on them to protect the communities they seek to represent.

Opposition to forms of structural violence represents a survival strategy for vulnerable populations seeking to maintain their social, economic and political integrity. All survival strategies carry an element of risk. Only those communities affected by, or participating in, the conflict concerned can judge whether such risks are justified; it is therefore vital that they are consulted by donors and implementing agencies who seek to assist the victims of famines associated with low-intensity war.

Food production and consumption lie at the heart of social and political identity. By acknowledging the role food plays in the systems which define social and economic integrity, donors and implementing agencies must publicly acknowledge that food, far from being politically neutral, is the very symbol of the right to life and to livelihood. By making disaster assistance subject to conditionality, however informal, and by transferring the political and ethical dilemmas associated with implementing relief operations into the private domain, donors abdicate their responsibility for monitoring the misuse of food and for assessing appropriate interventions. Similarly, by denying their obligations to prevent famine through adequate development inputs, environmental security and a reduction in the arms trade, the industrialised countries abrogate their responsibility to prevent further conflict.
The interface between famine prevention and the prevention of conflict has received little attention. Since the end of World War II, conflict has taken place almost exclusively within the Third World (Sivard, 1991). Rupesinge (1990) has estimated that 1 billion people throughout the world will not escape the poverty trap over the next two decades. Nnoli (1990) and Horowitz (1989) have both predicted future conflict in drought-affected West African states, and have urged donors to address the underlying factors of poverty and disempowerment—of subsistence producers. According to Schutz and Slater (1990) Third World instability will persist. Intensifying urbanisation, declining quality of social and economic life, the political emergence and activism of ethnic minorities and continuing endemic violence ensure the likelihood of more revolutionary activity directed against Third World regimes. Just as conflict presents a serious obstacle to development, so lack of development will present an obstacle to peace.

The adoption of concepts of famine which identify the onset of a crisis before it comes to its climax, and the inclusion of famine victims in the diagnostic task would enable the structures of famine prevention to be integrated within development programmes. Determining adequate responses to these complex humanitarian disasters will not be an easy process. Finding any solutions will, however, be contingent upon including the subjects of the arguments within the debate. Donors and relief agencies have much to learn from those who have survived low-intensity war-famines. By supporting local rehabilitation and conflict resolution efforts, the cycle of violence may be broken. The success of such initiatives will be dependent upon international recognition of the pre-conditions of conflict, and a willingness of donors to accept their obligations to protect the economic, social and cultural rights of communities throughout the Third and Fourth Worlds.

Note

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Joanna Macrae and Anthony B. Zwi
Health Policy Unit
London School of Hygiene and Tropical Medicine
Keppel Street
London WC1E 7HT
UK
Entitlements, Coping Mechanisms and Indicators of Access to Food: Wollo Region, Ethiopia, 1987–88

MARION KELLY

Vulnerability to famine and traditional responses to food insecurity in Wollo Region, Ethiopia are described. The timeliness of anthropometric and socio-economic indicators of access to food is then assessed, using data collected in Wollo by Save the Children Fund during 1987–88, a period of drought and subsequent food insecurity. The movements of different indicators are then examined for evidence of correspondence at sub-district level. The author concludes that although anthropometric status does not respond as early as crop yield or grain price, a deterioration in anthropometric status is detectable at a stage when livestock and migration indicators show little or no change and mortality rate remains unaffected. At sub-district level, changes in different indicators are not well-correlated.

BACKGROUND

In this paper I assess the timeliness of children’s anthropometric status and other indicators for purposes of early warning in Wollo Region, Ethiopia. Because the selection and use of variables as indicators of access to food requires a prior understanding of how people usually obtain food and what they do when their access to food is threatened, this section describes conditions in Wollo, entitlements to food and traditional responses to food insecurity.

Profile of Wollo Region

Wollo is one of the poorest, least developed and most famine-prone regions of Ethiopia. Its terrain ranges from low-lying desert to rugged mountains reaching elevations of 3500 metres. With the exception of the regional capital, Dessie, and the nearby town of Kombolcha, there are no urban centres to speak of and very few opportunities for employment in the modern sector. Communications and transport infrastructure are rudimentary. There are few all-weather roads (Figure 1), and many rural roads are impassable to motorised vehicles for weeks at a time during the rains.

Muslims and Christians make up roughly equal proportions of Wollo’s population. The majority of the region’s inhabitants are of the Amhara ethnic group, but in most of Kallu and some parts of Ambassel awrajas the Oromo predominate. Only the nomadic Afar live in the desert of Awssa and the easternmost reaches of Rayana Kobo, Yeju, Ambassel and Kallu. The sedentary Amhara and Oromo farmers
who densely populate the rest of Wollo rely almost exclusively on non-mechanised plough-cultivation, and only a small minority are able to irrigate their land.

Since 1975, the buying and selling of land has been illegal in Ethiopia, and farmland has been allocated according to family size. The individual household remains the basic unit of production in most areas. Farming communities are organised into groups of several hundred households known as Farmers' Associations (FAs).

Cultivation is possible at altitudes ranging from about 500 metres to over 3000 metres. Wollo’s climatic diversity permits the production of a variety of food crops, including teff, sorghum, maize, wheat, barley, lentils, peas, beans, chickpeas, and oilseeds.

In Wollo the main rains (known as kremt) usually begin around the end of June and continue until mid-September. Crops planted before and during these rains are harvested between September and December (the meher harvest). In many localities agricultural production is confined to this season, but in some it is possible to grow another crop using the small rains (known as belg) that fall from the end of January until late April. The belg crop is generally much smaller than the meher, and accounts for about 15 per cent of total production for Wollo as a whole, but in some highland parts of Were Himeno and Wadla Delanta awrajas the belg crop is the bigger of the two.

Entitlements to Food

Access to food is mainly by means of ‘direct entitlement’ (i.e., production of food for one’s own consumption) for farming families in Wollo. Other sources of food, based on trade and the celebration of religious feasts and social occasions, make up a smaller proportion of the household’s entitlement bundle, but their relative importance may change when direct entitlements are compromised.

Agricultural labour is contributed by
able-bodied household members of both sexes, including older children. Men do the ploughing and decide what and when to plant. The processing, preparation and distribution of food within the household are handled exclusively by women, whose responsibilities also include breastfeeding of infants and children up to about two years of age.

Teff is the preferred grain, and can cost up to twice as much as ‘inferior’ cereals. For this reason rural people do not eat much of it; even in times of food sufficiency farmers sell most of their teff. Wheat also ranks as something of a luxury. Sorghum, maize and barley are the cheapest staple grains.

Amongst Christians it is common for groups of families to form reciprocal feasting networks known as mahber. In the Ethiopian Orthodox faith, major saints are honoured on the same day every month; each mahber is dedicated to a particular saint and, within the mahber, households take it in turns to provide a feast for the entire membership on the saint’s day. These feasts are attended by all household members, including small children.

During the harvest seasons (meher: October–December; belg: June) it is customary for the poor to receive gifts of food from the better-off, who hope that God will in turn reward them with good yields in years to come. Since lack of rain, pest attack and other misfortunes are believed to be a sign of God’s displeasure (Zewde 1976; Rahmato 1987) these acts of charity may take on even greater importance when production is low.

The ‘wedding season’ begins in January, when the task of threshing is finished, and lasts until mid- to late February. Wedding feasts, which last for three days, are attended by children as well as adults. Owing to the importance with which they are regarded, the harvest-time traditions of almsgiving and wedding feasts are only foregone if next to nothing has been produced.

Although the peasants produce primarily for their own consumption, they must also produce for the state and for the market. Taxes must be paid annually in cash, which is raised by selling crops or livestock. Until 1990, farmers were obliged to sell — at a discount — a certain amount of grain to the Agricultural Marketing Corporation (AMC), a parastatal, each year. The amount involved varied from year to year, since each FA’s quota was adjusted annually based on AMC’s assessment of production in the area. A survey by the Ethiopian Ministry of Agriculture and Central Statistical Office in 1979/80 (cited by Rahmato, 1987, pp. 100–101) showed that Wollo peasants sold 25–30 per cent of their harvests (or livestock of equal value) in order to satisfy AMC, pay their taxes, and obtain such necessities as salt, spices, butter, coffee, soap, kerosene and clothing.

Some poor households earn a little cash by means of irinya, or child-contracting (Rahmato 1987). Under such contracts, usually agreed on a yearly basis, the child of a poor family goes to work for a better-off family, usually minding their livestock. In return, the child is fed and sheltered by the employing family, and the child’s parents receive 30–40 birr (US$ 15–20) at the end of the year (Zerihun Gelagaye, personal communication, 1990).

Indigenous Responses to Food Shortage

Whenever the growth of crops is adversely affected by climatic irregularities or pests, community prayer meetings are held and animals are sacrificed in the hope of persuading God to rectify matters. Replanting of badly affected fields is attempted if there is still time.

Once the time for replanting has passed, postponement of mahber obligations is one of the first responses made by households whose crops are failing. Another early response to the threat of food shortage is to exchange preferred grains like
teff, which have a relatively high cash value, for ‘inferior’ grains like sorghum and barley, or to exchange pulses for grain. The effect is to reduce the variety of foods consumed. In addition, households may cut down on the amount of food they eat by reducing meal frequency. Although adults try to bear the brunt of these privations themselves, the quality and quantity of children’s intakes can also be affected as foods like butter and pulses are increasingly replaced by cereals.

During food shortages wild foods are often used to supplement the diet, especially in the lowlands. A variety of edible wild berries, seeds and roots can be found in lowland areas, but in the highlands there are fewer wild species regarded as fit for human consumption.

Although it is generally believed that consumption is not reduced until all possible entitlements have been exhausted, this is not the case in Wollo. The results of an analysis of anthropometric and other data (see below) strongly support the view that in Wollo dietary austerity measures are implemented quite early in the sequence of household responses to food insecurity.

As dietary austerity regimes are implemented, households also cut back on the coffee they drink. Coffee-bean husks, which would normally be discarded, are roasted, ground and added to the coffee in order to eke out the supply, and fewer pots per day are brewed. Coffee-drinking is not viewed as a luxury that can easily be dispensed with altogether because people in Wollo believe that bad luck will come to a house in which coffee isn’t brewed at least once a day.

If unable to withstand the crisis despite these measures, households will attempt to borrow grain from a relative or friend. Often farm animals or other assets are left with the lender as ‘collateral’ for a loan of grain. Kinship or friendship ties are the only basis for borrowing grain; such arrangements are never made on a purely commercial basis.

At the same time household heads and other family members (mainly young men) might look for paid work, but off-farm job opportunities have dwindled in recent years (Rahmato, 1987, p 173; Holt, 1990, p 12). If crop failure has been patchy rather than widespread, less fortunate farmers stand a good chance of getting weeding and harvesting work in areas where yields are normal, but when large areas are ravaged by drought, employment prospects (including opportunities for irinya) diminish in proportion. A small income can often be obtained by collecting and selling firewood.

Another mechanism for coping with food insecurity is to sell livestock. Rahmato (1987) emphasises that the order in which livestock assets are sold does not follow a fixed pattern, but is decided by each household according to its own circumstances and its perceptions of the behaviour of the markets in the area. As a means of staving off destitution and starvation, the effectiveness of liquidating livestock assets tends to decrease as the food crisis deepens: as more and more households are forced to sell livestock, the value of the animals falls, partly as a result of changes in supply and demand, but also because drought leads to scarcities of pasture and water which adversely affect the animals’ condition.

Households in very straitened circumstances will cease to eat injera, the traditional pancake-like bread made from fermented grain, and instead subsist on kita (bread made from non-fermented flour), kollo (roasted whole grain), or nifro (boiled grain). Because these foods are eaten without wat (any one of a variety of traditional stews, regarded as an essential accompaniment to injera), they are cheaper and easier to prepare. Sales of jewellery, other personal or household effects, farming equipment and housing materials are a last-but-one resort, and generally represent a degree of desperation from which households can have little hope of recovering.

In the past it was true to say that only
when all the above strategies had been exhausted and they could do nothing more to help themselves would large groups of households leave their villages and travel to roadside towns in the faint hope of receiving official assistance. In recent years, however, peasants’ expectations have changed. Petitioning the local administration for assistance is now one of the first things an FA will do when crops fail, and migration into towns may be undertaken more readily (Kelly 1987).

THE SAVE THE CHILDREN FUND WOLLO NUTRITION PROGRAMME

From 1978 to 1989, Save the Children Fund (UK), under an agreement with the Ethiopian government’s Relief and Rehabilitation Commission (RRC), ran a field-based nutrition programme in Wollo. The aims and methods of this programme, originally known as the Nutrition Field Worker (NFW) Programme and later renamed the Nutritional Surveillance Programme (NSP), have changed over the years. Since 1986 its main function has been to monitor indicators of food availability and anthropometric status in order to help identify existing or potential areas of food insecurity. During 1987 and 1988 the NFW/NSP collected data in 25 of Wollo’s 37 woredas. Owing to civil conflict, Lasta and Wag, two of the most famine-prone awrajas in Wollo, could not be covered. Awssa awraja and Artuma woreda (Kallu awraja) were excluded because their nomadic populations were inaccessible.

Anthropometric Surveys

Although children are not necessarily the first to feel the effects of dietary restriction, the NFW/NSP used children’s anthropometric status as a proxy for household food consumption. Anthropometric data were gathered in two ways: monthly longitudinal surveys (LS) of random samples in selected FAs, and awraja-level cluster surveys (CS) carried out at intervals of approximately four months. In both cases anthropometric status was assessed by Weight For Length (WFL), expressed as a percentage of the NCHS median.

For each cluster survey, 12 villages were randomly selected (with probability proportional to population size) from each awraja. All children who were 70–110 cm in length and resident in the selected villages were weighed and measured (most villages had between 25 and 75 such children). Each time an awraja was re-surveyed a new sample was chosen.

Eighty-five FAs were selected for longitudinal surveillance. Selection of these FAs was done non-randomly, and efforts were made to ensure that the various altitude zones found within each woreda were adequately represented. FAs known to have extensive irrigation or other obvious advantages that would reduce susceptibility to food insecurity were deliberately excluded, and an effort was made to include FAs from drought-prone lowland areas.

In each of the 85 LS FAs a simple random sample of 50 children 70–110 cm in length was selected for regular monitoring of WFL, beginning in February 1987. In January 1988, the original samples of children in the 85 LS FAs were followed up for the last time. Another sample of 50 was then selected in each site and assessed every month for the next thirteen months (February 1988–February 1989).

Market Data Collection

In Wollo some entitlements and several coping mechanisms are market-based. A number of market indicators were therefore monitored by the NFW/NSP. Twenty-five markets, most of which are the main trading centres for their respective woredas, were visited either weekly or fortnightly. At each visit the price of each grain available was recorded; average prices for cattle, goats
and sheep were also collected, and the total number of each type of animal sold was estimated.

