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TO: All Members of the World Commission on Environment and Development.

FROM: Johan Jorgen Holst

DATE: 27th November 1986

RE: Final Report Chapter 11 - Peace, Security and Environment

The Norwegian Ministry of Defence arranged an "International Workshop on Security and Environment" in Oslo 27-29 October, 1986. The workshop was in support of the World Commission on Environment and Development. The list of participants is enclosed as well as the list of invitees who were unable to attend but who nevertheless want to be kept informed about the result of the deliberations.

The Workshop was a considerable success particularly when considering the fact that the relation between security and environment has not received any systematic academic attention. There is no established body of theory and accepted truths about the linkages involved.

An exploratory paper which I had prepared (enclosed) constituted a baseline for the deliberations at the workshop. Dr. Harald Müller has prepared a draft analytical report from the deliberations (enclosed). It has now been circulated to the participants and invitees to the workshop for their comments. (It is in need of considerable linguistic polishing). Upon the receipt of the comments the report will be finalized.

The finalized analytical report will form the core of draft Chapter 11 which I shall prepare for the Berlin Meeting of the Commission.

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In Moscow I hope that Commissioners will discuss the subject matter on the basis of the enclosed papers thus enabling me to take their views fully into account when drafting the Chapter. I regret my inability to attend the Moscow Meeting due to my ministerial responsibilities in Oslo.

I have proceeded from the assumption that the Chapter should deal with the aspects of peace and security which derive from the environmental connection rather than with the East-West or North-South Security issues (conventional and nuclear) which have been considered extensively elsewhere, for example by the Palme Commission on Disarmament and Security Issues.

**ACTION REQUIRED: For Discussion and Approval**

## SECURITY AND ENVIRONMENT: A PRELIMINARY EXPLORATION

### 1. War as a social phenomenon

What are the causes of war? The question has been posed throughout history, but no satisfactory answer has emerged. The most ambitious project to date about the subject has typically been called "The Correlates of War". Causal explanations have remained stubbornly elusive. Roughly speaking attempts to provide answers form three distinct but not necessarily exclusive clusters or images. The first image relates the occurrence of war to the nature of man. The second focusses on the internal structures of states and the third image devotes primary attention to the structure of international society. We have no general theory of war and most likely we never will.

Typically, war is viewed as a process of organized violence between contending entities wishing to establish, consolidate and/or expand their control over territory, physical or human resources. Wars may be fought for acquisitive purposes but also for purposes of denial, i.e. to prevent certain actions and dispositions. Wars are not limited to interstate conflict, internecine struggle and violence occur more frequently than war at the international level. Domestic conflict may escalate into international war, however, through a process a geographical expansion and/or foreign intervention. In the modern era, and most specifically in the age of nuclear weapons and nuclear stalemate, armed conflict has tended to occur in the developing world. Definitions are hazy and the statistics of deadly quarrels notoriously unreliable, particularly in respect of the non-combatant casualties, which in many instances have been significantly larger than the direct casualties in battle. We have had some 150 wars - international and internal - in the Third World since 1945 and the incidence has increased somewhat over the last decade. On average around 12 wars were being fought every single day since the end of World War II. As already indicated the casualty statistics are incomplete and highly uncertain. They are, however, very large.

## 2. Context and classification

For purposes of classification and analyses we may distinguish among five partly overlapping categories of armed conflict in the contemporary world: (1) Conflicts over national borders, (2) conflicts with or among minority groups, (3) conflicts relating to the issues of self determination, (4) conflicts about the distribution of wealth within or among states or regions, (5) conflicts concerning the norms and rules of international relations. These are not neatly distinct categories, in the real world many conflicts exhibit elements of several of the categories suggested. However, they indicate the spectrum involved.

At the level of interstate relations, we have today more than 70 territorial and border disputes which could erupt into physical violence, and some of them have. The number of such disputes may in fact multiply as a consequence of the new law of the sea and the disputes related thereto with regard to the delineation of dividing lines between exclusive economic zones and the continental shelves of neighbouring states. Similarly, regulations concerning the harvesting of fish may cause international disputes as the technology of fishing has gained in efficiency and stocks been depleted.

