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**HUMANITARIAN EMERGENCIES: INDICATORS,
MEASUREMENTS, AND DATA CONSIDERATIONS**

Helinä Melkas

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UNU World Institute for
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The author, a participant in the 1996 UNU/WIDER Internship Programme, prepared this study within the UNU/WIDER Project on the Wave of Emergencies of the Last Decade: Causes, Extent, Predictability and Response, co-directed by Professor Wayne Nafziger, Senior Research Fellow, and Professor Raimo Väyrynen, University of Notre Dame, Indiana, USA. UNU/WIDER gratefully acknowledges the financial contribution to the 1996 Internship Programme by the Special Finnish Project Fund of the Ministry for Foreign Affairs of Finland.

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ABSTRACT

This Research in Progress report is divided into two parts. Part I studies the operationalization and indicators of the different elements of complex humanitarian emergencies. It includes discussions of what to try to measure when looking into the magnitude of emergencies and why, what data are available for that purpose, and what are the basic limitations concerning recency, accuracy, comparability and availability of such data.

The paper is a contribution to future studies concerning quantitative indicators of crises. It outlines only methodological issues, leaving out a discussion of policy implications at this early stage of the analysis. The paper also includes some preliminary conclusions of analyses of data for a large number of developing countries on the different elements of crises, such as hunger, diseases, deaths due to wars, and displacement.

The elements of complex emergencies are seldom systematically measured, and are in fact often unmeasurable. This is likely to lead to major problems and even distorted conclusions in statistical analyses. Yet, such problems often do not attract sufficient attention.

Part II contains a discussion of Amartya Sen's entitlement theory as a plausible explanation of humanitarian emergencies. It is suggested that it can be used for organizing the search for causes of emergencies by incorporating new types of entitlements that cover the various - not only economic, but also political, institutional, cultural, etc. - causes of emergencies. The preliminary remarks of Part II should also be useful in building a model of causes of humanitarian emergencies. Part I of the paper examines a few variables to illustrate the existence and extent of human suffering, and discussing causes of emergencies (Part II) with a somewhat modified entitlement approach broadens the analysis of complex emergencies.

PART I: ELEMENTS OF EMERGENCIES

I

INTRODUCTION

1.1 The problem

The topic of human-made humanitarian emergencies is very timely, as their number and magnitude have risen and they have become more visible in the post-Cold War years. An ever increasing share of development aid is being spent on humanitarian aid, and the numerous mainly intranational conflicts and emergencies are a serious threat to world security. Needless to say, the extent of human suffering they bring about is unmeasurable.

Partly due to the major changes in the global security system it can be argued that in the post-Cold War era military alliances and policies of non-alliance have become somewhat less relevant. As conflicts that result in humanitarian emergencies are often intranational, it is no longer sufficient for a country to declare itself neutral and draw back. Instead, it is necessary to pay much closer attention to human security at the individual, group, community, and regional level. Aiming at increased human security (including economic, food, health, environmental, personal, community and political security¹) is a crucial preventive measure as such security, among other positive consequences, makes individuals less likely to feel attached to enemy perceptions and threat images.

Many recent humanitarian crises have had a strong ethnic and minority aspect, although their roots are usually at a far more general level. The concept of human security stresses the interaction of various levels from the international to the individual. Marginalization makes perceived threats more pronounced and relevant, and increases the opportunities of extremists to make their messages heard. Fortunately, in post-Cold War years, economic matters are no longer in the shadow of the security debate, but have become more pronounced.

1.2 Background and scope of the paper

In the study of humanitarian crises, one may distinguish at least five approaches related to different stages of a crisis. Focus may be on (i) root causes, (ii) causes that trigger a crisis and contribute to the 'falling down from the cliff', (iii) factors that sustain the crisis, (iv) humanitarian aid considerations and international action when the crisis has erupted, and (v) rebuilding of war-torn and other crisis societies. Obviously, all the

¹ See UNDP Human Development Report 1994.

different approaches are interlinked in a jungle of causes and consequences, which needs to be kept in mind when looking into one of them.

The UNU/WIDER project concentrates on root causes of emergencies - factors and processes that in the long run make a country vulnerable to a human-made disaster. In the study of complex emergencies, distinguishing between economic and political factors is perhaps particularly difficult², and these underlying causes may be hidden behind a cultural, ethnic, or some other 'curtain'. However, failing to see what lies behind the surface is likely to lead to serious mistakes in aid considerations and efforts to rebuild emergency societies, and such mistakes may in turn maintain or increase structural vulnerability to a subsequent disaster. The *political economy* approach is one step towards avoiding such misconceptions.

This Research in Progress report is descriptive rather than explanatory. Part I of the paper serves as a partial introduction to the problem and measurement of the magnitude of emergencies. It deals with possible indicators of definitional elements of humanitarian emergencies. Some indicators developed in previous research to represent the different characteristics and causes of humanitarian emergencies are listed in the Appendix. This paper is also a background study to contribute to the development of a framework for predicting and identifying potential cases of humanitarian emergencies for early warning purposes.

The paper is organized as follows. In Part I on elements of complex humanitarian emergencies - after definitions of humanitarian emergency (section 1.3) - basically two issues are discussed: (i) decisions on what to try to measure and why, and (ii) what data are available on those measures (sections 2, 3 and 4). Possibilities to undertake comparative analysis of cross-country time-series data on emergencies are examined. After tentative conclusions on Part I (section 5), Part II (section 6) includes some preliminary remarks on root causes of emergencies, as this analysis may lead to further quantitative studies. It examines Amartya Sen's entitlement theory. The lengthy appendix lists some previous theoretical and empirical efforts to identify determinants of emergencies and understand processes behind them. The paper outlines only the methodological approach, leaving out a discussion of policy considerations at this early stage of the analysis.

Each country and each emergency is different, and the importance of factors that characterize a country or region cannot be overemphasised. This applies to causes of emergencies in particular, but should not be forgotten when discussing definitions and elements of crises. However, a general set of variables needs to be chosen for identifying crises, measuring their magnitude and developing a theoretical framework of

² It has been stated about the nature of political power that 'it is rooted in and continually dependent upon cooperation and obedience' (Gene Sharp, cited in Bond and Vogeles 1995: iv). Cooperation and obedience can be withdrawn, especially - one may argue - in circumstances where economic factors have resulted in people's miserable living conditions. Alesina and Perotti (1996: 1205-1206) bring up the important issue of 'joint endogeneity'; i.e. political instability affects aggregate economic outcome, but the latter also influences executive instability. Thus, in order to see the whole picture of a crisis, this cyclical character of the underlying process needs to be recognized.

factors accounting for the eruption of humanitarian emergencies. The UNU/WIDER project will construct indicators, even composite ones, and apply them to the identification of potentially risky areas, but that does not belong to the scope of this paper. Such indices may be needed, for instance, in identifying economic, social and political measures to be promoted in crisis areas and elsewhere.

1.3 Definition of humanitarian emergency

Väyrynen's definition of a humanitarian emergency is as follows: 'a profound social crisis in which a large number of people die and suffer from war, diseases, hunger, and displacement owing to man-made and natural disasters, while some others may benefit from it' (1996: 23). A report by the United States Mission to the United Nations emphasizes that humanitarian emergencies 'result in the displacement and deprivation of large numbers of noncombatants' (The US Mission to the UN 1996: 1). The same report also defines an emergency according to victims' needs in the following way:

A humanitarian emergency is a situation in which large numbers of people are dependent on humanitarian assistance ... from sources external to their own society in order to avoid serious malnutrition or death; and/or large numbers of people are in need of physical protection in order to have access to subsistence or external assistance. (Ibid.: 1)

Numerous researchers have emphasized the *process* of a humanitarian emergency (see e.g. Duffield 1994; Keen 1991, 1994; de Waal 1990; Rangasami 1985, on famines; Väyrynen 1996). In other words, emergencies should not be seen as a sudden collapse, but the definition should adopt a view which emphasizes the gradual process, the culmination of which is likely to be a human-made emergency. A humanitarian emergency could thus be defined as a disaster resulting from a long-term destructive socio-politico-economic process - often exacerbated by cultural and/or historical factors - that gradually increases in intensity, and typically leads in its terminal phase to deaths due to direct violence, starvation, diseases, and/or to involuntary displacement of people. Such a definition would incorporate three important issues: (i) the complexity of the underlying factors; (ii) the process behind disasters, and (iii) the complexity of the characteristics of emergencies, and the difficulties in their identification and measurement.

II

INDICATORS AND MEASUREMENT ISSUES

The aim of Part I of the paper is to study the operationalization and indicators of elements of complex humanitarian emergencies. The paper describes the basis for future studies concerning quantitative indicators of crises by addressing the following questions, for example;

- Which variables could be used in the operationalization of the different aspects of emergencies? Are they valid?
- What are the main problems regarding these variables and the data?
- What are the implications of these considerations?