Other Information
During the cluster surveys a standard questionnaire covering cropping patterns, population movements, relief distribution, mortality and the general condition of crops and livestock was completed for each village after discussions with local leaders. A study by Atkinson (1988, 1992) suggests that elsewhere in Ethiopia this method of collecting such information gives results similar to those obtained by means of more time-consuming household surveys.

BEHAVIOUR AND EARLY WARNING POTENTIAL OF INDICATORS, 1987–88

Background: 1986–87
During 1986, the continuation of relief and rehabilitation activities by government and non-government agencies, together with favourable rainfall, enabled rural Wollo to recover from the worst effects of the 1984–85 famine. However, for a large proportion of households, who had been forced to sell off assets or go into debt in order to survive, this superficial recovery masked a gravely attenuated economic base and thus a continued vulnerability to further stress. In the nine NFW/NSP awrajas, the meher crop harvested at the end of 1986 was approximately 56 per cent of what farmers considered normal, and the average amount of relief food received was sufficient to cover about 11 per cent of the average household’s consumption needs.

Rainfall and Crop Yields
In Wollo the 1987 belg rains were adequate and on time, and the belg harvest was satisfactory. But the more important kremt rains, which should have begun in the second half of June, did not come until August. During August it rained heavily; at this stage a reasonably good meher harvest was still possible provided the rains continued at least until the end of September. As it turned out, rainfall during September was poor, making large-scale meher crop failure inevitable.

As a percentage of ‘normal’, awraja-level estimates of meher yields at the end of 1987 ranged from 8 per cent (Rayana Kobo) to 59 per cent (Dessie Zuriya). The average (weighted by population size) was 40 per cent. It was therefore clear toward the end of 1987 that a difficult year lay ahead for Wollo.

In many awrajas RRC and various NGOs began to distribute food aid, in the form of take-home family rations, in late 1987 or early 1988. In the nine awrajas covered by the NFW/NSP, the average amount of relief food received during 1988 was sufficient to cover about 15 per cent of the average household’s consumption needs.

Grain Prices
Since ‘trading down’ is an early response to food insecurity, relative prices of different grains might be expected to change markedly before average grain prices begin to rise. Figure 2 shows relative prices for inferior grains (i.e., the average price for sorghum, maize and barley, expressed as a percentage of the price of teff) in the two main markets of Rayana Kobo, the awraja that suffered the largest crop losses in 1987. A similar pattern is seen in almost all of the other markets monitored by the NFW/NSP: there is no evidence of a rise in relative prices for inferior grains until the end of 1988. Absolute grain prices, however, show a marked change by the beginning of 1988 (Figure 3).

Throughout Wollo, average prices for grain began to rise in the second half of 1987. Although grain prices normally rise...
Average price for sorghum, maize and barley expressed as percentage of price for teff

FIGURE 2 Relative prices for ‘inferior’ grains in Alamata (solid line) and Kobo (broken line)

Livestock price
index values
(January 1987 = 100)
Grain price (birr per quintal)

FIGURE 3 Grain prices (average of teff, wheat, sorghum, maize and barley in 25 Wollo markets) shown by solid line and livestock price index values (average for 25 Wollo markets) shown by broken line
to some extent at this time of year, their
default to return to early 1987 levels by early
1988 was ominous. They began rising again
in the spring of 1988, and during the main
rainy season reached levels about 50 per
cent higher than those of twelve months
earlier. From September onward they began
to rise again, and in early 1989 they showed
signs of stabilising, albeit at a level about 20
per cent above the average for early 1987 (a
difference which might be explained by
inflation). Although this overall pattern was
more pronounced in some markets than in
others, it was evident in each of the 25 sites
monitored (Kelly 1991). Absolute grain price
was therefore a timely indicator of food
insecurity while relative price was not.

Livestock Prices and Volume of Livestock
Sales

Because prices for different species of
livestock can vary by factors of 10 or more,
and because the range of animals offered for
sale varies from one market to another and
from time to time within markets, livestock
price index values — calculated by expres-
sing monthly prices for each category of
livestock as a percentage of the January 1987
price for the same category — were used to
facilitate comparisons. Figure 3 shows
livestock price index values averaged for 25

Figure 3 shows that a substantial rise in
livestock prices occurred in mid-1987 but
was not repeated in 1988. Prices for the
period February–August 1988 are on average
5 per cent lower than those for the same
months of 1987. (This period was chosen for
comparison because before September 1987
the failure of the 1987 meher crop was not
inevitable.) In view of the seasonality
apparent in the 1987 data, the 1988 decrease
in average livestock prices would not have
been detectable until after April.

A monthly index value for the numbers
of livestock sold, analogous to the livestock
price index value, was also calculated for
each market. Comparison of average live-
stock sales volumes for the months
February–August shows that, in the
markets monitored by the NFW/NSP,
livestock sales decreased by an average of
7 per cent between 1987 and 1988. This
average conceals quite a bit of variation
between markets, some of which showed
an increase in livestock sales during this
period. It seems that although the overall
volume of livestock sales changed little, the
pattern of trade altered so as to become
more heavily concentrated in certain
markets of the region. A possible explana-
tion for this is that farmers in outlying
areas found it necessary to travel further
afield in order to get a good price for their
animals.

A plot of the monthly average numbers
of livestock sold in the markets monitored
by the NFW/NSP (Figure 4) shows that
during 1987 there were marked seasonal
variations in livestock sales, whereas during
1988 there were not. At Easter, one of the
Ethiopian Orthodox Church’s most
important holidays, every Christian family
that can afford to, celebrates by slaughtering
an animal (usually a sheep or goat) and
preparing a feast. The fact that large
numbers of animals were sold in early 1987
when prices were high may reflect the
priority given to the celebration of this
holiday, while failure of livestock sales to
rise again in April 1988 may be due to belt-
tightening by hard-up households unable
to afford the usual festivities.

Livestock sales and livestock prices both
showed less seasonal variation in 1988 than
in 1987. Although on average neither of
these indicators changed a great deal from
one year to the other, their movements
suggest that belt-tightening and lack of cash
for investment in livestock, both caused by
food insecurity, led to a reduction in
demand for animals, such that fewer were
sold and those sold fetched slightly lower
prices. However, the collapse of livestock
markets, typified by rocketing sales volumes
Livestock sales volume index values (January 1987 = 100)

**FIGURE 4** Livestock sales volume index values (average for 25 Wollo markets)

Number of migrants per 100 households

**FIGURE 5** Out migration (average for 9 Wollo NFW/NSP awrajas)
and plummeting prices, so often associated with famine in Ethiopia (Cutler, 1985; Seaman and Holt, 1980), was not seen in any of the NFW/NSP awrajas.

Migration

Responses to the cluster survey questionnaires were the only migration data available for analysis. Local leaders were asked to recall the number of people who had left their villages during the past 12 months, and their answers were used to calculate monthly rates of out-migration (expressed as numbers of migrants per 100 households). Because this method is subject to a certain amount of recall error and does not take account of returnees, it does not necessarily give an accurate estimate of net out-migration. However, it does give an indication of general trends, so that unusual levels of migration can be detected. Results for the period May 1986—November 1988 are presented in Figure 5. These data represent migrations of adults seeking work or assistance outside their villages; hardly any 'distress' migrations of entire families were recorded.

Figure 5 indicates that the overall rate of out-migration never exceeded 1 person per 300 households per month during the period in question. At less than 4 per cent per year, the proportion of households with a member absent due to labour migration remained very low relative to the level of 22 per cent reported for Ambassel awraja during the crisis of 1984 (Rahmato 1987, p 173). Migration appears to have risen by about 50 per cent in September 1986, and then to have remained more or less steady until June 1988, after which it plummeted.

Although there are no data from 'normal' years with which these trends can be compared, it might appear that the migration rate, which rose at least a year before the effects of the drought of 1987 could be ascertained, gave the earliest warning of any indicator yet considered. Its specificity is poor, however, since the rise at the end of 1986 is not followed by a particularly food-insecure year in 1987.

It is possible that men who migrated during the period 1986–88 did so because the famine of 1984–85 had left them without sufficient resources to make an adequate living as farmers. The timing of the apparent initial rise in out-migration might be related not to the expectation of future food insecurity but simply to the closure of relief programmes around the end of 1986 and the simultaneous expansion of rural employment opportunities at harvest time, in a year in which many men were under-employed on their own farms because production had been constrained by shortages of seed and draught power. The apparent sharp drop in out-migration during the second half of 1988 might reflect an increase in labour requirements on the men's own farms with the coming of the main rains in June.

In fact, these changes are not statistically significant, partly because the proportions involved were very small and partly because between-cluster variation was considerable. Given that in Wollo rates of migration are low unless food insecurity is severe, and that regular surveillance using samples larger than those used by the NFW/NSP is unlikely to be feasible, migration is, for practical purposes, probably a rather late indicator of food insecurity.

Mortality

Data on mortality for 1987–88 come from two sources: CS questionnaire responses and LS samples. Throughout this period, deaths occurring among LS sample subjects were recorded, together with details of cause of death if known. From mid-1987 onward, officials in each locality selected for CS were asked how many people in the locality had died during the past three months, and what had caused their deaths. These methods were not expected to yield
precise estimates of mortality but simply to pick up any unusual trends.

The number of deaths reported by the locality leaders at each CS site was divided by the number of households in that locality and then multiplied by 100. Awraja-level averages were then calculated for each CS; it was assumed that the deaths reported had been evenly distributed throughout the three-month recall period. Finally, an overall average (weighted by awraja population size) was calculated for each month of the period for which data were available. Figure 6 shows the approximate number of deaths per 100 households per month in the NFW/NSP awrajas during the period May 1987–February 1989. Clearly, no excess mortality was occasioned by the episode of acute food insecurity that followed the failure of the 1987 meher harvest. This conclusion is supported by the fact that the number of deaths recorded within the LS samples did not increase from 1987 to 1988.

## Anthropometric Status

The RRC’s Early Warning and Planning Service (1990) uses the following system of classification for mean WFL:

- good: at least 95 per cent of NCHS median value;
- satisfactory: 90–94 per cent;
- poor: 85–89 per cent; and
- serious: less than 85 per cent.

In Wollo, WFL is known to vary with age and therefore with length (Kelly 1989). For this reason, linear regression of mean WFL on mean length was carried out in order to test for possible bias due to secular trend or random differences in the mean length of sample subjects. Results of this analysis produced no evidence of association, indicating that the observed variations in the mean WFL of the samples are not attributable to secular trend or random variation in the average length of the sample children.

![Figure 6: Mortality (average for 9 Wollo NFW/NSP awrajas)](image-url)
For each month of the period 1987–88 the overall mean WFL of children 70–110 cm was calculated from the 85 monthly LS means. A plot of these values (Figure 7) shows that in 1988 mean WFL was on average about 1.5 points lower than it had been in 1987. In January 1988, after what looks like a ‘hungry season’ drop in the second half of 1987, mean WFL returns to its early 1987 level; thereafter, however, it declines fairly steeply and despite some recovery around the time of the meher harvest at the end of 1988, it begins 1989 about 1.5 points lower than it began 1987. If awraja-level mean WFLs are calculated from the LS data a similar trend is seen in almost every case (Kelly, 1991).

If CS mean WFL data for the same period are pooled and plotted (Figure 7), the pattern of change is consistent with that obtained using the aggregated LS data. Table 1 shows that in each awraja the average of the three CS means recorded after February 1988 is less than the average of those recorded in the same awraja before this date. By the third quarter of 1988, mean WFL had fallen almost as low as 90 in four of the nine awrajas.

Although diet is not the only factor that affects WFL, reductions in energy intake are thought to account for a large part of the observed deterioration in the anthropometric status of children in Wollo during 1987–88. There are several reasons for this inference. First, in an earlier investigation the expected relationship between disease prevalence and WFL could not be established; indeed, WFL and disease prevalence peaked at about the same time (Kelly 1989). Second, it seems unlikely that an increase in energy expenditure could account for the observed decline, since children in this age group are too young to work, and there is no reason to assume any increase in their energy expenditure due to play activities or cold stress. Third, dietary restriction is known to be a common household response to food insecurity in Wollo, and it is
TABLE 1
Awraja-level survey results: mean WFL per cent and standard error

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Key: AM = Ambassel; BO = Borena; DZ = Dessie Zuriya; KA = Kallu; RK = Rayana Kobo; WD = Wadla Delanta; WH = Were Himeno; WI = Were Ilu; YJ = Yeju
probable that the effects of such restriction are eventually felt even by young children. In retrospect, it is clear that the general decline in mean WFL began after January 1988, but it would not have been possible to detect the emergence of this trend with any certainty until about April, when it had been underway for several months. Thus mean WFL gave no clear indication of impaired access to food until six to nine months after the failure of the kremt rains, and three to six months after grain prices had risen sharply and failed to return to normal. A decline in WFL was detectable, however, when no increase in mortality was evident, no drastic reduction in livestock prices had occurred and no large-scale labour migration was apparent.

Summary: Timeliness of Indicators

The clearest indicators of food insecurity in Wollo during 1987-88 were the 1987 meher crop yield estimates, the change in grain prices and the change in children's mean WFL. Over the same period livestock prices, livestock sales volume, migration rates and mortality changed little, suggesting that these indicators do not respond as early as the first three. The alternative interpretation is that those that failed to respond are not, after all, valid indicators of food insecurity. But this interpretation is ruled out by earlier studies showing that during the Wollo famine of 1984-85 there were indeed marked changes in livestock prices, livestock sales volumes, migration and mortality (Cutler, 1985; Rahmato, 1987).

RELATIONSHIPS BETWEEN INDICATORS

Relationships between indicators were investigated in order to find out whether the degree of change in one or more indicators could be predicted from the behaviour of any other. Woreda-level values were calculated for each of the following indicators:

- cropping pattern (CP): percentage of localities practising both belg and meher cultivation;
- meher yield 1987 (Y87): 1987 meher crop production expressed as a percentage of the amount considered normal by local farmers;
- average yield 1985-1988 (Y x 6): weighted average crop production for six seasons (meher 1985 — belg 1988) expressed as a percentage of the amount considered normal by local farmers;
- food availability (FAv): percentage of food consumption requirements covered by 1987 meher production plus relief rations;
- change in Grain Price (dGP): average grain price for the period February—August 1988 divided by average price for February—August 1987;
- change in Livestock Price Index (dLPI): average Livestock Price Index value for February—August 1988 divided by average for February—August 1987;
- change in Livestock Sales Volume Index (dLSI): average Livestock Sales Volume Index value for February—August 1988 divided by average for February—August 1987;
- migrants per 100 households (Mig): number of people (per 100 households) leaving their villages during the period September 1987—August 1988; and
- change in mean WFL (dWFL): change in LS mean WFL during the period October 1987—September 1988.