A large number of the boundary disputes in the Third World form a legacy of colonialism. The arbitrary drawing of lines divided many nationalities and artificially amalgamated others. Ethnic divisions have been compounded by religious divisions. Attempts to create homogeneous states out of ethnically diverse regions have exacerbated the intensity and pervasiveness of armed struggles and at times produced human disasters of immense proportions. In the real world it is particularly difficult to establish clear distinctions between minority issues and issues of self-determination. They merge to exercise considerable pressures on the legitimacy and efficacy of fragile national institutions. No other continent was carved up by outside powers the way Africa was resulting inter alia in large migrations of refugees. Nevertheless, acceptance of the status quo, however unjust, appears to most African governments as the only way to avoid bloody struggles. A redrawing of the political map of Africa along ethnic and traditional lines would open up a Pandora's box of countless disputes and conflicts. History is constantly in the making but it can rarely be redone.

The distribution of land is one of the most ubiquitous and complex issues which produces violence and struggle among nations and communities within nations. Land reform is at the core of solutions to many civil wars or the prevention of such traumatic events in the lives of nations. As groups and individuals hold on to privileges a sense of equity and social justice recedes. Time perspectives change as well, the syndrome of "apres nous le deluge" - a sense that history is running out - causes besieged landholders to plunder the earth for short term profit beyond the limits of sustainable yields. Hence, socio-political conflicts exacerbate processes of environmental degradation in many Third World countries.

International wars and domestic conflicts are frequently intertwined. Domestic struggles evolve also in the context of a broader international setting. Increased attention to and capacities for projection of military force by the major powers tend to link domestic struggles in Third World countries with the East-West conflict. External military aid produces client-patron relations which further connects local conflict with the struggle for mastery and influence in the broader geometry of international relations. It may trigger and nurture local arms races and stimulate the insertion of external proxies into indigenous or local conflicts. Furthermore, the workings of the international economic system may also accentuate and sharpen strains on fragile economies and politics. Even in the context of the crisis in Africa the developing world has taken substantially more out of Africa in terms of debt payments and servicing of debt than they were putting into the crisis-stricken areas in emergency aid.

### 3. Conflict and environment

The relationship between armed conflict and environment may be examined in at least three different dimensions. First, environmental deterioration and destruction can be viewed as a consequence of armed conflict. Several studies have been devoted to analyses of the environmental consequences of war. Second, environmental degradation may become a cause of armed struggle. The links in the causal chain are rarely simple or clear cut and we have to consider many intervening variables. However, history provides numerous examples of how states and nations were destabilized by environmental collapse leading to famine, migration and rebellion.

Pressures on national institutions caused by the breakdown of natural support systems may trigger processes of international strife and aggrandizement. The evidence is incomplete and the data insufficiently systematic to support theories about general trends, but the scale and nature of human activity which affect ecological balances appear to create regional and global impacts. Approaches to the common management of the biosphere may increasingly determine patterns of international security. Third, environmental degradation may be viewed as a contribution to armed conflict in the sense of exacerbating existing conflicts or adding new dimensions thereto.

Several analysts and observers have drawn attention to the interrelationship between population and conflict. Although the simple, but elegant, Malthusian thesis which traces the origins of want, misery, and war to the relationship between population and resources is accepted by few in its original form, attention continues to be devoted to the consequences flowing from relatively increased numbers of people drawing upon relatively decreased or poorly distributed resources. Technology and social organization are two of the ways by which human beings may modify the relations. However, the choice of technology may affect the relation between demand and resource availability in differential ways and skew the distribution of the consumption of resources within the present population of the earth and between it and future populations. The choice of technologies affect the ability of nations to follow sustainable paths to development and prosperity. The distribution of population and their composition (age, ethnicity, etc.) are aspects of one demographic structure which in combination with other factors can influence conflict within and among nations.

Most analyses of the relationship between conflict and environment have focussed on the environmental consequences of warfare. Recently attention has focussed on environmental modification as a deliberate objective in war rather than an unwilled by-product of armed conflict. Environmental warfare involves damage-causing manipulations of five different domains: (1) celestial bodies or space, (2) the atmosphere, (3) the lithosphere (the land), (4) hydrospace (oceans), (5) the biosphere. The most dramatic manipulation would result from large scale nuclear warfare. The potential

phenomenon of a nuclear winter is now well documented although the quantitative parameters remain a matter of scientific dispute. Nations have concluded the Environmental Modification (Enmod) Convention of 1977 prohibiting "military or any other hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State Party." The constraints remain ambiguous and limited. An interesting point here, however, is that the Treaty prohibits military or hostile use of techniques with the listed effects. However, similar legal instruments do not prohibit peacetime policies and mismanagement which objectively produce "widespread, long-lasting or severe effects" on the environment. The African crisis exhibits many features of such malign neglect of the environmental consequences of specific agricultural policies, land-holding systems and economic policies.