The paper is closely related to the work of Raimo Väyrynen. Definitional aspects of complex and simple humanitarian emergencies have been extensively examined by Väyrynen in his paper on humanitarian emergencies (1996). He made a major first effort to classify crises by their manifestations.

2.1 What we want

Väyrynen (1996) distinguishes between violent humanitarian crises, poverty crises and complex humanitarian crises. He presents the following list of countries that have experienced *complex* humanitarian emergencies: Afghanistan, Mozambique, Angola, Somalia, Rwanda, Liberia, Burundi, Sri Lanka, Sierra Leone, Sudan, Ethiopia, Eritrea, Myanmar (ranked in the approximate order of seriousness). This list is the basis of this study, but numerous other developing countries are also included in the analysis.

The different types of emergencies are here discussed as a group. An emergency may not be characterized by all the above-mentioned definitional variables, but they typically interact to produce and sustain an emergency (in fact, this is Väyrynen's criterion for a complex humanitarian emergency); famines may be associated with, for example, deaths due to intra- or intercommunity violence and/or diseases as well as refugeeism and internal displacement. On the other hand, internal displacement due to a local epidemic may exacerbate tensions in host communities and lead to food shortages and/or deaths due to violence, etc. The focus will not be on characterizing emergencies with 'pretended exactitude' (Sen 1981), but on *studying shifts and level of some of their main ingredients*.³

In order to measure the magnitude of complex emergencies, one has to choose variables that are related to their terminal phase; variables that measure deaths, diseases, hunger and displacement. Our suggestion that will be studied in this paper is as follows⁴:

³ A more detailed discussion of indicators of the different aspects of emergencies is found in Väyrynen (1996).

⁴ I am indebted to E. Wayne Nafziger for suggestions concerning the variables to be studied.

- Number of battle-related deaths in major armed conflicts per 1 million population;
- Number of refugees and internally displaced persons per 1 million population;
- Percentage of population with access to safe water;
- Daily calorie supply per capita;
- Child mortality (under 5) per 1,000 live births;
- Infant mortality per 1,000 live births.

The rationale for looking into data on, for example, calorie supply and access to safe water is described in the discussion in sections 2.4 and 2.5. The data on the variables are not included in this preliminary version of the paper.

Measuring these aspects is highly problematic. Recording practices may vary considerably, and even central concepts such as the word 'refugee' are subject to different interpretations. Measurement and data problems as well as data availability are examined in this paper. Väyrynen (1996) has investigated thoroughly variables related to deaths due to wars, displacement, and child mortality and undernutrition.

It is not possible to document systematically all of the variety of data incompatibilities and gaps across countries and their consequences for inference in a brief paper of this sort. Neither does the scope of this study include a discussion of remedies for the existing differences in the definitions of similar concepts across countries or over time (the importance of this was pointed out by Behrman and Rosenzweig 1994). For the individual variables, the paper tries to describe briefly (i) how the variables are conceived and defined in the database; (ii) what the origins of the data are and who produced them; (iii) how the data were collected; (iv) how the data were measured and by what instruments; (v) what data adjustments have been done; (vi) to which date they refer; and (vii) what qualifications, caveats or limitations relate to the data (Chamie 1994).

2.2 The quality, recency and abundance of data

At first glance, there is a wealth of statistical data available for this study, but it is plagued by problems of comparability, and for many relevant countries and variables especially recent information is lacking. General problems related to data on development apply particularly to this study that includes indicators of various types and investigates crisis societies. Countries that are likely to suffer, or are suffering from humanitarian emergencies have the least complete and reliable statistical information to offer, as a disaster typically leads to a complete collapse of the country's infrastructure. The characteristics of crises are seldom systematically measured, and are in fact often unmeasurable. Moreover, aggregate data cannot account for the asymmetric impact of

emergencies on different regions, communities, social classes, ethnic groups, age groups, women and men, girls and boys.⁵

Quality and accuracy of, for example, widely used social indicators of development - some of which are relevant in the study of emergencies - is a matter of serious concern, and it is not rare that analyses result in more or less seriously distorted conclusions (for discussions, see e.g. Srinivasan 1994a; 1994b; Chamie 1994; Behrman and Rosenzweig 1994; Fields 1994). The basic differences between statistics based on reported data and those based on estimation methodology are often not brought up sufficiently. In a data set consisting of cross-country time-series information such as statistics on crises one needs to be particularly careful. Some of the most pressing problems are discussed in the following sections.

2.3 Data from international agencies

Most international agencies do not collect primary data of their own, but use national data as the basis in their statistical yearbooks and other reports. National collectors of statistical data often use different concepts and methods, despite numerous attempts by the United Nations to standardize the concepts and methodology. Researchers are often not aware of, or do not see it as a serious problem that published data are characterized by biases and errors and lack of comparability, both intertemporal and international (Srinivasan 1994a). Validation and cross-checking of the data are not undertaken often enough. Moreover, publications containing general data on socio-economic variables do not always provide adequate information of the data sources and quality (Srinivasan 1994b; Melkas 1996).

Data gaps have been found to be systematically related to the level of a country's development (Behrman and Rosenzweig 1994).⁶ For example, Chamie (1994: 138) concludes that 'countries with incomplete, defective or non-existent vital registration data [on deaths] are generally the countries of Africa and Asia with higher mortality'. International agencies cannot influence the sex bias in the national data they reproduce, even if they would see the importance of disaggregation by gender.⁷ For example, Nafziger (1997) mentions the anti-female biases of various cultures that result in 'missing women' in statistics. Sen (1993) estimated the number of missing women in female-deficit developing countries and gave the figure 44 million for China and 37 million for India.

⁵ For example, intrahousehold inequality is discussed by Fields (1994). Inequality within households is usually ignored. To deal with the differences, information by each household member would be needed (such as the consumption of specific items, for instance food). Also Väyrynen discusses the issue of disaggregation in his paper (1996).

⁶ Behrman and Rosenzweig mention concerning educational statistics that the degree to which true school attendance is overstated in official reports may change over time, 'perhaps falling with the development process' (1994: 152). Over- or understatement is most likely a problem concerning crisis data submitted by national institutions - to a varying degree across countries.

⁷ However, issuing guidelines is a possible and important way to affect strategies in the long run.

2.4 Measuring battle-related deaths in major armed conflicts and displacement: The state of data

Estimates on the number of deaths and displaced persons may vary greatly in different sources (examples of the variation in the number of battle-related deaths are presented in Table 1). Figures are rough and speculative, and for purposes of computation for quantitative analyses, it is usually necessary to round them even more. Srinivasan (1994a) warns about presenting a single point estimate for an indicator for which the underlying database would suggest that the true value is likely to be within a broad range. This is usually the case with conflict-related deaths and displacement statistics and needs to be kept in mind when analysing any results of calculations based on them.

TABLE 1
NUMBER OF BATTLE-RELATED DEATHS IN MAJOR ARMED CONFLICTS
BY REGION, 1990-95

Region	1990	1991	1992	1993	1994	1995
Europe	74	6,000- 10,000	11,200- 21,400	14,200- 42,000	1,500	1,000- 33,000
Middle East	>3,500	>16,000	3,300- 4,500	3,000- 4,000	4,800- 12,000	3,250- 5,500
Asia	>15,000	>16,000	14,000- 60,000	23,500- 35,000	6,300- 15,000	>6,200
Africa	33,500	37,000	14,000- 40,000	25,500	25,000- 35,000	15,000
Americas	6,000- 7,500	3,200- 6,200	>5,400	<3,400	<1,400	<1,700

Note: Rwanda's genocide not included.

Source: IFRC World Disasters Report 1996, Table 16 (Data submitted by the Conflict Data Project, Uppsala University).

Conceptual and definitional consensus on the topics of conflict-related deaths and displacement does not exist. For example, according to UNHCR, many organizations gathering data on refugees use a definition that is too narrow, and the distinction between refugees and internally displaced people is often not clear - in press reports, for example (UNHCR 1995)⁸. Due to the growing complexity of humanitarian emergencies, UNHCR has chosen to record also all 'persons of concern to UNHCR', including refugees, returnees and internally displaced people, and the resident population; i.e. all persons who benefit from the organization's protection and assistance activities. For purposes of statistical analysis of emergencies, this approach might be useful. Collapsing the different categories of persons who benefit from UNHCR's assistance would still show the magnitude of the problem. However, the mandate of

⁸ UNHCR contends that information on refugees and internally displaced people provided by national governments may even be based on visual assessments (1995).

UNHCR may not cover all the aspects we would be interested in⁹, and for this reason, their collapsed category is not an indicator in this study.

After identifying numerous methodological and other problems in the collection of displacement statistics, UNHCR concludes by stating that

Serious statistical problems ... will almost certainly continue to arise in large, complex and rapidly changing emergencies, particularly when relief supplies are scarce and when the presence of refugees is a matter of political controversy. A life and death struggle for food and influence is hardly ever compatible with accurate enumeration (UNHCR 1995: 246).