By plotting one set of values against another, 25 of the 36 possible pairings of these indicators were examined for evidence of association. The strength and significance of apparent associations were quantified using linear regression. The results (Table 2) show that there are few significant correlations between indicators. The strongest correlation ($r = -0.56$) is between 1987 meher yield and change in grain price, but the former explains less than one third...
of the variance in the latter. Both migration and changes in livestock sales volume are significantly correlated with change in mean WFL (r = -0.41 and +0.48 respectively), but there is also evidence to suggest that both migration and livestock sales are influenced by cropping pattern (r = -0.51 and +0.42 respectively).

This implies that farmers able to grow two crops per year are more likely to cope with food insecurity by selling livestock, while those who can crop only once a year are more likely to respond by leaving their villages in search of work or assistance. This association is easy to understand, since the possibility of a second crop increases the opportunity cost of migration. On the other hand, the reason for the correlation between choice of coping mechanism and anthropometric status is not clear.

Given that grain prices and mean WFL tend to move in opposite directions at the level of the NFW/NSP awrajas taken together, it is somewhat surprising that changes in these two indicators do not correlate at woreda level. A partial explanation for this may be that in areas where dietary austerity was the preferred coping strategy, demand pressure on grain prices would have been less than in areas where people chose to make up a production shortfall by purchasing grain; either scenario works against the general tendency for grain price and mean WFL to move in opposite directions. The fact that the expected association disappears when data are disaggregated serves to highlight the complexity of the processes involved, and to suggest that no single indicator can give a clear picture of the food security situation in a place like Wollo.

CONCLUSIONS

Contrary to the conventional wisdom, deterioration in anthropometric status is not a particularly late indicator of acute food insecurity in Wollo. Although children’s WFL tends to improve at the end of the hungry season even when crop failure has been substantial, awareness of this tendency and the reasons for it can ensure that the wrong conclusions are not drawn at this stage. When food security is threatened mean WFL begins to decrease significantly even before the end of the ‘wedding season’, and then continues to fall fairly steadily until the next harvest is gathered. The magnitude of the decrease is small, at least in years of less-than-catastrophic food shortage, but the change can be detected as long as the survey methods used allow it...
to be estimated with sufficient precision, and suitable baseline data are available for comparison. Changes in mean WFL can therefore confirm or modify the predictions of earlier indicators before assets are lost, before large numbers migrate, and before mortality rises.

At woreda level there is some evidence that change in mean WFL is related to a preference for one coping strategy over another, and this preference is apparently linked to cropping pattern. In addition, there is a tendency for grain prices to rise most in woredas where the extent of crop failure is greatest. In general, however, there is little association between the behaviour of different indicators at woreda level, and therefore little scope for predicting the movements of one indicator from those of another.

The operational implications of the findings presented in this paper will be discussed in another paper. Although the findings and conclusions presented above are applicable only to agricultural areas of Wollo, further research may show that they have parallels in other famine-prone parts of the world.

Notes

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1. Until 1989, Ethiopia was divided into 13 regions, one of which was Wollo. Administrative boundaries were redrawn in 1989, and again in 1991. Because the fieldwork on which this paper is based was carried out before these reorganisations, the administrative divisions that existed at that time have been retained throughout. The pre-1989 administrative sub-divisions of awraja (district) and woreda (sub-district) are also used.

2. Except where otherwise indicated, the information in this section was obtained from Rahmato (1987) and Zerihun Gelagaye (personal communication, 1990).

3. Poor production during 1986 may be explained by lack of seed and draught power in the wake of the 1984–85 famine.

4. Since neither consumption needs nor relief distribution were uniform, these averages, calculated from local leaders’ answers to the questionnaire used by the CS fieldwork teams, conceal a great deal of variation. They are presented here simply to give a rough indication of the amount of food available during the period in question.

5. This paper ('Operational Value of Nutritional Surveillance for Famine Early Warning and Relief') will appear in the next issue of Disasters.

References


Marion Kelly
Joint Centre for Public Health Studies
University of Wales College of Medicine
Heath Park
Cardiff CF4 4XN
UK
Childhood Immunisation in Rural Afghanistan: The EPI Programme, 1987–91

KOENRAAD VAN BRABANT

A decade of outright war followed by civil strife and conflict has hindered the development of health care services for the population of rural Afghanistan. Despite the absence of a functional health care system and the fragmentation of the Afghan resistance, and despite widely held views to the contrary, it has proved possible to set up a technically valid and politically acceptable Expanded Programme of Immunisation (EPI). This paper discusses some of its technical and programmatic aspects and the rationale behind some of the very unusual choices made — such as the use of DPTP, the inclusion of girls 3–14 years old for TT immunisation, a vertical programme structure and a predominance of mobile and outreach strategies. The paper argues against the mindless use of global or handbook recipes. The keys to success have been strategic vision, intimate knowledge of the local context and pragmatic choices for options that are simple and effective.

During the World Summit for Children in New York (1990) countries were ranked according to the ‘children-under-five mortality rate’. The country with the highest death rate was Afghanistan (UNICEF, 1990). UNICEF (1989) gives the following mortality rates for Afghanistan: infant mortality 173 per 1000 live births; childhood mortality 304 per 1000 live births; maternal mortality 604 per 100,000 live births. Since the Afghan population is now dispersed over Afghanistan, Iran and Pakistan, mostly in the countryside with different types of habitat, these aggregated numbers hide social and geographical differences. A survey among Afghan refugees in Iran revealed, for Qaen District, an infant mortality rate of 241 per 1000 of which 155 per 1000 seemed attributable to neo-natal tetanus, which is an exceptionally high figure for this cause of death (Rezai, 1988). Another survey carried out in some poor villages in Hazarajat, central Afghanistan, indicated that over half of all children die before the age of five years (Bill, 1990).

In 1990, WHO and UNICEF declared that ‘Universal Childhood Immunisation’ had been achieved, with a coverage rate of 80 per cent fully immunized for the world target population of children under one. New objectives have now been set by WHO — the eradication of polio by the year 2000, the elimination of neo-natal tetanus by 1995 and, also by 1995, a reduction of measles by 90 per cent compared to pre-immunisation levels.
It is evident that Afghanistan lags well behind even this 80 per cent coverage, due to 12 years of war. An Expanded Programme of Immunisation (EPI) was gradually introduced in 1977. The 6 EPI target diseases are measles, polio, tuberculosis, pertusis or whooping cough, diphtheria and tetanus. This programme broke down in the rural areas with the escalation of the conflict after the Soviet invasion in December 1979. In the next few years 4.5–5 million Afghans took refuge in Pakistan and Iran, an estimated 2 million fled to the government-controlled areas and an unknown number became internally displaced.

Setting up an EPI programme in rural Afghanistan was both logistically and politically exceptionally challenging. The remaining zones of active warfare are mostly located around 'urban' centres and are surrounded by resistance-controlled countryside. The countryside is not safe due to rivalries among the resistance groups (parties, fronts, local warlords . . .) and the operations of Kabul-supported 'militias'. The climate is harsh with very severe winters in the Hindu Kush mountains. Because most roads have been destroyed or mined, vehicles must follow riverbeds or dirt tracks. The population is relatively dispersed and local transport is scarce, it often being necessary to use horses, donkeys and even porters. Occasionally there is a pick-up, a tractor or a commander's jeep available. Coverage rates in most areas before the start of the EPI programme were virtually zero. There is virtually no health 'system'. There are a few well run hospitals and many 'clinics' staffed by paramedics with varying levels of training, but with little supervision and with a bias towards curative medicine or simply prescribing drugs. Medical drug abuse is becoming the major public health problem. Most health facilities are supported and/or run by non-governmental organisations (NGOs), but without much prior planning and coordination. Hence there is little referral, too much concentration of health facilities in the provinces bordering Pakistan, which are more easily accessible, and duplication in some places. The great majority of relief and rehabilitation projects in rural Afghanistan are run 'crossborder' by NGOs with headquarters in Peshawar or Quetta in Pakistan. The aid community sometimes looks as fragmented as the Afghan resistance.

As early as 1982 some NGO expatriates tried to include EPI vaccinations in their medical emergency programme in rural Afghanistan, but without continuity or much conviction. Common 'wisdom' held that it was impossible to set up a reliable cold chain, that Afghans could not be trained to vaccinate, that male Afghans would not be able to reach women in this Muslim society (particularly since Islam had been a mobilising factor in the resistance movement) and that the fragmentation of the resistance would require 'a vaccinator per commander'. These beliefs remained dogma for many as late as 1989.

Rural Afghanistan would not have an EPI programme today had it not been for the determination and persistence of Dr Philippe Truze, of Marseille, France. Having known Afghanistan before and during the war, he started the Afghanistan Vaccination and Immunisation Centre (AVICEN) in Peshawar in September 1987. Once it was seen that an EPI programme in rural Afghanistan was both technically feasible and politically acceptable, others, almost exclusively international NGOs, added EPI to their existing medical projects. For political reasons, WHO and UNICEF did not openly begin to support programmes and projects in resistance-controlled areas until the spring of 1989.

It is evident, however, that programme priorities for EPI in rural Afghanistan must be different from the new objectives of the global EPI. Firstly, the delivery system has still to be developed and strengthened and
secondly, there must be an increase in coverage. Only then can one start to think about eradicating polio and neo-natal tetanus in Afghanistan.

After 4 years of work, the EPI programme in rural Afghanistan has a viable cold chain and a functioning delivery system. It extends geographically into all provinces. Afghans have been trained as EPI personnel and epidemiological surveyors. The tools of evaluation have been introduced: coverage surveys, mortality surveys and the analysis of the economic cost-effectiveness of the programme. AVICEN coverage surveys revealed that, after 3 vaccination sessions in an area, the coverage rates had gone up to between 35 per cent and 55 per cent for children under five and the target population of women. A trial mortality survey, carried out by the same organisation in 3 districts of Wardak province revealed the mortality rate in the district where an EPI programme was functioning to be one third lower than in the control districts.

TECHNICAL ASPECTS

Cold Chain and Logistics

Vaccines are flown into Islamabad and stored centrally by AVICEN in Peshawar. From there vaccinator teams take them to the districts all over Afghanistan. (The RCW 45 has proved to be an excellent piece of equipment. Its lifespan and isothermic qualities have been improved by a protective canvas cover invented by AVICEN.) Since 1989, efforts have been made to rationalise resupply. Rather than vaccinator teams returning to Peshawar, AVICEN tried sending supplies by truck to teams working near each other. This only marginally reduced transportation costs, but it greatly improved the annual ‘productivity’ per team. Later regional vaccine stores were set up in rural Afghanistan. They were developed into ‘regional delegations’ with a gradual decentralisation of administration and accounting, operational planning and supervision. The supply of gaz, the major energy source for refrigeration, may possibly become a bottleneck. Gaz and gaz bottles come from Pakistan, where the latter are in short supply. To avoid such a logistical breakdown research was started into the very promising adaptation of traditional, underground snow-storage caves, notably by the Integrated Development Group.

Choice of Vaccines

A surprising aspect of the programme for many professionals may be the large-scale use of Diphtheria Pertussis Tetanus Polio (DPTP) vaccine in this EPI programme. The choice was made for DPTP, rather than the DPT vaccine, because DPTP simplifies the cold chain and the vaccination session, is more heat stable and was felt to be ultimately cheaper given the dominant importance of delivery costs (3 DPTP against 5 OPV). Against this choice stands the fact that Injected Polio Vaccine (IPV) does not contribute to the eradication of polio, as OPV does. The issue of cost of course is not one of purchase price. There appears to be only one, unpublished, comparative study from India, and this has shown no economic advantage for DPTP as opposed to DPT (Diphtheria Pertussis and Tetanus) and OPV (H. Hull, WHO—EPI Geneva, personal communication, 1991). But, the cold chain and logistics, and therefore the economics of EPI in rural Afghanistan cannot be compared with India. It may be the case that OPV or an IPV—OPV mix will have to wait for health facilities to play a larger role in the provision of EPI services.

Training

In a few agencies, male Afghan vaccinators receive a fairly standardised training from
Afghan trainers. AVICEN has thoroughly developed training for Afghan cold chain technicians and repair workers, and for EPI supervisors and epidemiological surveyors. Mid-level staff are recruited from the pool of vaccinators. This is the best way to make supervision both supportive and acceptable. Refresher courses have been held regularly since 1990.

**Target Population**

Both logistical and cultural factors make it difficult for programmes to reach women in rural Afghanistan. Clinics are underutilised by women and do not offer mother and child health (MCH) services. 'Purdah' very strongly limits the movement of both women seeking health care and female health workers. It also limits their contact with male health workers. Given the impossibility of reaching women at the time of pregnancy, all women of childbearing age (15–45 years) are included in the target group and vaccinator teams visit all villages. The women did come for vaccination by male health workers when the sessions were organised in a public place in the village, such as the courtyard of the mosque, where the women sat discreetly aside, under the social control of the villagers.

It has become clear that Afghan women in the villages are more responsive to the vaccination service than those in refugee camps in Pakistan. Nevertheless, the programme has also included girls aged 5–14 years for Tetanus Toxoid (TT) vaccination in order to provide lifelong immunisation before they withdraw into purdah. The long term impact on coverage and the awareness raising effect on future mothers may justify the cost of extra (inexpensive) TT vaccine and injection material.

A debated issue is UNICEF’s unilateral reduction of the target population from 0–4 years old to only under two. UNICEF’s rationale was not epidemiological, but purely economic, namely to reduce the cost of vaccine in UNICEF’s Afghanistan budget. It is well known, however, that unimmunised children between 3–5 years remain at risk from e.g. polio and measles (see, for example, Cutts, 1990, 19–27). Outbreaks of measles remain regular in rural Afghanistan and are easily diagnosed by parents. Where outbreak investigation by AVICEN staff could be done, it was found that older children had invariably been affected as well. It is doubtful whether focusing purely on the under twos, where immunisation coverage is still low, will be enough to achieve control. The EPI programme in rural Afghanistan is still, however, demand driven. A potential social backlash against the programme may, in the end, be more costly than providing extra vaccines. UNICEF’s unilateral decision has inhibited the debate about epidemiology and control strategies and obstructed efforts to find other funders for vaccine provision.

**Administration**

Individual vaccination cards are provided. Card loss among the population reached by the ‘rural EPI’ programme is less than among those in the vicinity of ‘urban’ centres who were reached in occasional sessions organised by daring government health workers. This is undoubtedly because services from the crossborder EPI became more regular and cards are more frequently asked for. Card loss is also reduced by the use of a plastic cover. Perhaps the new durable TT card developed for the WHO could be tried out. It is vital that UNHCR and agencies working among the refugee population in Pakistan and Iran emphasize the importance of taking their vaccination cards with them upon return to Afghanistan.