#### 4. Environmental degradation and human discontent

The capacity, but not the need for violence appears to be biologically inherent in human beings. The capacity is extended by manufactured arms, from primitive bows and arrows to missiles and fission bombs. Arms transfer to the Third World is on the increase and Africa is becoming an armed continent.

The disposition to collective violence depends on how badly societies violate socially derived expectations about the means and ends of human action. Hence, discontent and deprivation can be powerful engines in the process of rebellion and violence. Discontent provides justification for rebellion which will be stimulated also by belief in the utility and desirability of violence as a means of reaching social ends. However, such rational means-ends calculations are inadequate for understanding the emotional reflexes and desperate actions of people who are deprived of utilitarian alternatives.

The peasant in many Third World countries lacks not only land and capital. He frequently lacks political power, access to the processes and means required to alter the policy frameworks which work against him and in



favour of the urban power elites. Hence, we cannot assume that deprivation and discontent translate easily into politically potent or even coherent action.

We know that the erosion of valuable top soils is one of the basic problems facing spaceship earth today. We also know that the loss of productive soil is part of a cycle leading to marginalization. Population growth has resulted in more people farming even more intensely marginal soils. The process is exacerbated by inequitable landholding systems, inadequate irrigation systems, conversion of agricultural land to non-agricultural uses and to deforestation. Soil erosion also leads to political erosion as the marginalization of peasants as producers frequently will result in their marginalization as a political force; they become further removed from the process of authoritative decision-making.

Africa has the fastest growing population in the world. It is expanding at a rate of 3 per cent per year which means a twenty fold increase during a century. Such population growth exercises a tremendous pressure on natural support systems. Africa is presently losing 2,7 million hectares of woodland per year. The woodland south of Sahara is declining by 3,3 per cent per capita every year. At this rate the wood resources per person would be cut in half in 15-20 years. The loss of tree cover and the consequential increase in arid zones can trigger a process of events in which the rural peasant finds it almost impossible to produce food.

On a global scale, 35 per cent of the earth's surface and 20 per cent of its population are threatened by desertification. According to the Swedish Red Cross, three quarters of this area and 60 per cent of the population involved are already affected.

Deforestation and soil erosion combine to reduce the "sponge effect" of the land to rapidly absorb and slowly release water. Paradoxically, drought becomes the twin sister of floods. The carrying capacity of the land is reduced and life conditions for human beings, animals and vegetation are eroded with the soil. We have seen the novel phenomenon of growing armies of environmental refugees, or people who are fleeing the land which can no longer support them. They join the "traditional" refugees fleeing war and repression.

Civil wars and environmental degradation have mutually reinforcing effects - combining to undermine the basis for sustainable development, particularly agricultural development. In 1985 some ten million Africans had fled their homes, swarmed into the cities or moved across the land, also crossing national boundaries and adding strains and fuel to existing interstate tensions and conflicts. Many of the refugees will never go home. The UN High Commissioner for Refugees is spending more than half of his inadequate funds on what is euphemistically termed "durable solutions".

Five of six nations on the United Nations list of countries most seriously affected by hunger had civil wars - Ethiopia, Sudan, Chad, Mozambique and Angola. The military expenditures of African countries had reached \$16.9 billion in 1983, equivalent to 4.5 per cent of GNP. It is below the average of 5.8 per cent for the developing countries and 6.1 per cent for the industrialized countries, but it is rising. Furthermore, the average figures hide important variations. In 1982 Ethiopia spent 8.6 per cent and Sudan 3.5 per cent while we had no reliable figures for Chad and Angola. Arms imports accounted for 36.8 per cent of Ethiopia's total imports in 1982, and 14 per cent of the imports of Sudan and 28 per cent of Angola's, while we had no reliable figures for Chad and Mozambique. It seems a matter of common sense to assume that countries consumed by the vagaries and pressures of civil war are likely to pay less attention to other threats to their future and well-being. The short term considerations completely overwhelm the long term perspectives. Those who lose the civil war struggle will not be around or in positions to affect the long term choices when the war is over.