Similar warnings can be found in the World Disasters Reports of the International Federation of the Red Cross and Red Crescent Societies. In their opinion, however, the apparent 'increase in the number of victims of disasters does not necessarily mean that human impact is increasing, but may simply be a reflection of better reporting. Information systems have improved vastly in the last 25 years and statistical data as a result are much more easily available' (IFRC 1996: 121). This progress in statistical coverage is also discussed by Chamie (1994) in the context of the registration of deaths. One might note, however, that the accuracy, coverage, availability and recency of data may have improved in 'normal' conditions, but this may be less relevant in societies with complex crises and for types of 'crisis data'.

Indeed, governmental and political circumstances have been found to influence greatly the availability and quality of databases that deal with population variables. Chamie (1994) discusses population size, life expectancy at birth and infant mortality in particular, and he emphasizes that governmental and political factors are often overlooked when definitions, methods of data collection and data quality are focused on in statistical and demographic analyses. He finds that 'the issues that fall within the governmental and political category are perhaps the most fundamental of all considerations in the production of demographic data and databases' (1994: 135).¹⁰ In a crisis society it is likely that these issues, if they have been problematic earlier, become even more pronounced.

In addition to deaths in conflicts, an important aspect to measure would be, for example, the number of people with disabilities due to violence. UNDP's Human Development Report 1996 gives the percentage of people with disabilities of total population (1985-92), but data are scarce, and it is not known which part of the percentage could be attributed to the crisis. An approach emphasizing the number of years lost or disrupted due to physical (or mental) disability or disease might be of use¹¹, but background

⁹ On the limitations of the mandate of UNHCR of importance to this study, see e.g. IFRC 1995 on the disasters database.

¹⁰ Important issues in this regard include, for example, (i) cooperation of the public; (ii) government commitment to data collection; (iii) data confidentiality and protection against misuse; and (iv) independence from unreasonable political and governmental influence (Chamie 1994: 135).

¹¹ This approach is used by, for instance, the World Health Organization.

information on what this state can be attributed to is, again, not available. There are also numerous other forms of violence that should be included in considerations about the magnitude of crises, such as the widespread rape that occurs to varying degrees in all conflicts (Mercier 1995). Quantitative data on rape - even where it is a systematized method of warfare - or other forms of torture and human rights violations are usually non-existent. Thus the number of deaths is left as the most suitable indicator, although the data are usually very rough and speculative.

Statistics on the number of refugees and internally displaced people include all types of disasters, whether natural or human-made. In addition, the World Disasters Report defines these two categories in a different way than what is conceived in the UNU/WIDER project.¹²

2.5 Measuring hunger and diseases: The state of data

Variables other than conflict-related deaths and displacement are likely to be slower to indicate change¹³, but they are needed to capture the multi-faceted characteristics of emergencies (famines, food shortages, and diseases). The percentage of population with access to safe water, for example, is an indicator which gives information on the overall development level of a country, but it may also be affected by disasters. As discussed by Väyrynen (1996), the numbers of people suffering and dying from diseases such as infectious diseases cannot be used as separate indicators or a combined indicator of the disease component of humanitarian crises, but lack of safe water is an important factor causing, facilitating, and disseminating infectious diseases.¹⁴

Frances Stewart (1993) divides the costs of war into two categories: immediate human costs and longer term development costs, while stressing that the two types affect each other and are difficult to distinguish, and therefore the division is somewhat artificial. In seeking to operationalize complex humanitarian emergencies, both types are taken into account by including two types of variables. Measuring hunger and diseases relates mainly to longer term development costs. Stewart discusses the indirect costs in particular, as they are usually far greater than military 'following lack of access to food and health facilities, and this can lead to deaths on a massive scale as well as widespread debilitation' (1993: 359). Statistics on indirect deaths are, however, rare and even less

¹² Natural disasters include: *drought/famine*; earthquake; flood; high wind; landslide; volcano; and other (avalanche, cold wave, *epidemic*, *food shortage*, heat wave, tsunami). Man-made disasters are defined as: accidents (transport accident, structural collapse); technological accidents (chemical, nuclear and mine explosions; chemical, atmospheric and oil pollution); and fire (forest and bush fires, as well as those caused by man). IFRC 1996: 120-121 (my emphasis).

¹³ The suggested variables could be divided into structural and dynamic, although this has earlier been brought up mainly in connection to causal variables (Auvinen and Kivimäki 1996).

¹⁴ In Alex de Waal's 'health crisis' model of famine mortality, all excess mortality is attributable to a changed disease environment that is the consequence of social disruption due to drought and famine, including drying wells, population crowding in larger villages and towns, and the breakdown of sanitary facilities. Lack of water and food are indirect causes of mortality - they cause migration and thus precipitate health crises - along with lack of opportunities for earning an income, etc. (de Waal 1990: 481).

accurate than the number of battle-related deaths. Thus Stewart discusses other indicators in the context of micro level costs; for example, daily calories as per cent of requirements, access to health services (per cent of population), infant mortality rate, maternal mortality rate, life expectancy, and literacy.

Amartya Sen (1995) has pointed out that data on mortality rates are good summary statistics of the effects of economic as well as non-economic policies on people's lives, and are thus a good measure of welfare. Germano Mwabu (1996) also notes that mortality statistics describe the state of human beings themselves, and are especially valuable when disaggregated by age group, gender or race. Väyrynen (1996) chose child mortality under the age of five to indicate the health component of humanitarian crises. Initially, we include in this analysis both infant mortality, which is very sensitive to overall health and sanitation and is widely used as an indicator of development, and child mortality.

There are major differences in the comparability and completeness of coverage in demographic data. For instance, in some countries, an infant must survive for at least 24 hours to be registered as a live birth. Infants who die before the expiration of the 24-hour period are generally not counted either as live births or as deaths (Chamie 1994). Infant mortality rate is thus often under-estimated, and in a crisis situation this is likely to be even a bigger problem.

Table 2 illustrates the gaps in completeness of coverage of data on deaths and infant deaths by region. Countries of Asia and Africa - where mortality is higher, and emergencies often erupt - are generally the ones with the most incomplete data. According to Chamie, estimated infant mortality rate in 1985-90 for Botswana, Honduras, Rwanda, Syria, and Thailand, for instance, is at least three times greater than the rate based on registered data. Trends in mortality are particularly difficult to examine. Chamie recognizes, however, that the situation has improved; more countries could give reliable estimates of death rates in 1990 than in 1975.

In the context of emergencies, the method for obtaining mortality data is particularly problematic. The different methods for compilation of national mortality data should be viewed as complementary due to weaknesses in each one of them (Chamie 1994; Behrman and Rosenzweig 1994). But in case of a crisis, no structured method may be possible; and if the accuracy of the data is low before the crisis, information about its extent is likely to be very rough. Srinivasan (1994a) is very critical; incomplete registration in many countries causes the data on causes of deaths to be 'practically useless'.

TABLE 2
COMPLETENESS OF REGISTERED DEATHS DATA BY REGION (%)

Region	Complete registration	Incomplete registration	N.K.	Total	No. of countries
Total	48.9	12.2	38.8	100.0	237
Africa	18.3	11.7	70.0	100.0	60
Latin America	69.4	22.4	8.2	100.0	49
Asia	20.9	18.6	60.5	100.0	43
Oceania	32.1	10.7	57.1	100.0	28

Note: Based on self-reported national assessments, registered deaths in civil registers are estimated to be:

- Complete: representing at least 90% of the events occurring each year;
- Incomplete: representing less than 90% of the events occurring each year;
- N.K.: not known, i.e., data for which no specific information is available regarding completeness.

Source: Chamie 1994, Table 2. (UN data, available as of 1 January 1992.)

Srinivasan discusses also data on hunger and undernutrition. He notes that 'the underlying concepts and the hazards of quantifying the extent of undernutrition from widely available data not suited for such quantification are poorly understood' (1994a: 18). For example, data may not allow for any activity other than maintenance of bodily functions and thus understate the extent of undernutrition. There are major problems in assigning a fixed energy requirement for an individual, and data on habitual or long-term food intake are not available. The last issue is related to our variable on daily calorie supply per capita, but the other problems mentioned seem to support the view that it is better suited for this analysis than daily calorie supply as a percentage of requirements.

Regarding famines, Alex de Waal (1990) notes that there is neither a straightforward link between impoverishment and starvation, nor between starvation and death. Indeed, 'disease-driven' mortality is a central fact of famines, according to empirical findings. For quantitative analysis these are major problems. Famine may occur long before there are any excess deaths. Deaths may not be the relevant indicator, or data may be very unreliable, as discussed above. De Waal gives an example of the Sahelian famine of the early 1970s and notes regarding the much-cited figure of 100,000 excess deaths in 1973 that 'they arrived at this figure by taking the highest single spot rate of mortality found and assuming that it is representative' (1990: 480).