Vaccinators also keep daily records (AVICEN only) and village registers for each district. Record keeping was weak among new vaccinators, but improved with follow-up training and when its importance for
following progress was realised. A potential problem of coordination is that village registers are administered by NGOs, and only circulate between NGOs that cooperate effectively. In order to avoid duplication among different agencies it is necessary to move operational coordination from Peshawar (where it does not work) to Afghanistan, and to develop an effective EPI Steering Committee. The issues of coordination and the institutional development of the EPI programme cannot be elaborated in this report. While AVICEN already process their vaccination result using computers, the introduction of WHO's CEIS software will facilitate the centralisation and aggregation of the results of all implementers.

Communication

AVICEN has been the only agency to begin a continuing communication exercise concerning EPI. In 1990, it began to publish *Ibn Sinna*, a Pushtu and Dari language newsletter for vaccinators. The newsletter provides information on programme activities, technical updates and health messages. It motivates and stimulates an *esprit de corps*. Programmes were also broadcast in these languages through the BBC World Service, which is frequently listened to by Afghans. AVICEN intends to strengthen, develop and refine its communication project.

PROGRAMME STRUCTURE AND STRATEGY

A Vertical Programme Structure

Afghanistan may attract the die-hard proponents of vertical or integrated approaches. The sterility of their debate, however, usually derives from its generality, as if health services world-wide are at comparable stages, have comparable resources and priorities and operate in similar environments. The questions to focus on are 'Does it work?' and 'Is it sustainable?'

It is often argued that an integrated approach is 'cheaper'. This is a bad argument. The cheapest approach is to do nothing and poor quality services are cheaper than good quality services. One does not look at costs in isolation, but in the light of objectives. Effectiveness should be as important an aim as low costs. If we wish Afghanistan to catch up with the global EPI achievement (and this objective can be debated) then it must become a country where specialist attention and monetary resources are concentrated, and then there is a need for a highly effective EPI programme which shows results.

In rural Afghanistan, the EPI programme has been developed 'vertically'. It is well understood that EPI, above all, is a management programme. To have any impact it needs to be large-scale, it requires strong quality control (cold chain, sterilisation, injection techniques), close operational planning (stock control, keeping intervals between shots to a minimum), developed evaluation mechanisms (target populations, coverage, surveillance) and consequently a centralisation of information (see also Oxfam, 1985, p366).

If health facilities are reasonably well organised, supported and supervised, they can provide EPI as a service. The health facilities in rural Afghanistan were set up under war conditions and, in contrast to the medical programmes in the refugee camps, mainly focus on emergency medicine and curative services. There are a variety of reasons why they cannot provide a stable foundation on which to build other programmes.

Currently there are more clinics (externally funded) than before the war, (D. Palmer, USAID, Islamabad, personal communication, 1990), but their geographical distribution is very uneven and relocation will be necessary when the situation becomes more stable in Afghanistan. There is no operational coherence among them, although WHO and the Coordination of
Medical Committees (CMC) in Peshawar are trying to improve this. In addition, we can anticipate that when the political situation stabilises, a large number of rural health workers will move to provincial capitals and larger cities. An EPI programme located within such a structure would only be weakened by its inequalities, fragmentation and medium term instability. Its health workers, mostly supported by NGOs or Afghan political parties, have little or no training in public health or prevention. Much retraining or additional training would be needed. Also aid agencies, local authorities and Afghan medical staff would have to come together to plan regional health services and move away from the agency-based, isolated project approach.

Solter (1980, pp. 143–145), speaking from his experience with Management Sciences for Health (MSH) in Afghanistan in the 1970s, concluded that it was mainly vertical programmes which had had any success in benefiting rural Afghans. Integrated programmes too easily assume that health workers and mid-level managers have unlimited talent, time and administrative capacity. Adding weakly organised new programmes to already weakly organised and undermanaged health facilities only contributes to the general malfunctioning of each programme. Experience has taught us that integration is harder in practice than on paper and that it creates many difficulties in personnel, supervision, logistics, information systems, finance and budget. The expected reduction in overheads and service delivery costs does not, therefore, always take place, while it negatively affects the quality of health care rural populations receive (see for example Justice, 1986, pp. 48–59). In a country like Afghanistan, vertical programmes can be better managed and can better maintain quality. It is also easier to sustain morale and enthusiasm, well recognised ingredients for success in business theory, but too often ignored by ‘armchair planners’.

This does not mean that EPI cannot be combined with other activities. It has been recognised recently that micronutrients (vitamin A, iodised oil, iron supplementation) can be added cost effectively to an EPI programme. Again, AVICEN took the lead and began vitamin A distribution in 1990. Given the obsession of Afghans with vitamins, it was called ‘capsule A’. Iodine deficiency disorders (IDD) are an important problem in parts of Afghanistan, which lies within the so-called ‘goitre belt’. AVICEN’s Afghan epidemiological surveyors and some expatriates from other agencies carried out surveys in various provinces to identify high prevalence areas. The major obstacle to a pilot programme so far has been funding. Iodised oil of good stability is only produced by one company in France and is still fairly expensive. In contrast to vitamin A distribution, an IDD programme should focus on carefully identified high risk areas. Iron supplementation could be considered if, in practice, it can be done with the required regularity.

An initial suggestion by UNICEF to use the EPI delivery system for the simple distribution of Oral Rehydration Salts (ORS) packages was rejected by AVICEN. ORS distribution is only one component of a Control of Diarrhoeal Diseases (CDD) programme that has to include water supply and sanitation, health education and adequate case management. Simply distributing ORS packages to a largely illiterate population was not felt to be a sufficiently sound programme approach. Just as injecting people with vaccines does not constitute an EPI programme, so ORS distribution does not constitute a CDD programme. The strategy recommended by the CDD Division of the World Health Organisation is first to build up case management in health facilities before increasing access to ORS. Minimally, there should be trained community health workers, voluntarily or not, who take the responsibility for the promotion and distribution of ORS in the
villages (see for example, Rahaman, Aziz, Zatwari and Munshi, 1979). This was beyond the capacity of the mobile vaccinator teams and the organisations supporting them. A more appropriate strategy to decrease diarrhoea-associated deaths was felt to be through the existing health facilities. Indeed, Management Sciences for Health, an American NGO, adopted this approach as part of a training programme for basic health workers. The EPI system can play a role in a later stage of programme development, as a means of increasing the access to ORS.

The above arguments should not be taken as a wholesale rejection of EPI services in health facilities. Health facilities provide an opportunity to vaccinate that should not be missed and they have an important role to play in surveillance. My interest is not in ideologies or dogmas, but in programmes that work under particular conditions. Where there is no stable health system nor other public health programmes; where women and children underutilise health facilities which do not offer MCH services; and where, due to the socio-cultural environment, female health workers are very hard to find, are not motivated to work and cannot move unless accompanied by a man, there are few alternatives to developing the EPI as a vertical programme. EPI in rural Afghanistan can spearhead the introduction of primary health care, but the locations, the concept and the functions of many existing health facilities will have to evolve or change, before they can play a more significant role in the EPI programme.

Mobile and Outreach Strategies

The choice of a strategy not only depends on cost considerations, but must take other factors into account: the physical and social geography, the distribution and utilisation of health posts, the immunisation status of the target population, the objectives of the programme, socio-political pressures and the cost-effectiveness of each strategy. The choice will also depend on context, resources and objectives. The existing health facilities are both underutilised by women and children (Taksdal, 1991) and have an uneven geographical distribution. Thus they are useless for surveillance purposes. An analysis of 128 ‘greenbooks’ (paramedics’ records) with 12,000 diagnoses showed only 4 per cent as cases of diarrhoea and only 2 cases of paralysis (one case of polio and one of neonatal tetanus). Even if reporting were systematic and the diagnoses were accurate, it seems likely that most cases are never seen.

Static services would leave a large epidemiological ‘no man’s land’ and, as an exclusive strategy, would have to renounce the objective of coverage. Static health facilities are also much more susceptible to ethnic, religious and political factionalism: they exist on somebody’s territory, usually a commander, who belongs to a certain tribe and party or front. Hence, they have ‘electoral value’ and may become an issue in power struggles. Only in North East Afghanistan has the health committee of an Afghan political administration, the Shura-e-Nazar, allowed a better development of outreach work from the hospitals they control. By and large, however, the target population can only be reached through a mobile strategy. Within a district or sub-district, mobile teams move systematically from village to village, irrespective of political affiliations, although normally within their own ethnic group. EPI, so far, has perhaps been the only programme that has not given rise to major controversies in rural Afghanistan with its volatile politics. This is due to it having a clearly defined target group (all Afghan women and children irrespective of the group they belong to), a mobile strategy that can satisfy the authorities of the whole political spectrum and (for AVICEN only) an acceptable proportional representation of all ethnic and political groups in the pool of vaccinators.
The mobile strategy has led to no problems with the cold chain and by renting local transport heavy investment in vehicle purchase and maintenance has been avoided. Drop out rates are not discouraging (an average of 36 per cent for a second round, on a limited sample) (Catapano, 1990), and coverage rates after 3 visits to a village range from 35 per cent to 55 per cent fully immunised women and children, on the basis of card only! The aim is now to train and equip more teams so that a campaign approach can be turned into a regular service (Battersby, 1991, 33).

Supervision is mainly by specially trained EPI supervisors, recruited from the pool of experienced vaccinators. This has avoided conflicts with the paramedics and ‘doctors’ of the health facilities who might have been tempted to impose themselves as the ‘natural’ supervisors for the vaccinators. Since the large majority of them are not qualified to do so, this would demotivate the vaccinators and perhaps even induce them to pedal drugs in order to enhance their prestige with regard to other health workers. When health facilities play a more important role, the issues of supervision and mid-level management should be carefully studied and not merely solved with global recipes.

It seems advisable, however, in certain places, to try to involve some carefully selected health facilities in EPI. This can be done if certain conditions are fulfilled: adequate training and qualified supervision of the multi-purpose health worker; standardisation of protocols, register forms, supervisory and reporting channels and procedures; and coordination between all involved. Given the fragmentation among the Afghans and the providers of aid this will require much time and effort.

References

Health Impacts of War in Ethiopia

HELMUT KLOOS

There is an increasing need to study war-related health impacts in Ethiopia and other least developed countries, for at least three reasons. Firstly, the present peace process emerging world-wide, encouraged by the dismantling of communist regimes and reduced military spending in the West is resulting in the reduced military presence of the superpowers in developing countries. These countries, including Ethiopia, thus have greater opportunities to pursue their own development strategies, including a greater emphasis on human development.

Secondly, in the least developed countries health is not only a basic human right but also an urgent prerequisite for broad socioeconomic development. Clearly, health levels in these poor countries are the lowest world-wide but may be significantly raised if resources currently used for the military are relocated for socioeconomic development, including the upgrading of health services and the control of the major killing diseases (Dodge, 1990).

Thirdly, morbidity, mortality, the displacement of populations and economic hardship due to war have increased in the developing world in recent decades, due to the use of more lethal weapons, increased military spending, and a world-wide increase in the number of governments under military control from 26 per cent in 1960 to 57 per cent in 1988/89 (Sivard, 1991, p. 19). In fact, all wars taking place in the 1970s and 1980s have been fought in developing countries. Another disturbing trend has been the sharp increase in civilian war-related deaths, with nearly 90 per cent of all casualties in the wars fought in 1990 being unarmed civilians, particularly children, women, and the aged. Some of the highest child mortality rates have been reported from Afghanistan, Mozambique, Angola, Somalia, and Ethiopia (UNICEF, 1987; Sivard, 1991, pp. 19–25).

Of the two wars fought in Ethiopia since the 1974 revolution, the protracted civil war in the north has been significantly more costly (Henze, 1984) and destructive than the Ethio-Somalia war of 1977. Little is known about the number of people killed, injured or otherwise harmed, either physiologically or psychologically, during these wars, for four major reasons. Firstly, morbidity and mortality statistics are characteristically poor. Secondly, mortality statistics gathered by the Ethiopian government were not released to the public. Thirdly, it is impossible to quantify the relative contribution of four factors contributing to increased morbidity and mortality since the revolution: war itself, drought, repressive and misdirected government economic policy, and outright government violence against the population. Fourthly, the effects of war have continued to be felt in Ethiopia after the fall of the Mengistu government in 1991.

WAR CASUALTIES
According to Sivard (1991), 609,000 Ethiopians died in wars between 1974 and
1990, more than 500,000 of them civilians. The defence minister of the transitional government estimated, on the basis of official records, that about 500,000 government soldiers, 150,000 fighters of the Eritrean People's Liberation Front (EPLF), the Tigray People's Liberation Front (TPLF), and other rebel groups, and at least 500,000 civilians died during that period (Eliassen and Eriksson, 1991; EPRDF News, 1991). These casualty figures are conservative and do not include civilians who died from the direct and indirect effects of the war. Recent estimates by the transitional government put the number of Ethiopians who died during the 30-year war in northern Ethiopia at over 1 million not including the Eritrean casualties (EPRDF News, 1991).

The number of persons with war-related injuries and disabilities, orphans and political prisoners held by the former government is not known. According to a recent estimate about one-third of the 300,000 prisoners of war returning home from the war front in late 1991 were injured or disabled (CRDA News, 1991). The 1984 census reported more than 40,000 persons with amputated legs and/or arms (Office of the Population and Housing Census Commission, 1991). Morbidity and mortality figures for the more than 2 million Ethiopian refugees in Somalia and Sudan, further discussed below, are similarly unreliable. Even less is known about the psychological impact of the war. Preliminary reports indicate that the effects of aerial bombings, violence against the civilian population, and the destruction of socioeconomic systems were particularly serious in the war zones of Tigray and Eritrea (Hammond and Druze, 1989; Hendrie, 1991; Cliffe, 1989).

Additional health effects of the war have been identified since it ended in May 1991, including thousands of persons killed in new ethnic clashes and in insecure areas in southern Ethiopia (see several articles in *Horn of Africa Bulletin*, 1991: 3(6) pp. 3-5; 3(7) pp. 4, 28, 30, 31 and 33). Severe epidemics of malaria, typhus, relapsing fever and AIDS have also been reported in 1991, and famine conditions persist in the war-torn country. There were 8.7 million people in need of emergency assistance in late 1991, as many as during the 1984 famine (SEPHA, 1991).

HEALTH SERVICES

The military expenditure of the Ethiopian government increased from 106.5 million birr in 1974 to 2.3 billion birr in 1990/91 (a 2075 per cent increase). An estimated 35.7 billion birr were spent on the military between 1974/75 and 1990/91. The defence budget, according to official statistics, increased from 11.2 per cent in 1974/75 to 36.5 per cent in 1990/91 (Negarit Gazeta, 1973, 1986, 1990). But according to other estimates it stood at 50 per cent already in 1988 (Eshetu Chole, 1989), with further increases in subsequent years. The proportion of the national budget allocated to health, on the other hand, declined from 6.1 per cent in 1973/74 to 3.5 per cent in 1985/86 and 3.2 per cent in 1990/91 (Negarit Gazeta, 1973, 1986, 1990). The annexation of Eritrea by Ethiopia in 1952 led to the rapid deterioration of the health care system in that region. By 1962, the health budget for Eritrea had been cut by two thirds, and bureaucratic restrictions reduced the efficiency of the services further. As the Eritrean liberation movement became more active the government in Addis Ababa not only stepped up the war but also closed and destroyed health facilities.