According to Earthscan's Africa in Crisis by 1985 some 60.000 Chadians had fled into Western Sudan, 40.000 into the Central African Republic and 8.000 into Cameroon. Similarly, more than 12.000 Mozambican refugees were in camps in eastern Zimbabwe and there were at least 28.000 Angolan refugees in the Shabe province of Zaire. Somalia is reported to hold more than 700.000 refugees. The numbers are highly uncertain and probably understated. High though the numbers are and heartbreaking though the human suffering behind the statistics, they are dwarfed by the trans-migrations of the environmental refugees which in Africa equal the total number of "regular" refugees on a global scale. The Ivory Coast has been

the principal host to refugees from the Sahel. Following the 1968-73 drought, it played host to 1,4 million foreigners. It meant that every fifth person in the country was a foreign national! The strains on both natural and social support systems may become intolerable in many countries.

##### 5. Self-reinforcing degradation

Environmental refugees exert pressures not only on the carrying capacities of the land but also on those of the politics involved. Political systems may crumble under the pressure from shanty towns and squatters encircling the cities, particularly the middle sized cities, and threatening to strangle them. In Tanzania and Nigeria some 65 per cent of the city growth is caused by immigration. The circles are vicious since the medium size cities are extremely dependent on agricultural production in the surrounding countryside. They need farmers who can afford to buy the goods and services produced in the cities and they need farmers who can produce food for consumption as well as processing in the cities. But declining production and purchasing power in the countryside may strangle life in cities already overburdened by the influx of surplus populations from a countryside where the carrying capacity has been overtaxed. Food riots and urban violence may come to constitute a clear and present danger. A very large portion of the inhabitants of shanty towns are children who due to the exigencies of life and poverty are largely raised and conditioned outside the law. Urban insecurity and erosion of the legitimacy of established authorities are likely long term trends. The incapacity of political institutions to cope with the problems is likely to stimulate propensities for "easy" solutions through repressive practices and military coups. 50 per cent of Kenya's population, 48 per cent of that of Nigeria and Zimbabwe and 43 per cent of Ethiopia's population were below the age of fifteen in 1984. Comparable figures for the United States were 22 and for West Germany 16 per cent.

Africa seems to be caught in the webs of accelerating cycles of self-reinforcing degradation. Progressive biological impoverishment reduces sustainable yields while population pressures are increasing. In many African countries firewood demands substantially exceed the sustainable

yield of remaining forests. Widespread use of cow dung and crop residues for fuel cause the organic matter in soils to decline and the soil structure to deteriorate. There are even some indications that reduced rainfalls in Africa may be caused by large land use changes, such as deforestation, which increase water runoff, reduce evapotranspiration and increase reflectivity. New sustainable balances must be sought in the land uses of large parts of the African population, a population which is growing at an unprecedented speed.

Desertification of African grasslands seems bound to exacerbate conflicts among competing groups of pastoralists and between pastoralists and settled farmers. Such conflicts are in part traditional in Africa and have sometimes even assumed ritualistic qualities, but under the impact of recent droughts they have multiplied and intensified, particularly in East Africa. Herds are exceeding the carrying capacities of the vegetation leading to a deterioration of the soil and thereby to a further lowering of the carrying capacity in a downward spiral.

#### 6. The Need for International Management

Transnational river basins may provide the source of future conflict among the riverine states as growing populations and industry increase demands for hydro-electric power, as the demands for irrigation grows with the need to rectify soil erosions caused by overcultivation, and as deforestation damages the water catchment areas causing rivers to flood and dry. To mention just a few examples from Africa: The Niger flows through ten states, the Nile and the Congo through nine, the Zambezi through eight, the Chad and the Volta through six. On a global scale close to 2 billion people live in international river basins.

River basins provide opportunities and options also for international cooperation and multilateral planning and management. The strain on the international relations in Africa produced by the confluence of civil war, famine and large populations of environmental refugees may erode the propensity and opportunity for multilateral solutions to shared problems, hence novel conflicts may feed upon old struggles tending to harden and

exacerbate postures of confrontation and hostility. The general crisis of internationalism in international society could be strengthened and deepened by a breakdown of African solidarity and cooperation to the detriment of all Africans and the world at large.