Rangasami (1985) discusses the difficulties in distinguishing famines and food shortages. She includes a quote: 'Criteria do not exist to measure the degree of hunger, emaciation, or elevation of death serving to differentiate famine from shortage' (M.K. Bennett, quoted in Rangasami 1985: 1751). Rangasami also asks under what conditions mortality from diseases such as influenza or even heat or cold can be attributed to famine. Indeed, that is a question that characterizes the whole study of indicators of humanitarian emergencies, but to which a reliable reply may not even exist.

This discussion as well as the analysis in Väyrynen (1996) illustrate the existence of numerous problems in the specification of variables in developing a model to measure the magnitude of emergencies, and/or an explanatory framework of root causes of emergencies. The aim here, however, has been to emphasize that several variables are needed to illustrate the complex nature of crises; the variables may have different degrees of relevance, even across cases¹⁵; and the data must be viewed with considerable caution. If major shifts shown by the data are studied, and several or all of the variables point to the same direction, conclusions may be drawn. As Stewart notes concerning data on war-related deaths, 'the data ... must be treated with caution, but nonetheless one can have confidence that they correctly identify countries that have suffered greatly from war' (1993: 364).

III

DATA SOURCES

3.1 Battle-related deaths

The figures for battle-related deaths in major armed conflicts are from the yearbooks of Stockholm International Peace Research Institute (SIPRI), and they refer to total battle-related deaths during the conflict. Where figures are available separately for military and civilian deaths, this is indicated in the yearbooks; otherwise the figures refer to total military and civilian battle-related deaths in the period or year given. It is warned that information that covers a calendar year is more tentative for the last months of the year.

SIPRI defines a major armed conflict as a 'prolonged combat between the military forces of two or more governments, or of one government and at least one organized armed group, and incurring the battle-related deaths of at least 1,000 people during the entire conflict' (SIPRI 1996: 15). Although some countries are also the location of minor armed conflicts, only the major armed conflicts in those countries are listed. The definition of a major armed conflict has changed very little (since 1988 it has been shortened slightly by dropping 'involving the use of manufactured weapons' and by changing 'organized armed opposition forces' to 'at least one organized armed group').

The World Disasters Report 1995 used SIPRI yearbooks as sources for the number of conflict-related deaths and complemented them with other sources. In the 1996 World Disasters Report, the number of deaths is no longer given by country but by region. Only SIPRI yearbooks are used as sources throughout this study to increase comparability. SIPRI information is collected by consulting a large number of journals, newspapers and

¹⁵ This note is the first step in a process which may include further, more refined quantitative analyses. At that stage, the rationale for weighting the indicators needs to be carefully considered. If an index of complex humanitarian emergencies is constructed, E. Wayne Nafziger has tentatively suggested that the number of conflict-related deaths would be the major part of the index with 50% of the weight, whereas the number of refugees and internally displaced persons would be 30% and indicators of illnesses and starvation 20% of the weight.

news agencies. The data are almost always given as a range, for example 800-2,000 (Bosnia and Herzegovina in 1995), or as a minimum or maximum number, e.g. >1,000 (Afghanistan in 1995). Unfortunately, due to purposes of computation of this study, in these cases an average or the minimum or maximum number must be taken as the basis. Due to their nature, the SIPRI data include numerous exclusions and exceptions, and figures are often not available for a certain year but only as an aggregate figure from the beginning of the conflict.

3.2 Displacement

Displacement statistics are mainly from the World Disasters Report of the International Federation of the Red Cross and Red Crescent Societies. In the 1995 report it is indicated that the data have been received mainly from international organizations working in the field, such as UNHCR, WFP, UNRWA, etc., or from other organizations, and they are usually based on information from national governments. Statistics on internally displaced people are estimates, and the report discusses data problems in several paragraphs. In the 1996 report the data source is 'the best judgements of the US Committee for Refugees'. Discussion on data quality is almost non-existent. In a few cases, where these reports do not provide figures, they have been taken from UNHCR (1995). UNHCR criticizes the US Committee for Refugees for using a definition that is too restrictive, and using both of these sources here may be criticized. However, as the World Disasters Report data are considered to be more appropriate for this study due to reasons mentioned earlier in this paper, and the data source in those reports varies, the decision of combining has been made, with a warning about data quality and comparability.

3.3 Access to safe water and daily calorie supply

Data on the percentage of population with access to safe water and on daily calorie supply per capita were taken from the UNDP Human Development Reports of various years. Their data sources are UNICEF and FAO. Daily calorie supply per capita is defined as the calorie equivalent of the net food supplies in a country, divided by the population, per day. Access to safe water is the percentage of the population with reasonable access to safe water supply, including treated surface waters, or untreated but uncontaminated water such as that from springs, sanitary wells and protected boreholes. No further discussion of these variables is included. UNICEF gets part of the data on access to safe water from WHO. The World Bank notes that the definition of safe water has changed over time (1996: 387).

3.4 Child and infant mortality

Data on child mortality and infant mortality were taken from various sources and to a large extent cross-checked. UNDP's Human Development Reports, World Bank's World Development Reports, STARS database and 'Social Indicators of Development', and UNICEF's 'The State of the World's Children' were utilized. Each of these also combines

various sources. Infant mortality rate is the number of deaths of infants under one year of age per 1,000 live births in a given year. The World Bank notes that the data are from a variety of sources; a combination of observed values and interpolated and projected estimates, and reminds that some countries such as the economies of the former Soviet Union employ an atypical definition of live births, and this results in lower reported rates relative to the standard WHO definition.

Under-five mortality rate is the annual number of deaths of children under five years of age per 1,000 live births averaged over the previous five years (i.e., the probability of dying between birth and exactly five years of age times 1,000). UNICEF is using under-five mortality rate as the principal indicator of the state of a nation's children, and discusses extensively reasons for this choice. Particularly relevant here is the following reason.

[The under-five mortality rate] is known to be the result of a wide variety of inputs: the nutritional health and the health knowledge of mothers; the level of immunization and ORT use; the availability of maternal and child health services (including prenatal care); income and food availability in the family; the availability of clean water and safe sanitation; and the overall safety of the child's environment. (UNICEF 1995: 81)

According to UNICEF, the child mortality rate gives a picture - though far from perfect - of the health status of the majority of children, and of society as a whole.

The following section briefly presents the results of the preliminary data analysis. The large amount of data are not in this version of the paper (for example, the number of refugees and internally displaced people by one million population in 1990-95 was collected for 62 developing countries, and the number of battle-related deaths in major armed conflicts per one million population in 1988-95 for 41 mainly developing countries). All countries mentioned in the sources were included, with a few exceptions as to battle-related deaths (certain interstate conflicts were excluded). A table in which refugees and internally displaced people are collapsed into one figure for each year and weighted was also constructed (refugees have 2/3 of the weight and IDPs 1/3 of the weight, as statistics on internal displacement are particularly speculative).

IV

WHAT DO THE DATA SHOW?

The number of battle-related deaths in major armed conflicts is often difficult to measure, and the data include lots of gaps. However, some figures are clear enough to be reported. The highest figures per one million population that could be computed as the data were available are for Bosnia-Herzegovina and Tajikistan. The figures for Bosnia-Herzegovina were 3,750 deaths per one million population in 1992 and 5,000 in

1993, whereas in Tajikistan the years were the same, and the number of deaths 2,833 and 3,000. The five countries with the highest figures in the 1990s were - in the approximate order of seriousness - Bosnia-Herzegovina, Tajikistan, Angola, Liberia, and Somalia. It needs to be noted again that there are numerous gaps in the data, as no reliable information exists.

As to refugees by country of origin in 1990-95, the countries with the highest figures were Afghanistan, Liberia, Bosnia-Herzegovina, Rwanda, Mozambique, and Eritrea. With regard to internally displaced people, the worst countries were: Bosnia-Herzegovina, Liberia, Lebanon, Sudan, Mozambique, and Sierra Leone. These are preliminary, subjective considerations, as it is very difficult to rank countries on the basis of these types of data.

Both child mortality (under five) and infant mortality rates were generally decreasing. Infant mortality rates were examined since the beginning of 1970s, and child mortality rates from the end of 1980s. The figures do not show large shifts, even if a new crisis has started in the 1990s. It can be seen, however, that for countries where there is a protracted crisis, both rates stay at a high level (e.g. Afghanistan). The trend in the level of both mortality rates for a country is usually the same, and it does not seem to make a difference which one of them is chosen for future analyses. One exception here is Uganda, where the conflict that started in 1987 may have had an impact on the rise of infant and child mortality rates.

Calorie supply per capita is usually increasing according to the data. There were no major shifts from the end of 1980s to 1992. However, a (relatively small) decrease was observed for Afghanistan, Ethiopia, Haiti, Iran, Iraq, Kuwait, Lao PDR, Liberia, Mozambique, Peru, Rwanda, Sierra Leone, Somalia, and South Africa - many of these are crisis countries.