In keeping with the principle of primary health care and self-reliance, the EPLF developed its own medical system after 1970, focusing on rural, decentralized services dominated by 'barefoot doctors', village health workers and mobile clinics. This constitutes a major departure from the more centralized and urbanized Ethiopian health care system (Sabo and Kibirige, 1989; Kloos, 1991). By 1987, the EPLF operated
The health staff included 1,600 mobile ‘barefoot doctors’, nearly 600 village health workers, and 150 nurses trained in 8-week courses. The high turnover of field staff was due to high casualties (50 per cent reduction of ‘barefoot doctors’ and 23 per cent reduction of village health workers between 1985 and 1987). The 29 physicians and 328 paramedics worked in the hospitals, including the central underground hospital in Orotta. The manufacture of basic drugs and medical equipment by the EPLF health services increased their self-sufficiency (Sabo and Kibirige, 1989; Pateman, 1990, pp. 220-222). These services treated 1.6 million patients, both fighters and civilians, during the Ethiopian military offensive in 1978 (Sabo and Kibirige, 1989).

The TPLF used the EPLF health services as a model to develop its own, although its shorter history curtailed their full development. Thus it was not possible to employ physicians and to produce drugs. By 1984, the TPLF and the Relief Society of Tigray (REST) had established and operated two hospitals and 18 public clinics in the western lowlands. Their primary care workers were, like those of the TPLF health services, also fighters (Peperdy, 1985). Strong community support assured the reconstruction of health units that were destroyed in the war and an efficient referral system (Tadele Tedla, 1991).

In the absence of government statistics, most of the still fragmentary information on war damages inflicted on the health services throughout Ethiopia comes from reports by missionaries and relief workers. The results of site visits by a team of health experts of the Ministry of Health in mid-1991 have not been made public. But it is known that accessibility to health services in the war zone decreased not only because of the scarcity of services and insecurity in the countryside but also because it was the common practice of government forces to occupy major health facilities, particularly in urban centers (Hammond and Druze, 1989). Utilization studies in various parts of Ethiopia have shown that rural people prefer urban over rural based services (Kloos, 1990; Ministry of Health, 1985). The heavy influx of the wounded during military offensives and recurrent epidemics restricted the accessibility of both the rural and urban health facilities further (Sabo and Kibirige, 1989; Peperdy, 1985).

MALNUTRITION AND FAMINE

Much has been written about the causes and consequences of famines that occurred in Ethiopia since the early 1970s but little about their relationship to military conflict. Whereas famine was attributed largely to drought in the 1970s, there is growing consensus that human factors, particularly war, are the main culprit (Kaplan, 1988; Africa Watch, 1991). The recent report by Africa Watch (1991) shows that particular strategies which the Ethiopian government adopted to fight the wars created a particularly severe form of famine. This is consistent with the conclusion of Mesfin Wolde Mariam (1984, p. 150) that famines in Ethiopia have increased in frequency and severity since the late 1950s.

The wars directly interfered with food production by, for example, preventing farmers from planting and harvesting on time and by reducing the labor force through coercive conscription. In areas of heavy conscription in central and southern Ethiopia, harvests were repeatedly neglected by frightened farmers. Looting by soldiers of peasants’ property, particularly livestock and seeds, has been a traditional practice in Ethiopia (Chaulk, 1978; Pankhurst, 1966). According to a survey carried out by EPLF cadres in a quarter of all Eritrean villages during the growing season of 1989, 13,000 men had been conscripted during that season, 40,000 acres of land had been mined
or destroyed, 2,500 homes were destroyed, 35,000 quintals of food confiscated, nearly 44,000 livestock and 5,000 persons killed, and goods worth 1.3 million birr stolen. Thousands of cattle and hundreds of people were killed in Eritrea and Tigray by land mines planted by the army (Anon., 1991a; Hendrie, 1991). The loss of oxen was considered by Eritrean peasants to have been the most important factor in reduced crop production, followed by lack of labor and drought (Cliffe, 1989). This survey further reported that most village populations had been harassed by the army and their movements restricted, causing many villages to become economically more isolated and many people to abandon their villages to live in nearby hills. These various types of disturbances were instrumental in the noncultivation of about 40 per cent of the total agricultural land in Eritrea in 1987. The war has been associated with an estimated production shortfall of 150,000—180,000 tons of grain production in that region in 1986 (Cliffe, 1989).

Food distribution lines along the war front and in famine areas were frequently interrupted. The logistical problems encountered in the transport of food aid from Assab, Massawa, and Djibouti included a lack of trucks and the refusal of the government and rebel forces to permit convoys to pass through their respective territories. Assab was closed from November 1983 to April 1984 to allow military equipment to enter. The railroad from Djibouti to Addis Ababa was repeatedly damaged by Afar and Somali opposition groups. Feeding shelters and supply lines proved to be incapable of supplying the large numbers of destitute peasants during the 1984 famine. Approximately 10,000 died per week in the distribution centers in February and 16,000—17,000 in March of 1984 (Dawid Wolde Giorgis, 1989, p. 133).

The war indirectly affected food production and distribution in numerous and complex ways. These included the disruption of grazing patterns, the reduction of off-farm income, the restriction of access to markets and enforced changes in farming systems. Thus some villages cut off from farming on lowland plains became more pastoralist while a number of pastoral nomadic groups shifted toward agropastoralism. Lack of access to community grazing areas prompted changes in herd composition, most often from cattle to goats and sheep (Cliffe, 1989). These changes hindered grain and livestock trade between food surplus and deficit areas and between rural and urban areas, resulting in inflated prices in the towns and contributing to food insecurity, malnutrition and famine throughout northern Ethiopia (Pateman, 1990; Hendrie, 1991). Numerous allegations have been made that food aid was misused by the governments of both Haile Selassie and Mengistu, including diversion of food to the military, resettlement schemes, and the villagization program (Pateman, 1990).

These various restrictions and diversions impacted above all on the food resources of Eritrea, which had experienced recurrent famine since the 1950s. Between 1970 and 1991, more than a dozen droughts and 12 famines occurred in different parts of Eritrea, where malnutrition became the most important cause of death (Pateman, 1990; Kloos and Lindtjorn, in press). Nevertheless, Eritrea received less than 5 per cent of the 750,000 tons of grain supplied to Ethiopia by donor agencies during the first half of 1985. In both Eritrea and Tigray food aid was distributed only to peasants with identification papers issued by the government sponsored peasants' associations, and those without these papers were persecuted as TPLF and EPLF sympathizers. The added fear of forced resettlement also kept many destitute Tigrayan peasants away from feeding centers (Hammond and Druze, 1989; Cliffe, 1989). The plight of the populations of Tigray and Eritrea was somewhat alleviated
by their respective relief organizations, REST (established in 1978), and the Eritrean Relief Association (established in 1975) (Pateman, 1990, p. 181; Peperdy, 1985). Their cross-border relief programs represent two of the most effective operations of this type, in a region considered inaccessible by official food aid programs of the international donors (Hendrie, 1989).

REFUGEES

Refugees and displaced populations are particularly vulnerable to malnutrition and infectious diseases. About 2 million Ethiopians and 700,000 Eritreans became refugees in Sudan and Somalia in the 1980s. There were still 700,000 Ethiopians and Eritreans in Sudan after the peace initiative in 1991 (Life and Peace Institute, 1991; UNHCR, 1987). In Korem shelter in Wello region, the crude mortality rates of 60–90 per 1,000 population per month in 1985 were 7–10 times higher than those in settled villages in similar famine affected highland areas. About 5 per cent of the 220,000 Ethiopian refugees in eastern Sudan in 1985 died within 3 months of their arrival. The crude mortality rates of Ethiopian refugees in Somalia in 1980 and in eastern Sudan in 1985 were 18–45 times higher than the rates in the host countries. Even these rates were considered to be underestimates (Toole and Waldman, 1990; Shears, 1991).

The high morbidity and mortality rates were due above all to deficiencies in food supply and distribution systems, crowding and poor sanitation and water supply and malaria. Recommendations for reducing morbidity and mortality in Ethiopian refugee camps have been detailed by several international medical teams (Shears, 1991; Anon., 1990). The situation of the 135,000 Ethiopian returnees and 600,000 Somali refugees in eastern Ethiopia in mid 1991, exacerbated by insecurity and lack of food, was described as 'desperate' (UNHCR, 1991). Djibouti, on the brink of civil war and faced with famine conditions, hosted nearly 100,000 newly arrived Ethiopian and Somali refugees in late 1991 (Africa News, 1992). About a third of the 300,000 Sudanese refugees living in camps in western Ethiopia fled back to Sudan in 1991 after having been accused by EPRDF forces of collaborating with the former government (Life and Peace Institute, 1991).

COMMUNICABLE DISEASES

Diarrheal diseases resulted in high child mortality in war affected areas and refugee camps. The incidence of tetanus, a major killer of neonates and children, could be reduced only after the immunization became available in refugee camps in Somalia after 1982 (Toole and Waldman, 1990). The sharp decline of immunization coverage throughout Ethiopia during the expansion of the war front in 1991 (Shewatatek Lidettu and Gebreselassie Okubazghi, in press) must be expected to have resulted in significant increases in infant mortality, although statistics are not available. The mortality rate in children under 5 in Eritrea in 1983 was 520 per 1,000 children, twice as high as in Ethiopia as a whole (Sabo and Kibirige, 1989). Similarly, the inability of the Ministry of Health to carry out routine surveillance and control activities in rural areas in the face of insecurity was instrumental in causing malaria epidemics in 1991 (Anon., 1991b).

Epidemics of both louse-borne typhus and relapsing fever have traditionally been associated with crowded army camps, as during the Ethio-Italian war, and crowded prisons and relief camps. The numerous publications by Italian military physicians working in Ethiopia (Kloos and Zein Ahmed Zein, 1991) and accounts by foreign travellers in historic times (Pankhurst, 1976) indicate the widespread occurrence of these two diseases during wars. Reports by relief and health workers indicate that the spread
of typhus and relapsing fever in 1991 was facilitated by the crowded conditions in military camps and by retreating soldiers selling their louse-infested blankets and clothes to local populations. Both diseases also spread among famine victims in relief shelters. During the 1984 famine, the number of relapsing fever cases more than quadrupled, to over 43,000 (Hodes, 1988).

Meningococcal meningitis, another crowding disease, which affected all regions of Ethiopia in 1990, was difficult to control by immunization due to slow and incomplete reporting by and the inaccessibility of rural clinics in the northern war zone (Shewatatek Lidettu and Gebreselassie Okubagzihi, in press). A cholera epidemic broke out during the final stage of the war in early 1991 at all fronts when water supplies and medical services deteriorated (Summary of World Broadcast, 1991).

A rapid increase in sexually transmitted diseases, above all AIDS, may prove to be the most devastating public health outcome of the war in the long term. Prostitution and violence against women were common wherever the army operated. HIV infection and AIDS became epidemic in Ethiopia towards the end of the war. In 1985 only four of 5,565 (0.07 per cent) representative recruits were positive for HIV (Hailu Kefenie et al., 1989); the first AIDS cases in Ethiopia were seen in an Addis Ababa hospital in 1986 (Lester et al., 1988). Another batch of recruits tested in the middle of 1987 revealed a prevalence of 0.9 per cent (Debrework Zewdie, 1988). By 1991, HIV prevalence among recruits had increased to 2.6 per cent (Hailu Kefenie et al., 1992); according to unpublished statistics of the Armed Forces Hospital in Addis Ababa, 9 per cent of soldiers were infected in 1991. Most soldiers became infected in bars in larger towns, where prostitution is characteristically rampant. Serological studies in 26 towns in 1988 by the National AIDS Prevention and Control Unit revealed HIV prevalence rates up to 39 per cent among local prostitutes.

Epidemiological modelling indicates that approximately 507,000 Ethiopians will be infected with HIV and 25,600 will have developed AIDS in 1992 (Khodakevich and Debrework Zewdie, in press). The return of more than 500,000 former government soldiers to their home areas will assure that HIV is introduced into rural areas where the virus had previously been absent. The greatest increases in prevalence may be expected in highland populations in central, southern, eastern, and western Ethiopia which supplied most of the recruits. A strong association between ethnic patterns of recruitment and AIDS was recently reported from Uganda (Smallman-Raynor, 1991).

Although no reliable information is available on the occurrence of other crisis-related communicable diseases during the last few years of the civil war, the deterioration of living conditions in general and the lack of imported life saving drugs (e.g., T.B. drugs and insulin) and deterioration of the health services in particular must be expected to have contributed to higher mortality from T.B., malaria, diabetes, and other killing diseases. Foreign exchange problems persist in the post-war period and are increasing Ethiopia's dependence on donors for drugs and medical supplies.

CONCLUSION
The Ethiopian civil war resulted in extremely high morbidity and mortality since the revolution and the occurrence of major famines and epidemics of communicable diseases in recent years. The health impacts reported here are probably underreported due to lack of data on both direct and indirect effects at the micro and macro levels and their interrelationships. Careful examination of these relationships may contribute to the formulation of new policies that consider health development as an essential
and interrelated part of socioeconomic development. There are numerous opportunities for the new Ethiopian government to embark on a more people-oriented course in socioeconomic development.

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Helmut Kloos
2307 North Backer Avenue
Fresno
California 93703
USA
The Needs of Elderly Persons in Natural Disasters: Observations and Recommendations

REUBEN ELDAR

Disabled and elderly persons are in many ways especially vulnerable to the safety and health hazards of natural disasters and have specific needs in emergency situations. Their increased risks should be compensated for by specific planning and preparation. In this article I discuss some of the ways in which disasters specifically affect this section of the population and propose some guidelines for the development of disaster plans which will take account of their special needs.

Various studies have suggested that children aged 5 to 9, women and the over-60s have higher casualty rates in disasters (Glass et al., 1977; Sommer, 1972) and that the proportion of injured among the 65–74 age group is likely to be higher than would be expected from the population distribution (Guerri et al., 1983; Guerri and Alzate, 1984; Ortiz, 1985). Additional population sub-groups that are more vulnerable or have greater exposure to hazards, have lower injury threshold and/or decreased ability to survive injury once it has occurred, are the very young and very old and the ill and debilitated (Withers and Baker, 1984; Hutton, 1976; Price, 1978). Disabled persons, 60 per cent of whom are 65 years old or older (Royal College of Physicians, 1986), also have increased vulnerability to hazards and greater safety needs in disaster situations (Price, 1978; Glass, 1980).