The environmental crisis in Africa contains large potentials for conflict, including armed struggle. Such conflicts could further exacerbate the environmental crisis and marginalize larger portions of the African peoples and lands. However, it provides opportunities as well. Opportunities for cooperative undertakings designed to meet shared challenges and construct a common future. The question here is if enlightened visions rather than narrow and petty interests will dominate the responses. To some extent this is a question of awareness and knowledge. But equally it is a question of political organization, of the carrying capacity of political systems which are already under severe strains and burdens, deeply involved in the struggle for short-term survival.

In a rather fundamental way our common future will depend on the ability of the World Community to draw appropriate consequences from the increasing incapacity of the nation state to deal with basic issues affecting the future of mankind. However, much of the political attention of contemporary mankind is focussed on how to construct and protect nation states which have been launched from fragile platforms. The Chernobyl accident demonstrates how even the construction and operation of a nuclear power plant cannot be left to national decision as failures affect citizens in distant lands. Similarly energy and industrial policies which do not reduce current CO<sup>2</sup> emissions will cause increasing damage to the world's tree cover with systemic consequences we do not even comprehend at the moment. Are we about to inadvertently engineer another ice age or solar age? Many other questions of a similar nature with respect to transboundary pollution, acidification, depletion of the ozone layer, etc. could be posed for purposes of emphasizing the imperatives of interdependence and the perils which may flow from a failure to heed the imperatives.

## SECURITY AND ENVIRONMENT

Rapport on the International Workshop on Security and Environment

convened under the auspices of the World Commission on Environment and Development

Oslo, 27 - 29 October 1986

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### Introduction

The relationship between environmental stress and degradation on the one hand and intra- and interstate conflict on the other hand is still an underresearched field. More attention has been devoted to the connection recently, but we are still far from a proven theory and hard evidence. For this reason, this report cannot present completely reliable results on which firm political recommendations could be based.

Rather, the workshop aimed to collect preliminary insights and exploratory evidence which would exploit the present state of the art as far as possible. For this reason, each of the topics discussed was introduced by one of the participants from a personal perspective. The general discussion then tried first to establish a common broader view of the issue at stake. In the next phase of the discussion, more general propositions were developed. It was then tried to collect evidence from those around the table to prove or refute these propositions, and eventually to reach a conclusion. Thus there was, a trial-and-error cycle in the discussion. This procedure provided a first test of the propositions developed. The presence of experts from a wide variety of fields, and with a wide-spread regional expertise granted an optimum input of empirical evidence as well as of theoretical proficiency.

By drawing on the invaluable contributions of my colleagues, however, I have to note that this report, particularly the conclusions drawn, are my own. All responsibilities, thus, rest with the author.

## I. General Considerations

### Environmental stress and conflict in history

That changes in the natural environment in and by which mankind lives, its habitat, may cause or exacerbate human conflict has attracted the attention of the world community only recently. It is, however, no recent phenomena. Rather, it has been a familiar feature of history as long as the survival, welfare and wealth of families, groups, and states were dependent on the renewable resources that nature of-

to mankind, for, that is, as long as agriculture and hunting were the predominant features of societal reproduction.

Three examples from European history may underline this argument, examples which are not meant to be exhaustive, but rather illustrative.

Towards the end of the second century b.C., the German tribe of the Cimbres started a long journey from the coasts of Jutland towards Southern Europe. The reason for this momentous movement of a whole people is not completely clear, but some accounts would have it that it was a terrible flood in Denmark which virtually ruined the habitat of the Cimbres and made their land unarable and uninhabitable. The Cimbres' march affected several dozen tribes in Central and Western Europe and led to several fierce fights with the emerging Roman empire, one of which, the battle of Arausio, dealt Rome one of the worst defeats ever suffered. Incidentally, the Cimbres asked Rome for a place to stay, they were willing to solve the conflict by peaceful means. But Rome, just establishing its influence in Southern Gaule, was not inclined to have the precarious balance of enemies and foes in this region shattered. Already, the Helvetians had shown some inclination to follow the Cimbres to a land more amicable than their own (a move which would, some fifty years later, precipitate the war of Gaule). Rome, therefore had to fight, and eventually destroyed the Cimbres.