Access to safe water is also generally rising. However, in or by 1990s, a major decrease could be observed for the following countries: Haiti, Iraq, Sierra Leone, Somalia, Turkey, and Zaire - many of which are again emergency countries.

The data seem to support Väyrynen's classification of complex humanitarian emergencies (1996; see chapter 2.1 in this paper). However, due to the numerous gaps in the time-series data that are the basis of this analysis, a summary table of the above results is not constructed.¹⁶

Regarding the variables that are frequently used as indicators of poverty and the level of development, general trends in them seem to indicate an improvement in the quality of living, but indications of their usefulness in quantifying complex humanitarian emergencies could also be distinguished. What remains to be discussed, however, is to

¹⁶ Time-series data of good quality would also permit an investigation of acceleration and escalation of the suffering in crises. The crises in which the acceleration of the suffering has been most rapid are not identified in this paper, but this is a possible approach for future studies.

what extent they should be seen as indicators of *causes* of emergencies; deterioration of living conditions, poverty, environmental degradation, and marginalization.

V

TENTATIVE CONCLUSIONS ON PART I

The aim of Part I was to discuss variables that could be used in the operationalization of the multi-faceted aspects of emergencies and main data problems. Now it is time to answer the last question: what are the implications of these considerations?

Measuring 'a profound social crisis' which usually is the result of a long-term process and has numerous manifestations is an extremely difficult task. Raimo Väyrynen (1996) examined several indicators of disasters and developed highly informative typologies of complex humanitarian emergencies and simple humanitarian emergencies. This paper looked into a large number of developing countries and time-series data with a set of six variables. The analysis shows that one may be able to specify theoretically relevant variables for measuring emergencies, but data problems concerning availability, recency, accuracy and comparability may be too huge to overcome in an empirical analysis.

Problems in cross-country and intertemporal comparability of data should not prevent us from performing quantitative studies altogether. The aim of contributing to the search for satisfactory theoretical explanations for the emergence and regularities of complex humanitarian emergencies and to their prevention is crucial. The study can continue and more data can be looked for to facilitate the development of a statistical model of complex humanitarian emergencies. Part II includes some preliminary remarks on root causes of emergencies to facilitate model construction. A statistical model would certainly provide a good overview of the situation and be of use for early warning systems, but the numerous limitations discussed in this paper need careful consideration.

PART II: CAUSES OF EMERGENCIES

VI

PRELIMINARY REMARKS ON ROOT CAUSES OF EMERGENCIES

A plausible explanation of humanitarian emergencies is Amartya Sen's entitlement theory, which considers emergencies as cases of entitlement failure. It is argued that the theory can be applied beyond famines to cover also other types and aspects of humanitarian crises and their causes, as famines are one manifestation of emergencies. In his most comprehensive account of the theory (*Poverty and Famines*, 1981) Sen divides entitlement relations that are typically included in a private ownership economy into the following four categories: (i) trade-based entitlements; (ii) production-based entitlements; (iii) own-labour entitlements; and (iv) inheritance and transfer entitlements. The critics and supporters of the theory are numerous (e.g. Duffield 1994; Keen 1991, 1994; de Waal 1990; Rangasami 1985; Osmani 1993; Nafziger 1996). They are briefly considered below.

In *Poverty and Famines* Sen asserts that 'the entitlement approach provides a general framework for analysing famines rather than one particular hypothesis about their causation. There is, of course, a very general hypothesis underlying the approach, which is subject to empirical testing' (1981: 162-164).¹⁷ This paper argues that it can be elaborated to provide a general framework for analysing complex humanitarian emergencies.

6.1 The entitlement theory

A person's exchange entitlement is determined by the following factors, among others: (i) whether he can find an employment, and if so for how long and at what wage rate; (ii) what he can earn by selling his non-labour assets, and how much it costs him to buy whatever he may wish to buy; (iii) what he can produce with his own labour power and resources (or resource services) he can buy and manage; (iv) the cost of purchasing resources (or resource services) and the value of the products he can sell; (v) the social security benefits he is entitled to and the taxes, etc., he must pay (Sen 1981: 4).

Regarding social security benefits, Sen maintains that 'These social security provisions are essentially supplementations of the processes of market exchange and production, and the two types of opportunities together determine a person's exchange entitlements' (1981: 6). He sees that without social security arrangements there could be widespread starvation and possibly a famine in rich countries, for example when unemployment is

¹⁷ Throughout the paper, Sen's description of the theory of 1981 (*Poverty and Famines*) is the basis, as it is his most comprehensive account of it.

high. A social security system guarantees minimum values of exchange entitlements. In all, Sen criticizes the strong hold of the traditional development thinking which focuses on what *exists* rather than on who can *command* what (1981: 8).

The basic characteristic of famines and starvation is that a person does not have the ability to command enough food through the legal means available in the society. Sen defines the *entitlement set* of a person as depending on two parameters; (i) the endowment of the person, i.e. the ownership bundle, and (ii) the exchange entitlement mapping, which depends 'on the legal, political, economic and social characteristics of the society in question and the person's position in it' (Sen 1981: 46). As most famines are cases of entitlement failures according to Sen, he also reminds that the nature and causes of entitlement failures must be characterized.

6.2 Alternative views

In the following some of the critical assessments of the entitlement theory are described. Two perspectives will be included: one that questions the analytical merit of the theory in understanding famines in general, and another that examines Sen's empirical analysis of particular famines. This section contains an incomplete review of the critical literature.

Mark Duffield (1994) discusses the limitations of conventional analysis of complex emergencies. He points out that a key issue in investigating them is that emergencies have both winners and losers. Analysis of food security issues and famines has tended to concentrate on the losers, which is partly justified, but when transferred to policy debate and early warning systems, such an approach 'offers a technical solution for an essentially political problem' (Duffield 1994: 51).

To overcome this problem, Duffield advocates the *asset transfer* perspective. As people are not passive victims, a one-sided investigation of coping strategies operating to support losers is not sufficient. Indeed, the 'coping strategies of losers [e.g. selling their assets under stress] ... can become an important factor in the continued survival of more fortunate groups' (Duffield 1994: 52), who are often powerful local actors, such as merchants. The asset transfer from those in distress is 'part of a process of active underdevelopment'.

Taking the view that complex disasters have a distinct political economy of their own, Duffield states that famine can be regarded as 'one possible outcome of a process of impoverishment resulting from the transfer of assets from the weak to the politically strong' (1994: 52). He argues that, for example, the 1988 famine amongst the Dinka in south-west Sudan was not due to their poverty or lack of entitlements, but to their earlier natural wealth in cattle (see also Keen 1991: 152-155), and an important aspect of the asset transfer that took place was a long-term process of political marginalization and the stripping of the Dinka of all legitimation. In Keen's words, the increasing inability of victim groups to secure effective representation within the Sudanese state exposed them to famine (1994: 121).

According to Duffield, asset transfer from the weak to the strong can range from market pressure to violent appropriation (1994: 52). Direct and coercive form of transfer is likely to be associated with ethnic, national or religious mobilization advocated by the winners to justify their extra-legal activity. Asset transfer should be seen as part of a wider parallel economy: more complex, extensive and established than 'just' as an anarchic process.

In the case of Sudan the parallel economy consists of a number of interconnecting levels or systems. Local asset transfer is linked to national level extra-legal mercantile activity. In turn, this articulates with higher-level political and state relations together with regional and international parallel networks which trade in commodities and hard currency. It is this level that provides the initial site for the integration of international aid and relief assistance with the parallel economy. As assets flow upwards and outward, culminating in capital flight, international assistance flows downwards through the same or related systems of power. (Duffield 1994: 56)

In summary, Duffield concludes, 'a shrinking resource base and decline in formal economic opportunity have led to the direct transfer of assets from the weak to the politically strong' (1994: 57).

Alex de Waal wrote in 1990 a re-assessment of the entitlement theory, using empirical evidence concerning African famines. The issues he brought up are primarily related to the nature of famines, not to their causes. Regarding definitions, de Waal argues that one problem typically connected to definitions of famines is that the extreme cases of famine become the standard of comparison when identifying famines, and this makes the definitions unusable as diagnostic tools (de Waal 1990: 471).

In particular, four general criticisms are found by de Waal against the entitlement theory. He argues that the theory (i) sees famine victims as essentially passive; (ii) focuses too strongly on the paradigm of the assetless wage labourer; (iii) is overly economic and makes no room for social disruption, migration and disease; and (iv) has no place for violence. Moreover, he asserts that

A further criticism is that entitlement theory does not take account of the historical processes leading to vulnerability of all or part of a population to famine. Similarly, it does not attempt to explore the processes of change which are evident during famine. Entitlement theory takes a society and economy as it finds it and does not ask how it got there, or where it is going. (de Waal 1990: 473)

De Waal discusses the issue of famine victims who choose to starve because they see the necessity of preserving productive assets for the future. He recognizes the fact that not all victims have a choice whether to consume food or preserve their assets, as many poor people do not have any assets. However, taking the case of farmers in highland

Tigray, Ethiopia during the famine of 1984-85 as an example, he argues that often the dilemma is real - in rural people's coping strategies assets play an important part (de Waal 1990: 476-477). Here one might inquire, however, what is the 'distribution of famine' inside the households. It is highly likely that for women and children who are worse off to start with (no assets, no power), having even less food to consume causes a disaster quickly, and their voices are not very likely to be heard when weighing up the options.