VULNERABILITY OF ELDERLY PERSONS IN DISASTERS

Elderly persons may have locomotor, sensory or cognitive impairments restricting their activities. Some impairments — such as those of sight or hearing — may limit them in perceiving warnings and emergency instructions; others will reduce their ability to carry out recommended self-protective actions (getting under tables during an earthquake or tornado-shaking) or their speed and agility in leaving a room or building (in a fire). When a disaster occurs, even without collapse or major damage, buildings and their surroundings may become unsafe and previously innocuous elements of the interior environment can become dangerous and result in injuries from broken glass, falling electrical fixtures, moving equipment and furniture. Elderly persons, with functional limitations, will face greater risks in this changed environment than able bodied and younger individuals.

Most buildings and many spaces are difficult for the disabled elderly to negotiate, even in normal times. Wheelchair-users may always have to go into and out of a
building using the one entrance with a ramp attached to it; a disaster could obstruct this entry/exit, leaving the wheelchair-bound without an exit. Many elderly persons may have only the lift as their way for going from one floor to another; an earthquake or fire makes the lift immediately unoperational (Arnold, 1982; Schroeder and Benedict, 1984). Elderly persons with impairment of sight have a particular route they use and when this becomes unusable the individual will become disoriented. Thus, since elderly persons have fewer available options for emergency exit, they may be placed at higher risks.

In many countries, elderly persons may be economically underprivileged, living in structures more vulnerable to certain types of disaster (fires, tornadoes, earthquakes) and unable to increase their preparedness — store food, purchase emergency first-aid equipment, upgrade their dwelling — in view of an impending disaster (Tierney et al., 1988).

Elderly persons may face increased difficulties in the aftermath of a disaster. An altered environment may expose them to cold or heat, humidity or winds, and may restrict their accessibility to required medications, special aids and equipment, or assistance from others. Everyday life in the post-disaster environment may cause stress and require a greater expenditure of energy, which may disturb a precarious balance and result in loss of objects that make life easier, such as spectacles, hearing aid batteries and canes. Hence, disaster-induced restrictions may place elderly persons in a more hazardous and vulnerable situation.

It has been reported that 50, or 38 per cent of the 133 injured persons in the 1983 Coalinga, California earthquake had some type of disability; this was a higher percentage than the overall rate of disability in the stricken community (Aroni and Durkin, 1985). A recent study found that the initial reaction at the onset of disaster — the reaction that may be affected by the disability — was critical to the individual’s exposure to hazard, and that the decisions and actions that followed appeared to be significantly influenced by the initial reaction; the study also confirmed that physically disabled persons have reduced accessibility to their personal items and emergency medical supplies following the disaster impact (Rahimi, 1991).

The recent Iraqi missile attacks on the civilian population in Israel also revealed the vulnerability and special needs that elderly persons also experience in situations arising out of natural disasters (Eldar, 1991).

SUGGESTIONS FOR APPROPRIATE ACTIONS

Increased vulnerability should not mean that elderly persons should inevitably experience a higher casualty rate in disasters. They have the right to expect an equivalent level of safety protection in disasters to that experienced by able bodied and younger individuals. The higher risk should be compensated for by specific planning and preparation to assure that they have the same chance of survival.

Specific instructions and guidelines need to be developed about how disabled and elderly persons can best be assisted when a disaster occurs; preliminary work has already been carried out (Parr, 1987; Tierney et al., 1987).

Planners in disaster-prone areas should know as much as possible about the prevalence of different forms of disability among elderly persons in their area, the degree and type of functional limitations associated with them, their socioeconomic characteristics and residential pattern and their specific risk factors (Logue et al., 1981). In order to obtain the necessary information, surveys and/or occupant behaviour studies would have to be carried out (Tierney et al., 1988); it would be useful to have all current elderly in the area on a centralized location system (Parr, 1987;
Logue et al., 1981; Huerta and Horton, 1978), to ensure that they receive assistance quickly and effectively in a disaster.

High priority should be given to educating and training disaster personnel to give appropriate assistance to elderly persons. Educational and training experiences should also be provided for the elderly to help them learn self-protective behaviour and evacuation patterns. It is of the greatest importance, however, that, in all disaster planning and preparation activities, elderly persons should be centrally involved, consulted and accepted as advisors, as well as incorporated as active participants in disaster simulations and practical exercises.

Disaster plans should contain provisions for:

- notification of hearing- or vision-impaired persons that an emergency is expected or exists;
- special needs of the elderly, in case the authorities plan the evacuation of an area under imminent threat of disaster;
- material assistance for high-need/high-risk members of the elderly population;
- emergency transportation for elderly persons; and
- establishment of evacuation centres accessible to disabled elderly persons.

In addition, all nursing homes, old-aged or pensioners' homes and other geriatric institutions (Roberts et al., 1982) should prepare written emergency plans for internal (fire) and general disaster situations, to be reviewed periodically and rehearsed.

The elderly form a large and growing population in all countries. They are also increasingly integrated into the life of society, as they choose to live independently, in their own households. Thus, the issue of safety and vulnerability — once considered the domain of the family or the specialized institution caring for elderly individuals — has become the responsibility of the elderly themselves and of the community in which they live, especially those institutions which are charged with preparedness planning for natural disasters (WHO, 1989).

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Reuben Eldar
The Fleischman Unit for the Study of Disabilities
Loewenstein Rehabilitation Centre
P.O. Box 3
278 Ahuzza Street
Raanana
Israel 43100
Refugee Repatriation During Conflict: Grounds for Scepticism

ENOC O. OPONDO

Repatriation is coming to be seen as the 21st century’s panacea for the perplexing refugee phenomenon. The possibility of genuinely resolving the problems faced by refugees outside their countries of origin is increasingly doubted by researchers. Kibreab, for example, admits (though with some unease) that it may become necessary to link resolution of the dilemmas experienced by refugees to repatriation (1992, p. 62), while Mrs Ogata, the United Nations High Commissioner for Refugees, has called 1992 ‘the year of voluntary repatriation’.

I offer here some sceptical thoughts on repatriation and\n
In recent years ... large numbers of people suddenly began to return to their homeland in the midst of the conflict that forced them to become refugees in the first place. Sometimes these repatriations occurred during periods of intense fighting or severe famine caused by conflict. (Cuny and Stein, 1992, p. 5)

Work undertaken by the project has included (1) developing a theoretical model of repatriation, based on ‘a progression of sequential events [which] occurs in repatriation during conflict’ (Cuny and Stein, 1992, p. 8); (2) examining the circumstances and conditions which make refugees go home voluntarily during conflict and how they find it possible to readjust to the life-threatening conditions still pertaining in their countries of origin; and (3) developing ways and means of facilitating this voluntary repatriation which takes place whether or not it is promoted by UN agencies, governments or NGOs.

Of the three ‘durable’ solutions to the refugee problem — repatriation, resettlement and integration — repatriation is usually advanced as the most desirable (Harrell-Bond, 1989, p. 42; Larkin, Cuny and Stein, 1991, p. ix). There is also a public consensus that repatriation should be voluntary and that it should take place, according to the UNHCR protection doctrine, within a framework of international guarantees (Cuny and Stein, 1992, p. 6). The 1969 African Refugee Convention (designed to complement the universal protection mandate of the 1951 UN Convention and the 1968 Protocol relating to the status of refugees (Grant, 1990, p. 37)) goes even further. It defines the central criterion for repatriation as a change of circumstances in the country of origin that will allow returnees ‘to take up a normal and peaceful life without fear of
being disturbed or punished' (Majodina, 1991, p. 3).

It is in the light of this that ethical questions arise for researchers in the field of repatriation during conflict. As Elizabeth Ferris has pointed out, ‘Academic analysis may provide the theoretical underpinning for policies that actually harm the refugees themselves’ (1985, p. 11). Certainly, any study which gives implicit approval to repatriation to states where conflict is still in progress may be used to justify steps that could put back the advance towards greater humanitarian concern for the welfare of refugees.

If, for example, researchers can document that repatriation during conflict is feasible and that it is possible to mitigate any undesirable consequences, would not this give governments and agencies, tired of the ‘refugee problem’, an argument with which to defend themselves when they forcibly send refugees back to their countries of origin (Adelman, 1984, p. 11)? If so, the product of the research would threaten the delicate humanitarianism upon which the protection of refugees is largely dependent. I say ‘delicate’ on the assumption that a state’s foreign policy is mainly governed by the pursuit of its selfish national interests. Governments could repatriate refugees whenever they deemed their presence contrary to the interests of the state, while defending their actions on the grounds that ‘research has shown’ that refugees can survive in their own countries, even while conflict is in progress.

It might be answered that it is only voluntary repatriation during conflict which is at issue. But with what certainty can one judge the refugees’ decision to return home as voluntary? If they do indeed decide to return, they are supposedly making a rational choice: they are choosing between at least two options and will opt for that which they perceive to be more satisfactory. Conditions in the place of refuge must therefore be worse, in some way, before refugees can decide to go back to their countries of origin during conflict. In which case, ‘voluntary’ becomes an inappropriate word to describe their return.

Larkin (1992, p. 7) has argued that repatriation during conflict occurs only when refugees themselves perceive ‘space for return’, by which she refers to a perception that they will receive protection even though hostilities are still in progress. This would definitely put my objection to rest, were it not that the Central American experience upon which Larkin has based her analysis is not necessarily applicable to all refugee situations. I suspect, for example, that the suffering endured by the Kurds after the recently concluded war in Iraq may, in some way, be connected to this idea of ‘space’. The Kurds were led to believe that ‘space’ for return and rebellion had been created following the resounding defeat of Saddam Hussein. The rhetoric used by the victorious countries encouraged them to believe this, only to discover later that Iraq could still muster enough forces to prove spurious the ‘space’ theory.

‘Host governments obviously have an interest in reducing the number of refugees within their borders’ (Harrell-Bond, 1989, p. 44), probably because these governments ‘tend to look at refugees as a problem rather than as people with a problem’ (Kibreab, 1991, p. 59). Such governments would no doubt be happy to learn that, even as the conflict continues, the refugees can find ‘space’ in their countries of origin and they would be keen to ‘influence’ the UNHCR to find it — as, for example, in Somalia today.

For all practical purposes, ‘space for repatriation’ in a conflict situation is more apparent than real. If it does exist, the fluidity of such situations will soon turn it into ‘non-space’. If, for example, various NGOs had successfully facilitated repatriation into the ‘space’ created by the SPLA conquest of certain parts of Southern Sudan, such returnees would today be in
a greater dilemma following the recapture of some of these areas by the official Sudanese forces.

Researchers — especially those aspiring to contribute to alleviating the problems faced by refugees — should, therefore, guard against being unwitting agents for worsening refugees' problems. Researchers must strive not to be misled by appearances. As Kibreab (1991, p. 39) has stated, 'the centrepiece of scientific research is to distinguish between essence and appearance'. The appearance in this case is that refugees can voluntarily repatriate into a conflict situation because there is always 'space'. The essence may be that this is a ploy to find a 'permanent' (as opposed to 'durable') solution to the 'refugee problem' by governments and agencies which, for one reason or the other, are tired of refugees.

This allegation is not as extreme as it seems when it is remembered that some governments and agencies have supported, even if indirectly, the current enthusiasm within UNHCR and other circles for repatriation as the most preferable option (Harrell-Bond, 1989, p. 45). Their efforts to repatriate refugees have, however, been checked by the provision of the refugee conventions according to which it is illegal forcefully to repatriate refugees, let alone when the conflict in their countries of origin continues. 'Repatriation During Conflict', if 'proved' to be scientifically and ethically acceptable, will provide host governments with a way round these provisions of the international refugee legal protection framework. Once repatriated, the refugees will be back where they belong!

We must always remember that, in virtually all cases where repatriation is being contemplated, there are some refugees who would prefer not to go back. A study conducted under the auspices of the Harvard Program in Refugee Trauma, and the World Federation for Mental Health, for example, established that 18 per cent of adult Khmer residents of Site II in Thailand were not sure that they wanted to return to their communities and provinces of origin (Mollica, 1992, p. 4). In the tripartite agreements reached to facilitate repatriation processes, the undecided groups are not always given a chance to stay behind.

There appears to be an underlying assumption that returnees will automatically be accepted in their home countries. This is not always the case, given the dynamic nature of society as well as of individual personality (Harrell-Bond, 1989, p. 42). The re-integration of returnees may be as complicated as the experience of adjusting to a new culture while a person is outside his or her country. Thus, in 1990, when Tanzania expelled some Kenyans who had settled in Tanzania, I witnessed the rejection of returnees by their extended families in my own village. They consequently had to be settled in a make-shift camp in the local market where, for some time, their livelihood was catered for through food donations arranged by the local administration. The main reason for rejection was that, during their stay in Tanzania, family lands had been demarcated and sub-divided among individual family members. The returnees were, therefore, a real threat to individual possessions, since they could make legitimate claims to land. One returnee was rejected by his family and the village in general because he had lived among the Sukuma people in Tanzania and had allegedly acquired witchcraft, a practice for which the Sukuma are famous in the region.

For all these reasons, I share the view of the Lawyers Committee for Human Rights, whose representative at the Oxford Workshop put forward a document containing suggestions which, if adhered to, would virtually eliminate repatriation altogether. The seventh principle of the document is that any repatriation plan should establish that the conflict has abated and its attendant risks eliminated before
promoting return (Lawyers Committee for Human Rights, 1992, p. 1). In addition, all countries involved should be in a position to ensure the protection of the fundamental human rights of the refugees: they should not be returned to any country where they would face persecution, and the entire process must be voluntary.

Together with these conditions, the Lawyers Committee urges that the safety and dignity of the returning refugees be ensured, that UNHCR be actively involved from the start to the finish of repatriation, that NGOs have access to the refugees, that the likelihood of recurrence of the human rights abuses that precipitated flight be eliminated and that special arrangements be made for high risk groups, such as women and children. The document concludes by stressing that the above conditions should also apply to refugees who initiate their own return (p. 14). Repatriation during conflict — voluntary or otherwise — is clearly ruled out by these principles. Seeking ways of facilitating it, therefore, seems to me to be tantamount to courting disaster.

Note
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Enoch O. Oondo
Visiting Research Fellow
Refugee Studies Programme
University of Oxford
Queen Elizabeth House
21 St Giles
Oxford,
OX1 3LA
UK
For many years, *Disasters* has covered the activities of disaster training and research institutions throughout the world. In 1983, an entire issue was devoted to training for disaster management. The beginning of the University of Wisconsin-Disaster Management Center (UW-DMC) was described in that issue (Schramm, 1983; Davidson & McKelvey, 1983). Like disaster management training worldwide, the UW-DMC has come a long way since 1983, but still has a long way to go.