The second example concerns the initiation of the momentous migration in the fourth and fifth century. Movements of German tribes over Europe had taken place since the days of the Cimbres, but slowly over a couple of centuries. Now, all of the sudden, hundreds of thousands of people were on the move, and eventually the end of the Roman empire and, thereby, of the then prevailing European order was reached. The proximate



cause of this development was apparently the sudden storm of the Huns west- and southwards from their traditional places in the plains of Southern Russia. A contemporary account alleges, and historians tend to confirm, that there was a terrible freeze in the winter 374/75 which deprived the Huns of the food for their livestock. Longing for survival, the Huns moved westwards and thereby discovered the possibilities of booty, and their own superiority over the forces their enemies could field.

The last example is the movement of the Normans from the end of the eighth century on. The Normans emerged as the horror of the coasts of all Europe, and by their conquests changed the face of the continent. Enduring bridgeheads were won in Sicily, France and, eventually, England. Two different hypotheses have been put forward for the sudden drive of the Norman people to look for other shores, both of which are closely linked to our issue: the first one proposes that the Normans suffered from overpopulation, due to their system of multimarriage. The second one says that the poor soil of Northern Europe was exhausted by extensive agricultural practice and could no longer support those supposed to live from it. Booty and, eventually, large-scale emigration proved to be the only viable answer.

What these historical examples show is that there has always been the possibility of a serious imbalance between the carrying capacity of the human habitat and the number of those who wished to live in and by this habitat. Such imbalances could occur suddenly, as apparently in the cases of the Cimbres and the Huns, or develop over an extended period of time, as was probably the case for the Normans.

Technological development has since changed very profoundly the man-environment relationship. The problem of "carrying

capacity" has more and more escaped the human mind as it became possible to produce apparently unending streams of goods from an ever benign nature. Since the early seventies, however, the consciousness has grown that there are limits, and that mankind now threatens to go beyond these limits, unwittingly and by negligence. The emergence of this possibility forces us to take seriously the long forgotten experience of our ancestors: imbalances between man and the habitat can produce conflict, war and death.

#### Environment and security - the dangers

Security is acquiring on a new meaning which has not yet been comprehended now. So far, the subject of security could be an individual (in the meaning of "social security"), a group or a state, as in the most familiar use of the term, national security. The rapid developments of technology and industry, however, that the security of mankind as a whole must become an object of concern, consideration and action. If the ultimate rationale of "security" is to grant survival to its subject, than security of the human race becomes a reason of concern indeed.

Mankind faces two twin threats to its security; they differ in many respects, but their ultimate consequences are the same: the destruction of human life on earth.

Nuclear war is the most obvious threat in this respect. The environmental consequences of nuclear war, besides its immediate impacts on the conflicting parties, would be of such a magnitude as to jeopardize the survival of higher forms of life on the planet. The Chernobyl accident has brought to attention the widespread radiological consequences of a relatively minor incident. The consequences of a nuclear war would be incommensurably larger in terms of the contaminated

terrain and the consequent human sufferings.

On top of that, the prospect of a global climatic change by "nuclear winter" opens up the real possibility of the end of human civilization. The controversy over nuclear winter should not distract from the fact that the possibility alone is of the gravest concern. Man and his habitat might perish with a bang.

They could also perish with a whimper. The damage done to the environment on a global scale has reached a level where it cannot be excluded any longer than man is on the way to destroy the very conditions he is living on. Oceanic pollution, destruction of the ozone layer, changes in the global climate through fossil fuel combustion and the cutting of tropical forests, the rapid disappearance of genetic resources are ongoing processes which could result in ultimate disaster.

The danger of nuclear war has attracted much attention, and rightly so. The prospect of a sudden, climactic catastrophe makes it imperative to prevent it from happening. But it is essential to keep in mind that the slow process of global environmental erosion is the less visible twin brother of nuclear war, if it comes to the ultimate threat to human security.

## II. War and the environment

### Nuclear war

Nuclear war impacts upon the environment in different ways. Its immediate impact is an enormous blast wave which will destroy human structures in a circle of some hundred meters to several kilometers, depending on the yield and the place of detonation. Next comes a heat wave which will lead to "superfires", that is, widespread firestorms over vast areas, if the strike consists of numerous large-yield weapons. Ground blasts will move gigantic clouds of material into the air and

eventually lead to a semi-permanent layer of dust shielding the surface of Earth from the sun. Climatic changes follow, which may effect a dramatic lowering of temperature up to several months - the "nuclear winter effect".

The longest-lasting impact is radiation. Highly radioactive particles will remain in the atmosphere for very long, travel long distances, and eventually settle. Water and ground will be contaminated for years, jeopardizing permanently the human food chain even for those who escaped the initial onslaught.