Interestingly, de Waal notes that the element of asset ownership, as well as those of grain market fragmentation and availability of wild foods for famine victims, are more important in Africa than in southern Asia. Thus the extent of choice to consume or not to consume staple grains would exist in Africa, although de Waal also notes that the extent of choice declines as society becomes disrupted (1990: 478). On the other hand, when presenting his own model of famine, de Waal states that social collapse is caused by the exhaustion of the coping capacity of the people, and 'In practice, in Africa at least, this coping capacity does not break down: it is broken' (Ibid.: 486). These notions seem somewhat contradictory. Another regional difference de Waal brings up is that in rural southern Asia, nutritional levels correlate with differences in the quality of housing (sanitation, water supply, etc.), but this is not true for rural Africa. Moreover, '...socio-economic differences in mortality need not be caused by differential food consumption. ...There appears to be more evidence for the presence of life-threatening undernutrition in south Asian famines than in most African famines' (de Waal 1990: 482).

De Waal contributed to research on famines by developing a 'health crisis' model of famine mortality. As mentioned in Part I, in his model, all excess mortality is attributable to a changed disease environment that is the consequence of social disruption due to drought and famine, including drying wells, population crowding in larger villages and towns, and the breakdown of sanitary facilities. Health crises and epidemics do not affect only poor people. De Waal sees lack of food as an indirect cause of mortality - it causes migration and thus precipitates health crises - along with lack of water and lack of opportunities for earning an income, etc. (1990: 481).

In addition to the many negative consequences of migration, de Waal sees also positive points;

...The gains to the migrant are almost always greater than the losses; conditions were worse at home. Such migration demonstrates successful coping at the extreme. ...Ultimately the migration was an essential part of a coping strategy that enabled society to survive the famine [in the Sahel in the early 1970s and western Sudan in 1984/5]. The majority of famines in Africa are like this. (de Waal 1990: 485)

Possible processes causing social collapse are, according to de Waal, prolonged severe economic depression or ecological degradation exhausting a population's coping strategies, or when people are actively prevented from following coping strategies (for example, when their assets are lost - maybe stolen or destroyed - or communities are broken up - maybe forcibly separated). When people no longer believe that it is possible

to preserve their way of life, their coping strategies break down, causing social collapse (de Waal 1990: 485). Thus, for example migration can be seen as either a coping strategy or a factor causing the breakdown of coping strategies. De Waal notes that when systematic violence is added into the model, coping strategies become much less effective, or disappear altogether, leading to destitution.

Although de Waal concentrated on the nature of famines, not on their causes, he mentions threat to assets which was the central component in Duffield's analysis. However, he sees it as part of the escalation process of famine, not as a root cause. In his model, the first element is an external agent - in peacetime conditions for instance a natural disaster or 'crisis in the national economy', or alternatively violence. Discussion on what causes a crisis in the national economy or violence, or what are their characteristics, is not included.

Amrita Rangasami (1985) also discusses the entitlement theory and famines. She emphasizes that famine is a process which culminates well before the slide into disease and death, but still perceptions of famine often only relate to the terminal phase and not to the whole process. She distinguishes three periods in famine process: (i) dearth, (ii) famishment (indicating movement), and (iii) morbidity (the proportion of sickness in a given locality), and defines famine as '... a process during which pressure or force (economic, military, political, social, psychological) is exerted upon the victim community, gradually increasing in intensity until the stricken are deprived of all assets including the ability to labour' (Rangasami 1985: 1749).

Rangasami argues that famine process cannot be defined with reference to the victims of starvation alone, but it should be seen as a process in which benefits accrue to one section of the community while losses flow to the other. This is related to Duffield's asset transfer approach. As for the entitlement approach, she maintains that Amartya Sen did not take the process character of famine sufficiently into account when he defined famine. Famine is not necessarily an event marked by the death of the victim, and Rangasami criticizes Sen for seeing famine primarily as 'a sudden collapse of the level of food consumption', and notes that 'The basic failure in the understanding of famine we have today is the inability to recognise the political, social and economic determinants that mark the onset of the process' (Rangasami 1985: 1800).

6.3 Entitlement theory explaining complex emergencies

Nafziger and Väyrynen (1996) divided variables explaining humanitarian emergencies into (i) economic (both endogenous, originating within the model, and policy), (ii) political and institutional, and (iii) cultural variables, as well as (iv) failed responses (Box 1). It is argued that almost all of them may be usefully accommodated into the entitlement theory, and thereby a more general theory of complex humanitarian emergencies can be developed.

BOX 1
NAFZIGER AND VÄYRYNEN'S EXPLANATORY VARIABLES FOR THE STUDY OF
HUMANITARIAN EMERGENCIES

ECONOMIC CAUSES

* Endogenous domestic variables

Economic growth; the degree of regional integration; rural-urban links; income distribution; class-communal overlap; land holding and distribution.

* Endogenous international variables

External shocks.

* Domestic policy variables

Income distribution; differential employment; access to financing; environment; land and asset distribution.

* International policy variables

Constraints on decisions.

* Domestic and international policy variables

Stabilisation and adjustment programmes; trade and exchange policies.

POLITICAL AND INSTITUTIONAL CAUSES

Democratic institutionalisation; relative deprivation; favouritism and corruption; identity as political formula; elite and other interests; ethnic and political polarisation; political mobilisation; political penetration; military spending; private military organizations; international state system.

CULTURAL CAUSES

Historical memories; religious and other cultural identities.

FAILED RESPONSES

HISTORICAL FACTORS

Source: Nafziger and Väyrynen 1996.

In his assessment of the entitlement approach to famine S. R. Osmani distinguishes three levels of interpretation of it: a specific hypothesis, a general hypothesis, and a general framework. Here the emphasis will be on the third level, on which Osmani asserts: 'By seeing famines as entitlement failure, and by noting that entitlement failure can only occur because of an adverse change in either endowments or entitlement mappings, the entitlement approach *offers a useful organizing framework for studying the causes of famines in any kind of economy*' (Osmani 1993: 11, my emphasis). He also maintains that

The third interpretation [the general framework view] is not really a hypothesis at all. In this interpretation, to say that famines are caused by entitlement failure is not, strictly speaking, a causal statement but a definitional one. ... It is ... a very useful definition for the purpose of organising the search for causes... The rationale of the entitlement approach is then not to suggest, or to deny, any particular hypothesis about what causes famines, but to direct the search for causes into two

broad channels - one involving the endowment set and the other involving the entitlement mapping. The entitlement approach is thus essentially a framework for analysis. (Osmani 1993: 12)

Osmani argues that the first two levels of interpretation - the 'hypothesis-view' - have been continuously popular, and that this would be mainly due to misinterpretations of Sen's objectives. The aim of this paper is not, however, to assess the value of criticisms against Sen's contribution (see e.g. Osmani 1993 for this discussion). Indeed, it is argued that there are numerous good reasons to take the entitlement approach as the basis for the development of a theory of emergencies. Osmani notes that the approach *allows for plurality of causes*; the task of the analyst is to search for forces that might have impinged upon either endowments or entitlement mappings, or both (1993: 48, Sen 1981: 164). This implies the need to have a historical view.

The entitlement approach was also meant to be *a theory of causation*, not a theory of dynamics. This is precisely what is needed in the UNU/WIDER project. Osmani also maintains that 'Disaggregation is an essential feature of the entitlement approach' (1993: 20). For example, the food availability decline approach to famines concentrates on the *aggregate* availability of food, whereas entitlements are *disaggregated*. The approach thus urges the study of the disaggregated entitlements of different social classes, according to Osmani. Aggregative frameworks cannot account for the asymmetric impact on different social classes.

In discussing humanitarian emergencies, disaggregation is indeed an essential concept. However, when it comes to operationalizing the theory, most statistical data are available for states, as discussed by Väyrynen (1996). Data are typically not available by region, community, ethnic group, gender, and age.

The entitlement theory, as presented in *Poverty and Famines* is very general, and as Sen puts it, 'quite inescapable in analysing starvation and poverty' (1981: 8). It seems that there is *no constraint in utilizing it for analyzing all types of emergencies*. The UNU/WIDER project discusses famines together with deaths due to violence, diseases, and refugeeism and internal displacement, and the development of a model of their root causes assumes that these types have - at least to a large extent - common causes. This implies that a general theory like Sen's approach can be usefully adopted as a basis for causal considerations regarding all the different types. This is also supported by the multi-faceted characteristics of emergencies. Their elements typically interact to produce and sustain an emergency. The aspects of humanitarian crises are intertwined. Seeing common rather than, or in addition to, distinct factors would also contribute to understanding and identifying various outcomes of socio-politico-economic processes.