In that 1983 issue, there was a wide-ranging discussion of disaster management training. While field experience was seen as the most often used training tool, the need for a more structured approach to learning about disaster management was encouraged in the ‘mitigation of disaster impact; preparedness activities; response to disaster; and reconstruction and rehabilitation of all sectors’. (Thompson, 1983)

FORMATION OF THE UW-DMC

In November 1982, a group of international disaster management leaders gathered in Madison, Wisconsin, USA to form an international advisory board responsible for guiding the formation and development of a center to serve the learning needs of disaster/emergency management professionals in the developing world. The goal of the University of Wisconsin-Disaster Management Center was (and still is) to help improve the emergency management performance of private voluntary agencies, local and national governments, and international organizations, through a comprehensive professional development program in disaster management.

This board was given the task of defining educational problems in disaster management, identifying course topics and literature and suggesting individuals who could address these topics. Fifty-five courses were identified and preliminary course outlines prepared, in natural disasters and refugee emergencies. The board’s mandate was to develop courses in a distance education format.

The University of Wisconsin has worked in distance education for over one hundred years, in fields such as engineering, agriculture, health, public administration and business. Since 1949, the Department of Engineering Professional Development has provided practical professional development programs for engineers and scientists. This approach to continuing education combines the academic rigor of an established institution of higher learning with the practical problem-solving expertise of individuals working in government, industry and the community. This model inspired the creation of the UW-DMC. From inception, the UW-DMC has worked closely with the experts with field experience, to develop training activities with a practical emphasis.
Drawing on expertise from throughout the world, the UW-DMC was started as an informal joint venture between an academic institution, the University of Wisconsin-Madison, and an organization with many years experience in disaster management, INTERTECT (now, also with Intertect Training Service).

Since 1983, the major focus of work has been to develop distance education course modules in text, video and computer-based media. The second focus is to organize comprehensive training courses (seminars and workshops) for governmental groups, private voluntary organizations and several United Nations agencies. These are the two parallel activities of the UW-DMC.

SELF-STUDY CURRICULUM

Distance education is the unique aspect of disaster management training at the UW-DMC. There are now over 1,500 individuals enrolled worldwide in the first eleven self-study courses, which were all available starting in 1988. Many have enrolled in more than one course, and are awaiting the start of the UW-DMC Disaster Management Diploma program.

Although the idea of a structured Disaster Management Center Diploma curriculum has always been the basis for course development at the UW-DMC, delays have prevented the establishment of this Diploma. Preliminary guidelines for the DMC Diploma suggest a requirement for 60 Continuing Education Units (CEUs), or the equivalent of 600 educational contact hours. These CEUs would be earned through UW-DMC self-study courses or training workshops, courses from other recognized continuing education programs as well as traditional undergraduate and graduate university courses, and on-the-job projects.

In conjunction with the development of these self-study courses, the UW-DMC has established both formal and informal collaborating relationships with many educational institutions worldwide. Formal agreements have been made with the Centro de Treinamento para Prevenção de Emergencias da Regiao Sul (1988) in Florianopolis, Brazil and with the University of Puerto Rico (1991) in San Juan. Informal collaborating arrangements exist with organizations such as the Asian Disaster Preparedness Center in Thailand, the Oxford Disaster Management Centre in England, the National Building Technology Center in China, the Centre de Recherche sur l'Epidemiologie des Desastres in Belgium, the Joint Assistance Centre in India, the Cranfield Disaster Preparedness Centre in England and the Pan-African Centre for Emergency Preparedness and Response in Ethiopia. This network of collaborating institutions works in both the development and administration of self-study courses, as well as other activities. The network continues to grow.

UW-DMC self-study courses available at this time include: Aim and scope of disaster management; Principles of management; Natural Hazards: causes and effects; Disaster preparedness; Damage and needs assessment; Disaster response; Environmental health management after natural disaster; Health services organization in the event of disaster; Emergency health management after natural disaster; Epidemologic surveillance after natural disaster and Emergency vector control after natural disaster. Most courses are available in English and Spanish. Funding for the development of these self-study courses was from the Office of U.S. Foreign Disaster Assistance, U.S. Agency for International Development (OFDA/USAID) and the Emergency Preparedness & Disaster Relief Coordination, Pan American Health Organization (PAHO). In addition, PAHO provides limited scholarship funds for individuals from Latin America and the Caribbean to enroll in our program. Additional courses at various stages of development include: Refugee camp planning; Water and sanitation in refugee camps; and Famine
assessment and relief. Funding for the development of these additional self-study courses has come from the Bureau of Refugee Programs, U.S. Department of State and U.S.A. for Africa.

Over the next five years, the UW-DMC hopes to secure funding for an additional 5–10 self-study courses. All course development funds come from sources outside the University of Wisconsin. The University provides administrative support for the printing and distribution of courses and the maintenance of student transcripts as part of its permanent curriculum of over 500 Independent Study courses. For the future, based on three decades of experience in audiographics distance education at the University of Wisconsin, the UW-DMC is now developing models for teaching disaster management courses interactively via our computer-based, telephone audiographics network, WisView.

TRAINING SEMINARS AND WORKSHOPS

The University of Wisconsin annually offers over 500 continuing education workshops in engineering, business management, public administration, public health, medicine and agriculture. In engineering alone, more than 14,000 professionals attend courses each year in Madison and other locations. The UW-DMC provides this sort of on-site training in both disaster management and refugee emergency management.

Emergency Management Training Programme (EMTP)

In 1985, representatives from the United Nations High Commissioner for Refugees (UNHCR) came to the UW-DMC with a request to develop and present a special training program for refugee emergencies. In conjunction with the Emergency Unit (now, the Emergency Preparedness and Response Section) of the UNHCR, the UW-DMC identified experts in the field of refugee emergency management and worked with them to prepare course materials and teaching formats as part of a comprehensive training system. The result was an organized series of teaching materials on refugee emergency management available in practical and accessible form to all interested organizations.

The seminars and workshops that form the EMTP are geared for mid-career managers from the UNHCR, other UN agencies, government agencies and non-governmental organizations, all working in refugee emergencies. Besides the basic texts produced for each subject, a series of videos and slide/tape presentations have been developed for self-study outside the workshop format. In the past seven years, some 1,800 individuals, representing more than 150 organizations and 75 countries have participated in these training activities in Madison and throughout the world. For 1992, workshops were held in the Middle East, Africa and Eastern Europe. The EMTP is described in greater detail in a previous issue of Disasters (Sargisson, 1991).

Disaster Management Training Programme (DMTP)

In 1990, the United Nations Development Programme (UNDP) and the United Nations Coordinator for Disaster Relief (UNDRO) started a program to develop a framework for training on a global scale. The two UN agencies were looking to provide a catalyst for disaster management training (internationally and nationally), while focusing initially on strengthening the capabilities of their own staff. Jointly, UNDP and UNDRO asked the UW-DMC to serve as the developer of disaster management training materials and the trainer of trainers for this worldwide project.

Over several years, some 3,500 persons from over 60 countries will have the opportunity to learn directly from DMTP training materials in more than fifty training events.
A cadre of experienced UN staff from DHA-UNDRO, FAO, UNDP, UNHCR, UNICEF, WFP and WHO has been oriented as trainers. These UN trainers will work regionally with experienced disaster management training organizations in Africa, Asia and the Pacific, the Middle East, Latin America and the Caribbean. Five regional courses have been held already and more than twenty country-level courses will have been held by the end of 1992. It is anticipated that additional thousands of people will benefit through on-going regional, national and community-level training activities, initiated as followups to DMTP courses.

A collection of training materials has been developed for use in the DMTP with more scheduled for development over the next year. These materials will be available initially in English, and eventually also in Spanish and French. The basic materials are training modules, composed of a text and trainer’s guide, which can be used for self-study or for training groups. The modules contain materials which can be taught in half day training workshops on the following subjects: Disaster and development; Disaster mitigation; Disaster preparedness; Disaster assessment; Displaced persons in civil conflict; and Vulnerability & risk assessment.

There is also a larger training module, An overview of disaster management, designed for use in a two-day workshop. The other half-day training modules scheduled for development this year include: Introduction to hazards; Disaster economics; Disaster & the environment; and Drought & famine.

Each of the training modules is developed in the same fashion as UW-DMC self-study courses. Individuals with field experience are asked to share their expertise in preparing the materials. Others identified as experts in the field are then asked to review the materials and suggest modifications, if needed. All materials are then edited and desktop-published for dissemination by the UW-DMC. More than fifty disaster management professionals from over twenty countries have been involved in the production of these first DMTP training modules. In addition to these training modules, the DMTP will also offer training videos and teaching case histories on many aspects of disaster management. There is also a research agenda for disaster and emergency management prepared as part of DMTP. For a more complete discussion of the ideas behind the DMTP, see the article by Philip Sargisson in UNDRO NEWS (Sargisson, 1990). For a recent update, see the 1992 article in the same publication (UNDRO, 1992).

THE NEXT DECADE

Soon to embark on its second decade, the UW-DMC will continue to develop and administer an expanded self-study program in disaster and emergency management. Working with various United Nations agencies, the UW-DMC will expand its training activities and assist in the development of a distance education program for disaster management within the UN system. There is potential for using existing electronic mail systems, such as UNIENET, for some forms of distance learning. There is added potential for using economic audiographic systems, such as WisView, or more expensive video conferencing systems for other training activities. Working also with bi-lateral donor governments and non-governmental organizations active in disaster/emergency management, the UW-DMC will continue to develop special training materials on request.

Sadly, disaster continues to be a part of the world’s process of advancement. Disaster management provides a possibility to address not only the traditional relief aspects of a disaster, but also the more effective mitigation and preparedness aspects before a catastrophic event. Only by taking advantage of the development opportunities offered, even in disaster, can
we expect to move forward in world development while at the same time saving lives and reducing destruction inherent in any disaster.

For further information on any UW-DMC work, please contact Don Schramm at the address shown, or by UNIENET at UNX042 or fax at 608/263-3160.

References


Don Schramm
Disaster Management Center
University of Wisconsin-EPD
432 North Lake Street
Madison, Wisconsin 53706
USA
An old saw asserts that if something happens once, it is an accident; if it happens again, it is a coincidence; and if it happens a third time, it is enemy action. By extension, if it happens a fifth time, it may connote institutionalization. In the case of the Hunger Research Briefing and Exchange at Brown University, which has been an annual event over the past five years, one can hope that institutionalization is indeed what has happened and that there will be many more annual reiterations in the years ahead.

Creative reiteration was again apparent in this year’s meeting. The theme in 1990 had been, appropriately, ‘Reducing Hunger in the 1990s’, and that meeting had been heavily grounded in the Bellagio Declaration of November 1989, which set goals and identified broad strategies for ‘Overcoming Hunger in the 1990s’. The 1991 meeting, in turn, was entitled ‘Implementing the Bellagio Declaration: Ending Half of the World’s Hunger by the Year 2000’; it focused on specific ways of pursuing the goals set. This year’s banner, ‘Sharing Experiences: How to Reduce Hunger by the Year 2000’, heralded a conference oriented to an assessment of actual programs and events (such as the Gulf War) and of the issues highlighted by them. If the logic holds, one can anticipate a meeting in the next year or so devoted to evaluation of performance and measurement of progress (a kind of intellectual mid-course correction) and at the end of the decade a review of what has and has not been accomplished.

This year’s Briefing again featured plenary and parallel sessions and again intersected with other events, notably presentation of the Feinstein Awards for the Prevention and Reduction of World Hunger. Approximately 150 persons attended, academics and practitioners alike having interests ranging from global to local. Sponsorship was by the Alan Shawn Feinstein World Hunger Program at Brown University, again joined by InterAction, the American Council for voluntary International Action (a consortium of private voluntary organizations with international programs).

The opening plenary session consisted of an eloquent address by Robert Kates of Brown University on ‘Meeting Human Needs in a Changing World’. The closing address two days later was given by Ronald Roskens, Administrator of the United States Agency for International Development. He talked about the competing pressures on American international assistance, pointing to the dilemma of rising demands and diminishing resources while asserting a commitment to engagement and ‘program adjustment’ (greater focus, more emphasis on performance, tying aid to economic and political freedom) now that distortions induced by the Cold War can no longer be justified. Panel commentary following this address plus questions from the floor betrayed a healthy dose of skepticism on just about every substantive point raised by Mr Roskens.

In between these addresses were two tracks of parallel sessions running almost a day and a half. One track — broad-gauged and interdisciplinary — considered such topics as ‘Eliminating Famine Deaths in Zones of Armed Conflict’, ‘Ending Hunger in Half of the Poorest Households’ (these both being goals enunciated at Bellagio), and ‘From Micro to Macro and Back’. The second track — much more nutrition-oriented — considered such topics as ‘Cutting Malnutrition among Women and Children’, ‘Eliminating Vitamin A and Iodine Deficiencies’ (also Bellagio goals), and ‘Assessing Progress in Overcoming Hunger’. Unfortunately, the ecumenical and cross-fertilizing potential of the Briefing was somewhat compromised by this structure, which tended to isolate the nutrition community from the rest, reaffirming an isolation that nutrition already faces in international development.

Informing these two tracks were five panel discussions in each. The first track began with a panel on ‘Humanitarianism and War’, a recurring theme at recent Briefings reflecting
work in progress at Brown University. This was followed by ‘After the Wars: Restoring Food Security’, a panel that explored the situations in Iraq, Ethiopia, Mozambique, and El Salvador. Later panels addressed the Rural Support Programme established by the Aga Khan Foundation in northern Pakistan (very impressive but with limited potential for replication elsewhere); several programs to enhance household food production based on seed distribution, radio communications, and environmental management; and credit schemes that successfully reach and benefit the poor.

The second track began with a panel on ‘Integrated Approaches to Maternal/Child Health and Nutrition’, followed by panels on breastfeeding and weaning, micronutrient deficiencies (including a panel on Indonesia’s experience with Vitamin A fortification), and monitoring and evaluation techniques. Non-track panels during the Briefing addressed hunger curricula and two upcoming conferences, the United Nations Conference on Environment and Development (UNCED) scheduled for June 1992 in Rio de Janeiro, and the FAO/WHO-sponsored International Conference on Nutrition (ICN) scheduled for December 1992 in Rome. Opinion concerning these conferences ranged from hopefulness to concern that little of value would emerge from them, especially the ICN.

This year’s Briefing was accompanied by two special events scheduled to take advantage of it. First, the Humanitarianism and War project at Brown University hosted a one-day consultation attended by 26 experts drawn from a range of UN agencies, governments, NGOs, and the ICRC. The consultation consisted of a detailed critique of a manuscript drafted by Thomas G. Weiss and Larry Minear, ‘Principles and Policy Guidelines for Aid Practitioners in Situations of Armed Conflict’. This thoughtful document summarizes humanitarian principles and their application in conflict situations, and works toward a code of conduct for aid practitioners. A revised draft is to be circulated shortly, and a final version should be published by year’s end.