The combined effect of nuclear warfare may make Earth uninhabitable for higher forms of life.

It is for this reason, that the continuing nuclear arms race must attract the gravest concern of the world community.

Moreover, the danger of nuclear weapons spreading to more and more countries must continue to be banned by international agreement. The danger that moreregional conflicts may become nuclearized enhances the danger of regional and global nuclear war, with all the horrible corollaries for the environment.

#### Other weapons of mass destruction

Nuclear warfare is the only form of armed conflict from which we must expect, with high probability, environmental disaster on a global scale. However, other forms of wars waged by weapons of mass destruction could reach effects which come close to those of nuclear war. Biological warfare could set free new agents of disease whose behavior and development may well go beyond the limits of prediction. Likewise, the developments of weapons of enviromental modification (artificial earthquakes, flood, and thunderstorm; deliberate damage to the atmosphere) could also effect consequences far beyond the borders of those involved in a conflict. The impredictable and dangerous consequences of such weaponry have led to a complete ban on either type. This ban must be uphold at

any price, and the Treaties, if possible, strengthened. The recent successful Review Conference of the Biological Weapons Treaty was, therefore, an encouraging event.

Chemical warfare can have disastrous consequences not only on the human beings involved, but also on the environment. The use of weapons such as "Agent Orange" in past wars has demonstrated the damage which the human habitat (fishery, hunting, forests) will suffer from large-scale use of chemical weapons. For long it was believed that the Geneva Protocol had put an end to this cruel form of warfare. But the recent past has shown, with increasing frequency, that this is not the case. Chemical weapons are used, and more countries are preparing the acquisition of the means of chemical warfare. A new, verifiable and universal ban on chemical weapons is therefore highly desirable.

#### Conventional war

In the discussion of weapons of mass destruction two facts about conventional warfare are often forgotten:

- the effectiveness of modern conventional ordnance is approaching that of small nuclear arms. The damage on the environment of the two world wars and the Vietnam war has been considerable, as shown in various studies. With the most modern technology, these effects would even be multiplied.
- In contrast to nuclear war, conventional war is with us today. It is going on in several quarters of the world, and it is ruining the environment in those regions daily. Tactics of mass bombardments, of torched earth etc. cause enduring environmental damage. This should not be neglected while mankind is struggling to get rid of the nuclear threat.

Lastly, a feedback circle which amounts to a most dangerous spiral between war and environmental damage must be recognized. War damages the environment and reduces its carrying capacity. This induces people to leave their land and to migrate to better places. If this movement reaches significant levels, it leads to renewed, or to new conflict which may result in another war. For this dangerous spiral, a general rule applies:

The more precarious the existing balance between man and the environment is in a given area, the more far-reaching and widespread will the consequences of war be, and the more likely a deterioration of the man-environment balance will result in further war.

### III. Environmental Stress as source of international conflict

There is undeniable evidence that environmental stress or degradation has led to international conflict in recent times. The level of conflict varies from diplomatic exchanges to war. In some few cases, the environmental factor was decisive for the deterioration of interstate relations. In more instances, it was instrumental to exacerbate an already existing conflict. The following list is meant to be illustrative, not exhaustive:

#### Air pollution

Quarrels about air pollution exist within North America, between the states of the European Economic Community (particularly the United Kingdom and France on the one Hand and the Netherlands and the Federal Republic on the other Hand); and between the EEC and the Scandinavian countries. They focus on the issue of acid rain and consist of the complaints of

downwind countries against the causation of air pollution by the industries of upwind countries. While this issue has led to considerably heated exchanges especially in North America, there is not yet any expectation that it will escalate to more dangerous levels of conflict.

#### Water use

This is completely different for the utilization of river water for industry and agriculture. River water conflicts have been observed in North America (U.S.-Mexico), South America (Amazonas and Paraná); Africa, South Asia (Ganges), Europa (Rhine) and, most dangerously, the Middle East (Jordan, Litani, Orontes as well as the Euphrates). The Ganges dispute, which involves India, Bangladesh, and Nepal, has soured the relationship between formerly friendly India and Bangladesh considerably; this dispute is still waiting for a final solution satisfactory to both countries. In the Middle East, the issue of the Jordan river is said to be one contributing factor to the war of 1967, and the distribution of the waters of the Litani makes a solution of the Libanon conflict considerably more difficult than it is today.