Sen notes that

In many cases the appropriate characterization of entitlements may pose problems, and in some cases it may well be best characterized in the form of 'fuzzy' sets and related structures - taking precise note of the vagueness involved. In empirical studies of actual famines the question of precision

is compromised by data problems as well, and the focus here will be not on characterizing entitlements with pretended exactitude, but on studying shifts in some of the main ingredients of entitlements. Big shifts in such ingredients can be decisive in causing entitlement failures, even when there is some 'fuzziness' in the entitlement relations. (Sen 1981: 49)

Sen discusses this in the context of limitations of the entitlement approach. But it does not have to be a limitation. One could also argue that this recognizes the *complexity* of emergency situations and focuses on reality as well as brings up the strength of the approach; it does not aim at 'pretended exactitude'.

Regarding the importance of emphasizing the role of asset transfer in the process leading to a humanitarian emergency, this does not seem to be the whole truth; Sen recognizes that 'while entitlement relations concentrate on rights within the given legal structure in that society, some transfers involve violation of these rights, such as looting or brigandage. When such extra-entitlement transfers are important, the entitlement approach to famines will be defective.' (1981: 49). In fact, 'illegal transfers' are not included in the scope of Sen's theory, although he notes them as possible influences that 'can in principle cause starvation'.

Duffield, Keen and de Waal's ideas about asset transfer¹⁸ as a central factor increasing instability were discussed in the previous section. This has been called the political approach to famine (Nafziger 1996: 5). However, focus on assets is not only political. One could also argue that forcible asset transfer from the weak to the strong is an example of a shift in entitlements due to the political characteristics of the society in question. Sen argues that a person can be plunged into starvation (a disaster) if there is a fall in his endowment bundle, or an unfavourable shift in the exchange entitlement mapping (1981: 47).

6.4 Public and participation entitlements

The entitlement theory has often been interpreted as a hypothesis of the dynamics of famines instead of 'a very useful definition for the purpose of organising the search for causes' (Osmani 1993: 12). Frances Stewart, however, discusses the theory in an article on human, development and economic costs of war. She differentiates between effects of war on aggregate supply and effects on entitlements, and suggests that to market entitlements should be added '*public entitlements*, which include access to publicly supplied basic goods, such as water, health and education services, and free or subsidized food rations' (Stewart 1993: 360). These were not incorporated into entitlements by Sen (Stewart 1993; de Waal 1990).¹⁹ In case of a famine or food

¹⁸ This could in fact be called 'negative asset transfer' to distinguish it from 'positive asset transfer' - social security provisions - that is relevant when discussing emergencies (see e.g. Sen 1981).

¹⁹ Alex de Waal has noted that disease-driven mortality is not incorporated into entitlement theory, but he wrote regarding Sen's theory that 'Consequently such things as the disease environment should not be seen as part of a household's entitlement, but as related to social 'functionings'. There is an argument for including under 'entitlements' command over health care and water, but only in so far as they are

shortage, the essential commodity the person cannot command is food; in case of a disease, it may be safe water, food, sanitation, medicine, etc.; in case of a civil war, refugeeism and internal displacement, possible commodities that the person cannot command - missing public entitlements - are numerous.

Stewart points out that war may lead to negative effects at different levels 'operating through negative effects on supply and market and public entitlements in ways that can cause immense human suffering' (1993: 360). Earlier in this paper, a few variables have been examined to illustrate the existence and extent of negative effects on supply and entitlements, and of human suffering. Looking into causes of emergencies with a somewhat modified entitlement approach would broaden the analysis of complex emergencies.

Political and institutional factors obviously form an important part of the basis for economic and social policies leading or contributing to shifts in entitlements. But characteristics of the political and societal system could also be seen as entitlements. Therefore, I suggest that a person's set of *participation entitlements* would include, for example, access to political influence and responsiveness of elites towards her/his needs and views. The person would be entitled to these 'rights' willingly given by the society. Even these so-called participation entitlements may be looked at as 'exchange entitlements' - no longer in the economic sense - but in exchange for access to political influence, a citizen may give certain obedience and respect to government, and this in turn contributes to political stability. Participation entitlements, which depend also on legal factors, enable and sustain people's opportunities to participate in decision-making concerning their society. They would include ethnic, religious and other cultural identities to the extent in which they cause polarisation in the society.

A set of participation entitlements, on the basis of Nafziger and Väyrynen's typology of variables (Box 1), could contain at least the following elements:

- Access to political influence, regardless of gender, class, region, ethnic group, etc.;
- Absence of favouritism and corruption;
- Elites' 'good governance', including no regional, ethnic, or other manipulation; no interest to benefit from emergency; and responsiveness;
- Maintenance of public order and efficient and equal control of the territory by the state;
- Prevention of harmful polarization of the society by the state and other actors.

Sen sees legal, political, economic and social characteristics of the society and a person's position in it as factors affecting entitlements, but to study emergencies, it is suggested that they would be incorporated into the theory as types of entitlements. Such a model could be operationalized to cover economic, political, institutional, cultural and other causes of emergencies (see Nafziger and Väyrynen 1996). Numerous frameworks of

commodities, with differential access based on differential capabilities of households, such as income, wealth, place of residence, or legal status'. (de Waal 1990: 483)

causes of crises would facilitate the selection of variables for statistical analysis (e.g. Alesina and Perotti 1996; Auvinen 1996; Baker and Ausink 1996; Bond and Vogele 1995; de Waal 1990; UNDP 1994; UN 1995; Scarritt and McMillan 1995; UNDP 1992; Gurr and Harff 1996; Väyrynen 1994; Sidell 1988). Unquestionably, problems and limitations discussed in Part I need close attention in any such analysis.

APPENDIX

INDICATORS DEVELOPED IN PREVIOUS RESEARCH FOR ELEMENTS AND CAUSES OF EMERGENCIES

This appendix describes some of the previous attempts to construct indicators of humanitarian emergencies or closely related topics, both from the point of view of their causes and definitional aspects. The overview is not exhaustive, but gives an idea of the various directions in this field and examples of them. So far, there have not been many systematic attempts to develop a standard methodology that would enable reasonably accurate predictions about possible future human-made crises. Several projects with this aim have recently been launched - many of which are still on-going. This chapter will consider both theoretical and empirical initiatives of various institutions and individuals.

Although there exists a general consensus on some of the key variables affecting states' vulnerability to human-made disasters in both the theoretical and empirical literature, there is also a noticeable lack of agreement on how these variables could be combined into an easily operationalizable approach, and how they interact to produce a crisis.

UNDP's Human Development Report 1994 includes a chapter on 'new dimensions of human security'. Human security is defined as an integrative concept which 'can happen only if we agree that development must involve all people' (UNDP 1994: 24). The narrow concept of national security is not sufficient, especially in the post-Cold War era. Emphasis on people's security through sustainable human development is required.

Components of human security and the main problems in them according to UNDP are listed in Box 2. UNDP also lists indicators that are particularly revealing in providing an early warning of human insecurity, social disintegration and possible national breakdown. They are as follows:

- Food insecurity: daily calorie supply as a percentage of basic human needs, the index of food production per capita, and the trend of the food import dependency ratio.
- Job and income security: high and prolonged unemployment rates, a sudden drop in real national income or in real wages, extremely high rates of inflation, and wide income disparities between the rich and the poor.
- Human rights violations: political imprisonment, torture, disappearance, press censorship, and other human rights violations.
- Ethnic or religious conflicts: the percentage of population involved in such conflicts, and the number of casualties.
- Inequity: the difference between the HDI values of different population groups.
- Military spending: the ratio of military spending to combined expenditure on education and health.

UNDP reminds that this set of indicators is partial and captures only a few dimensions. However, if several of the indicators point to the same direction, the country 'may be

heading for trouble'. The 1994 Report also identified countries in crisis with the help of the above indicators, and the following eight countries were listed: Afghanistan, Angola, Haiti, Iraq, Mozambique, Myanmar, Sudan, and Zaire. On the other hand, three countries were described as successes in social integration: Malaysia, Mauritius, and Zimbabwe.

BOX 2
COMPONENTS OF HUMAN SECURITY AND MAIN PROBLEMS

1. Economic security
 - no assured basic income (from productive and remunerative work, nor in the last resort from publicly financed safety net)
2. Food security
 - people do not have physical and economic access to basic food (no entitlement to food; no access to assets - work and assured income)
3. Health security
 - diseases, often linked with poor nutrition and unsafe environment (particularly polluted water); lack of health services or unequal access to them
4. Environmental security
 - water scarcity; lack of safe sanitation; desertification; salinization damage; air pollution; effects of population growth
5. Personal security
 - threats to security from physical violence (from threats from the state by physical torture to threats to self in the form of suicide and drug use)
6. Community security
 - ethnic tensions (often over limited access to opportunities)
7. Political security
 - state repression

Source: UNDP Human Development Report 1994: 24-33.