The second event consisted of a special session devoted to the Medford Declaration to End Hunger in the U.S., a domestic counterpart to the Bellagio Declaration that seeks to rally a broad coalition of interest in support of this worthy goal. A combined effort of World Hunger Year, The Food Research and Action Center, and the Center on Hunger, Poverty and Nutrition Policy at Tufts University, the Medford Declaration proclaims the need and opportunity to virtually eliminate hunger in America by 1995 and to achieve economic self-reliance for most American households by the year 2000. For more information, contact J. Larry Brown at Tufts.

Finally, as in past years, the Briefing accompanied the annual Alan Shawn Feinstein Awards for the Prevention and Reduction of World Hunger. The Awards dinner and ceremony have become occasions of great artistry, dignity, and meaning. Honorary Chairperson this year was Audrey Hepburn, actress and UNICEF Goodwill Ambassador who experienced hunger as a child in Nazi-occupied Holland and who now speaks with extraordinary grace and power on behalf of children throughout the world. Award recipients were James C. Ingram, recently retired as Executive Director of the World Food Programme; the Developing Countries Farm Radio Network, which was established in Canada by George Atkins in 1979 and now has an audience of more than 100 million listeners in 94 countries; and the Cordes Foundation (Foundation for Cooperation between Displaced People of El Salvador), which since 1985 has been helping villagers return to their homes, reclaim their livelihood, and work toward economic betterment and democracy. The Feinstein Awards, in honoring distinctive achievement, are a perfect complement to the probing professionalism of the Briefing itself.

Whether the Bellagio and Medford declarations will be realized in the time frames advanced, or even ever, is problematical. They are, of course, political documents intended to induce political action to achieve politically-defined goals that are, at one and the same time, virtually impossible to disagree with yet extremely difficult to energize, activate, and sustain. This is a cruel dilemma facing most efforts to eliminate hunger. In the past five years the Brown University Hunger Research Briefing and Exchange, along with the Feinstein Awards, has become a benchmark of commitment, action, learning, and achievement in a long and arduous process. Does five years imply institutionalization? Let’s hope so.
Three decades of development aid have failed the world’s poor. The new goal of ‘sustainable development’ has the potential to reduce the number of those who suffer, but it requires more than just technical solutions. It can only be achieved by reducing inequalities of access to resources, and recognising people’s rights to be involved in development planning and implementation. For it to succeed, the rich must share more of their wealth and the powerful concede some of their power. More of us must agree to consume less and everyone must cooperate to avert the preconditions for disasters. Otherwise the poor and weak will remain vulnerable by having less than they need and, in desperation, sometimes destroying what little they have.

There has been some work done on the ways in which people can be involved more effectively in resource related development programmes, but much more needs to be understood before sustainable development is attained. According to The United Nations Research Institute for Social Development (UNRISD), most of the work to date has tended to ignore local knowledge, culture, politics, and power structures. Information about social dynamics and macro-level structural factors which influence and constrain people’s participation in conservation and resource management remains scarce.

In response to this situation, UNRISD instigated a research programme on Sustainable Development through People’s Participation in Resource Management, and invited researchers, practitioners and activists to explore ways of advancing knowledge and influencing the policies of governments and donors in this area. The first phase of the programme was the organisation of an international workshop in May 1990. A research framework was devised and four case studies were commissioned on (1) environmental movements in India; (2) local technical knowledge of forest resources in Ghana; (3) overviews of pastoral land tenure in eight selected African countries; and (4) an assessment of environmental projects in 14 Sahelian countries. In each case three interdependent dimensions are to be considered: traditional management of resources, popular resistance to environmentally destructive projects, and grass-roots involvement to conservation activities that are initiated outside the community.

In collaboration with the Foundation for International Studies of the University of Malta, UNRISD initiated the second phase of the programme with a conference on the Social Dimensions of Environmental and Sustainable Development. The purpose was to draw on the preliminary findings from the case studies with a view to: increasing awareness of the social issues involved in environmental rehabilitation; discussing relatively unexplored linkages between social institutions and environmental change; formulating policy recommendations that promote the complementary goals of fostering social progress and maintaining environmental integrity; and identifying areas in which further research will be able to make a concrete contribution towards the resolution of the environmental and social problems facing the world today.

Sessions were held on indigenous resource management systems, grassroots environmental initiatives and movements, gender and the environment, population—environmental linkages, development problems in Malta, urban and industrial pollution and water resources. Key research findings and policy recommendations to emerge included the following.

Social dimensions: Policy makers, development planners and researchers have given insufficient attention to the important role played by social, cultural and political factors in processes of environmental change. Participants emphasized the extremely negative consequences of
environmental degradation on health, nutrition, income, employment, and workloads, particularly for poor people and women. They also warned of the increasing danger of social conflicts and illegal activities associated with natural resource exploitation.

**Women:** Development programmes and projects should be more supportive of women by encouraging their participation in both the design and implementation of schemes that involve environmental protection. Case studies from Malaysia, Kenya and Mexico showed that women often play a central role in the use and management of natural resources and, in many countries, are most immediately affected by environmental degradation. For example, women of Embu district in rural Kenya have traditionally collected firewood at little or no cost. However, due to forest clearance, privatisation of common land, and population pressures, fuelwood has become a commercial commodity controlled by men. As a result of fuelwood scarcity women are also being forced to cook less nutritious foods so as to save on fuel use.

**Land rights:** In many countries the traditional rights of local people to land, trees and water are being undermined by inappropriate new legal and administrative frameworks. Participants cited cases from pastoral societies in Africa, tribal areas of India, and peasant communities in Costa Rica where privatisation and nationalisation of land had diminished people’s access to it. This is threatening the sustainability and adaptability of local resource management systems, obstructing customary conservation mechanisms, and stifling initiatives for rehabilitation of degraded resources.

**Population:** It was reaffirmed that in many countries population growth is a key exacerbating factor in environmental degradation. However, case studies from Pakistan and Costa Rica showed that the population-environment nexus is extremely complex and varies in different contexts. While policies for curbing family size still have a role in protecting the environment, a more comprehensive approach that emphasises social development and justice is required if people are to enjoy more equitable access to resources such as land.

**Local resource management and grassroots initiatives:** Because of the inherent resourcefulness and wealth of knowledge of many natural resource users, participants stressed the need to transfer more responsibility for resource management to local communities. Collective action and environmental movements have had a crucial role in ensuring that governments and agencies direct resources in favour of poor communities and protect resources on which they depend for survival. In Brazil, for example, environmental movements have prompted a significant change in government policy which has slowed rates of deforestation. However, much more needs to be done to transfer power to local land users. Pastoral commons in Hanang district of Tanzania are being divided up into villages that could destroy the Barabaig pastoralists’ grazing rotation and deny them control over future land use.

**Conservation programmes:** Participants felt that the orientation of too many conservation programmes has been to preserve natural resources and wildlife at the expense of local land users. This approach has proved costly and failed to protect many conservation areas from encroachment and poaching. To overcome this a new approach was proposed that involves local people more in planning, and provides them with greater benefits. More account needs to be taken of local people’s knowledge, their cultural perceptions, and property rights. Programmes also need to be more process-orientated, have extended time frames, greater flexibility in defining goals and methods, and place less reliance on **ad hoc** interventions.

A detailed report on the conference is being prepared by UNRISD and will be available on request. For more information contact Adrienne Cruz, Programme Information, UNRISD, Palais des Nations, CH-1211 Geneva 10, Switzerland.

**Charles Lane**
International Institute for Environment and Development
3 Endsleigh Street
London WC1H 0DD
Development after Disaster: a Conference on the Horn of Africa, University of Manitoba, 29–30 May 1992

The aim of this meeting — the first major conference on the Horn of Africa to be held in western Canada — was to bring together academics, NGO staff and government officials to discuss the new situation in the region, following the fall of the Ethiopian government of Mengistu Haile Mariam and its replacement by a transitional government organised by the Ethiopian People’s Revolutionary Democratic Front (EPRDF). The conference was sponsored by the Eritrean Relief Association in Canada (ERAC) and the Disaster Research Unit at the University of Manitoba, assisted by the Africa Working Group — IDEA Centre/CEDA.

The key-note speaker, Abdulrahman Babu, presented an overview of the changing scene in the region and, in a pre-conference public address, examined the economic prospects for Africa in the ‘New World Order’. That situation appears grim but Babu argued that Eritrean self-reliance offers valuable lessons for the continent as a whole. While stressing that peace, security and development were the responsibility of the people of the Horn themselves, Babu also pointed out the international dimensions of the conflicts which have ravaged the area and suggested that the international community still owes a debt to the Horn, particularly in the case of Eritrea. Largely due to the efforts of the United States, the United Nations had arranged the disastrous federation of Eritrea with Ethiopia. Babu pointed out the role of both the United States and the former Soviet Union in intensifying and prolonging regional conflict and suggested that both should finance reconstruction in the Horn, particularly in Eritrea.

The Eritrean situation became a major focus of the conference. After three decades of war, Eritreans can now turn their attention to another struggle, that of rebuilding the country and attempting to implement effective development. Dr Araia Tsegai and Dr Okbazghi Yohannes presented important papers on the political and economic issues facing independent Eritrea, reiterating the need for Eritreans to re-examine the alternatives and to look beyond the formulas of the past. The Provisional Government of Eritrea established by the EPLF will have to implement both a new bureaucracy and a new economic system in line with its orientation towards democratic capitalism. A new regional framework is essential for both the economic and political security of Eritrea. This framework must encourage economic growth and job creation for the demobilizing armies.

In the new context of peace in Eritrea and Ethiopia, Dr Timothy Shaw defined the key issues as food security and environmental protection and suggested several interesting initiatives for maritime development in the context of new regionalisms. Dr John Loxley discussed some of the broader economic developments in the Horn, pointing out a number of grave difficulties in terms of food security, debt and declines in agricultural income. Loxley noted that the new enthusiasm for privatization across the continent is shared in the Horn but warned that the effects are unclear. Questions were also raised regarding the possibilities for capitalist development in the Horn.

Tsehay Habtemariam, of the National Union of Eritrean Women, discussed the situation of Eritrean women, this session was received with great interest; it was taken up later in relation to refugee repatriation by Dr Helene Moussa and in a ‘Gender and Development’ workshop by Dodo Motsisi and Ben Rempel. Women refugees returning to Eritrea clearly face a number of special problems; many have been raped or were forced into prostitution and questions were raised about how they would be accepted and re-integrated into their communities. Moussa also indicated that Eritrea would now have to transform itself from a ‘war culture’ to one of peace and that this would pose certain problems for women in particular.

Justin Kiwanuka, of Disabled Peoples International, made an eloquent and very moving speech concerning development and the disabled. Conflict in the region has made this a particularly serious issue, not only for the combatants; the civilian population of Eritrea was targeted and land mines will present a continuing threat to farmers and pastoralists. Visitors to the Port Sudan and Suakin clinics in the past know the efforts made by the EPLF to reintegrate the disabled and the obstacles presented by a severe lack of resources. The possibilities for fruitful collaboration between Eritrean and international agencies are many and such efforts
Irene Mathias of the Canadian International Development Agency and Gaetane Gascon of OXFAM discussed Canada’s contribution to relief and development in the Horn, from government and NGO perspectives, respectively. There has been considerable debate over appropriate strategies for aid to the Horn and while new understandings seem to have been reached on Eritrea and Ethiopia, urgent problems and possibly even greater difficulties exist in Somalia.

One of the most remarkable aspects of relief operations in the region has been the activities of indigenous organizations such as the Eritrean Relief Association and the Relief Society of Tigray. ERA, in particular, has been hailed as operating the most effective relief operation in Africa, even by those who have been opposed politically to Eritrean nationalism. The end of conflict in Eritrea requires new strategies and ERAC members Araia Desta, Sherry Phillips, Paulos Gebreyesus, Joseph Froese and Laraine Black presented a number of their projects for reconstruction in Eritrea, including plans for reforestation, for development of solar ovens and for establishment of television services. The solar ovens, created by ERAC in Saskatchewan and funded by Canadian NGOs, sparked considerable interest at the conference and Froese created a lighter mood by producing a tray of cookies baked on the portable ovens during the afternoon sunshine.

Saturday morning was devoted to conditions in Ethiopia. Mr Dina Mufti of the Ethiopian Embassy outlined the government’s position on future development. This was followed by a concise outline of necessary conditions for development by Abdallah Abdu. During this session, the situation of the Oromo emerged as a very contentious issue. Sisai Ibssa and Dr Mohammed Hassen argued that conditions have not changed despite the collapse of the Derg and that Ethiopians were still attempting to impose their own national identity on them. Discussions were emotionally charged and Oromo participants pointed out human rights abuses by the forces of the provisional government established by the EPRDF. While Sisai argued that an independent Oromia was required, Mohammed seemed to suggest that there was still some possibility for resolving issues within the context of a united but democratic Ethiopia. Regardless of which course is taken, it is clear that the grievances of the Oromo can no longer be ignored and this issue will be critical for the future of Ethiopia.

Saturday concluded with a discussion on refugees. Dr John Rogge indicated the dimensions of the problem, in particular, the situation of internally displaced people who have not been recognized as refugees and who thus have not received international assistance. William Deng Deng and Yohannes Gebreselassie discussed the background to the refugee situations in southern Sudan and Tigray, respectively. Decades of conflict in the Horn have produced one of the world’s largest concentrations of refugees and while the end of conflict in Eritrea offers the prospect of repatriation for many, that process will not be easy. Eritrea’s infrastructure has been completely destroyed and there are critical problems related to immediate needs in food, health care and housing, as well as the longer-term issues of resettlement, education and employment.

In the closing session, Richard Chappell, from the Canadian government’s External Affairs department, remarked on dealing with Eritrea in this transitional period. While this period offers a number of unique opportunities, the diplomatic situation is complex and, as Tim Shaw pointed out, a key role can be played by non-governmental organizations and quasi-governmental development networks such as the Canadian Council for International Cooperation and Partnership Africa Canada.

The organizers had hoped to include discussions of the current crisis in Somalia, however, none of those invited to address that issue could attend. Attention to the appalling situation in Somalia would have given a different tone to the sessions which were generally optimistic, particularly concerning the potential for development in Eritrea. Despite this gap, the consensus was that much was gained from the discussions. Clearly, the conference did not seek to resolve the many complicated issues of ‘development after disaster’ but to contribute to an on-going dialogue. A volume of papers and specially-written essays is being prepared to move that dialogue ahead and contributions are invited. Please contact:

John Sorenson
80 Plaza Drive #2707, Winnipeg, Manitoba, R3T 5S2, Canada
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