An annual paper released by the United States Mission to the United Nations (*Global Survey of Humanitarian Emergencies*) gives an overview of complex humanitarian crises indicating how the situation has changed in 1995, and predicting possible new disasters in 1996 (The US Mission to the UN 1996: 6-18). Countries at risk are, according to them, Nigeria, Cuba, Bangladesh, and Armenia (due to Metsamor nuclear power plant). The report further provides estimates for the number of persons at risk²⁰ and how that has changed from December 1994 to December 1995.

The report divides the states that it focuses on into six different groups: (i) intense conflicts (Afghanistan, Burundi, Sierra Leone); (ii) simmering conflicts (Russia: Chechnya, Rwanda, Somalia, Sri Lanka, Sudan, Tajikistan); (iii) government repression in rogue states (Iraq: Central/Southern, Kurdish North, North Korea); (iv) cease-

²⁰ For a definition, see The US Mission to the UN 1996.

fires/cessation of hostilities (Armenia, Azerbaijan, Georgia); (v) political settlements being implemented (Angola, Bosnia and Herzegovina, Croatia, Haiti, Liberia); (vi) post-crises mopup (Cambodia, Eritrea, Ethiopia, Mozambique).

Factors behind emergencies considered in the report include besides population at risk, potential monthly food and water needs, developments in the political and physical environment, information on the medical infrastructure and indicators such as physicians per one thousand population, and information on accessibility of airfields, ports, railways, highways, inland waterways, and fuel. The report gives important information on the current status of the crises, but it does not focus on their root causes.

The Carter Center's yearly *State of the World Conflict Report* employs the definition of a 'major armed conflict' used in the Stockholm International Peace Research Institute yearbooks.²¹ The report describes each country case with the help of statistics on the conflict (number of deaths, troop strength, etc.) and other information, such as ethnic divisions, religion, an extensive health profile (from UNICEF and UNDP sources), conventional weapons imports, defense expenditure, and a few economic indicators.

Here again the question is about looking into the current status of a conflict, not root causes over time. The summary table of the report lists for each conflict location the number of total deaths and total displaced persons (the most recent year), major conventional weapons imports during recent years, and defense expenditure and under-5 mortality rate (the most recent year). However, it is not indicated whether they see these as definitional aspects or causes of conflicts - a topic on which consensus is still to be reached.²²

Pauline H. Baker and John A. Ausink recently presented their initial predictive model for state collapse and ethnic violence (Baker and Ausink 1996). They maintain that their model enables comparisons of various conflicts at different stages, makes also a longitudinal analysis possible to conduct, as well as suggests ten indicators of state collapse in ethnically divided societies that can be used for early warning (Box 3). Their list, although not exhaustive, represents 'leading variables that have appeared frequently in the past and are present in many current crises' (Baker and Ausink 1996).

Baker and Ausink argue that state collapse causes ethnic conflict - not the other way around. As a state fails, in search for security, people rely on familiar or historic identities that are left intact or that are consciously revived. Thus the potential for ethnic conflict to spread is the more prevalent the further a state disintegrates.

The model includes five stages for tracking a conflict, beginning with an analysis of the root causes of ethnic conflict, followed by immediate causes (indicators of state collapse); transition period (either violent or nonviolent); transformation of the state

²¹ See SIPRI Yearbook 1996 for details.

²² Regarding the difference between definitional aspects and causes, for example Väyrynen (1996: 12) states: 'Violence is an instrument of power struggles and thus an aspect and consequence of a humanitarian disaster instead of being its cause.'

(disorder or a new political order); and outcomes (chaos or constitutionalism). The authors contend that preventive action would be most effective if it were taken at Stage 2 (immediate causes, i.e. events or trends that fuel ethnic conflict) or before. However, the stage where 'recent trends or precipitating events that lead from fragmentation to friction, such as discriminatory government policies, collapsed empires, coups d'état, or political assassinations' exist, is likely to be too late to actually prevent a crisis. The UNU/WIDER project focuses on preventive action at the stage of root causes.

BOX 3
INDICATORS OF STATE COLLAPSE BY BAKER AND AUSINK

- Demographic pressures
- Massive refugee movements that create cycles of human disasters and further intensify demographic pressures
- Uneven economic development along ethnic lines
- A legacy of vengeance-seeking group grievance or group paranoia
- Criminalization or delegitimization of the state
- Sharp and severe economic distress
- Massive, chronic, or sustained human flight
- Progressive deterioration or elimination of public services
- Suspension of the rule of law
- Security apparatus operating as a "state within a state"

Source: Baker and Ausink 1996.

As an example case of a legacy of vengeance-seeking group grievance Baker and Ausink cite former Yugoslavia. A battle fought 600 years ago is still often brought up; grievances may, and are likely to, be carried across many generations. Regarding sharp and severe economic distress the authors remind that many failing states have parallel, hidden economies that need to be taken into consideration when assessing economic distress in collapsing societies. Indeed, this is a major problem when operating with economic indicators of emergencies - hidden economies may be very large.

Center for International Affairs at the Harvard University conducted a study on profiles of international 'hotspots' under its Program on Nonviolent Sanctions and Cultural Survival. A brief introduction to the project's approach and results is given here, based on a report by Doug Bond and William B. Voegle (1995). The mandate of the study was to identify locations where crises requiring peace operations may erupt in the near future. Study countries comprise nine locations where lethal armed conflicts erupted in the 1990s.

Conflict event data profiles of the conflicts tracing their evolution from January 1984 to April 1995 were developed on the basis of worldwide news reports by means of computer-based coding programme (KEDS, the Kansas Event Data System). The aim was to track the dynamics of conflict situations from before they erupt into violence.

Various profiles were created: conflict intensity profile, violence signals profile, and the conflict carrying capacity of a system (Bond and Vogele 1995: 3-5). Also the conflict context (volume of world news attention) was presented, as well as other countries or locations deemed to be at risk for eruption or escalation into violence were identified. The Program's approach incorporates 'a near real time monitoring capability into a global, comparative framework'. The three profiles need to be used together and evaluated in detail by area/regional specialists - this would enable signaling eruption or escalation of a conflict up to three years in advance. This approach thus does not suffer from the lack of data, and undoubtedly provides a useful tool for early warning. However, it does not provide information on the root causes as conceived in the UNU/WIDER project.

Alberto Alesina and Roberto Perotti (1996) have examined the relationship between income distribution, political instability and investment. They found that income inequality increases social discontent and fuels social unrest, and the latter, by having a negative effect on investment, reduces growth (1996: 1204-1205). This study is one contribution to the group of studies arguing that income inequality is harmful for growth. Alesina and Perotti include 71 countries for the period 1960-85 and get quite solid results.

As expected, they state that social and political instability are variables that are hard to define and measure. They measure socio-political instability by constructing an index which captures various phenomena of social unrest: the number of politically motivated assassinations, the number of deaths in domestic disturbances (as a fraction of the total population), the number of successful coups, the number of attempted but unsuccessful coups, and a dummy variable measuring democratization. The authors mention that several indices of socio-political instability have been used as an explanatory variable in regressions where the dependent variable is growth, savings or investment, but *joint endogeneity* issues are not always taken into consideration sufficiently (Alesina and Perotti 1996: 1206-1209).

More or less established practical early warning systems for various kinds of disasters exist in various institutions in the world. The following details are from World Disasters Report of the Red Cross (1995). Most of these initiatives focus on making an early assessment of possible emergency aid requirements and are undoubtedly very valuable, but they usually do not explicitly focus on root causes like the UNU/WIDER project. Indeed, a considerable amount of research and knowledge lies behind these systems, but for decision-makers, information on what happens and should be done before 'falling down from the cliff' is of utmost importance. Some examples of practical early warning systems are given below.

United States Agency for International Development has developed a Famine Early Warning System to provide decision-makers with current and potential nutritional emergency situations by collecting and analyzing social and physical data on certain African countries (rainfall, GDP growth, soils, prices, and migration patterns). Several UN organizations also maintain their own systems. For example, FAO has a Global Information and Early Warning System on Food and Agriculture, where it continuously

monitors crop and food supply and demand conditions, identifies countries and regions where serious food shortages and worsening nutritional conditions may be threatening, and assesses possible emergency needs.

UN Environment Programme is parent organization to 'UN System-wide Earthwatch' that focuses on environment and provides, for example, timely information on pressures on, status of and trends in key global resources, variables and processes in both natural and human systems. UN Department for Humanitarian Affairs maintains a database for identifying potential complex emergencies with humanitarian implications, and there are various systems to predict population movements, such as Ad Hoc Working Group on Early Warning regarding New Flows of Refugees and Displaced Persons including many UN and other organizations.

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