The problem arises from the multi-utilization of water. In the case of the Ganges this concerns industry, large-scale irrigation for Benghalese agriculture, and derivation for the flooding of the port of Calicut; the problem is exacerbated through the extensive cutting of forests in the Himalaya region which deprives the source waters of the Ganges of the retention function of these forests. In the Middle East, the problem consists of the precarious environmental balance in a semi-arid region which is exacerbated through a growing need of industry and agriculture in several countries.

#### Soil erosion and desertification

Soil erosion and desertification is one of the most serious threats to peace. It leads to large-scale movements of people which may well be beyond the control of local, regional, or national authorities. Hungry people looking for arable land do seldom respect national boundaries and become unwittingly a threat to the "national security" of the host state.

Soil erosion on the Ethiopian highlands forced people to seek food in the lowlands of Ogaden. The resulting population pressure caused increased tensions in the Ogaden, a tribally mixed and traditionally contested region. Somalia was tempted to intervene; the following Ethiopian-Somalian war brought the Cubans in, assisted logistically by the Soviet Union. Coming at a critical juncture of superpower relations, the incident contributed definitely to the demise of detente in the late seventies. Beyond the local suffering, the conflict which started with local environmental strain had critical global repercussions.

The causation chain: soil erosion - large-scale migration - international tension is familiar in the entire Sahel area. It is also found at the border between Bangladesh and India and in Latin America, where it tends to exacerbate the already existing conflicts.

### Fisheries

Coastal and high sea fisheries are decisive for the diet of many countries. Moreover, for some nations fishery is the most important industry on which national welfare depends. The coastal zone is one of the most complex ecosystems and also highly vulnerable. Overusing those zones, or overfishing on the high seas poses immediate danger to those countries' economies. This became very obvious when, in 1974, Iceland (a nation largely dependent on its fishery industry) engaged in a short contest with Great Britain, a conflict which involved even sharp shooting on the high sea. Similar



tensions exist in the Japanese and the Korean sea and on both sides of the South Atlantic; recently, the declaration of an exclusive fishery zone around the Falkland/Malvinas has demonstrated again the potential for conflict embedded in this issue.

### Types of conflict

To derive some preliminary conclusions from this brief discussion of environmental conflicts, it is useful to differentiate between different types of such conflicts:

In the first place, there are quarrels about a common good which is divisible. The prime example is water use: there is a limited amount of the good available, and it is accessible to several parties. Because it can be divided up, there is room for contest. This problem remains invisible as long as the utilization remains well below the source's capacity. But once it approaches, reaches, or surpasses this capacity, the conflict breaks out. In the case of rivers where nation-states are lined up in sequence, the upstream parties possess a superior access capability; if downstream neighbours do not see a chance for an agreement on equitable sharing, they may resort to force. When multiple access is possible, such as for subsurface ground water reservoirs, the "rule of capture" applies: who extracts first, wins. The result may be a race for utilization which could precipitously exhaust the source and could induce countries to use force in order to impede utilization by their neighbours.

The second type derives from "environmental differentials" between two areas. "Environmental differential" means a significant difference in environmental quality which effects a difference in the quality of life of the respective in-

habitants. Such a differential may exist for a long time, it may develop over time, or suddenly through precipitated unequal environmental degradation. Such a differential is likely to influence the behavior of whole populations. If those living in the worse area see no perspective anymore to feed themselves, that is, when their survival is at stake, then they will start to move. Inevitably there will be large migration from the degraded to the better area. This migration, if it transgresses the boundaries of nation states, is likely to cause international conflict.

The third type is transboundary pollution which is transported by air or water from the "source" to the "victim" country. This type of conflict has not yet caused or contributed to violent conflict. But this benign situation is not necessarily granted for the future. As in the case of divisible commons, there is little the suffering party can do other than to appeal to the source country to change behaviour. If no satisfactory response is received, stronger and stronger diplomatic efforts can be expected. It can, however not be assumed that the threshold of violence will be surpassed except when one or several of the following conditions apply:

- the pollution threatens life in a significant part of the suffering state (survival threat)
- the suffering state is strong enough to challenge the offender militarily
- there exists already a high level of tension between both parties, which is pushed beyond the brink through this additional source of conflict.

One shall never forget that the use of force is indeed a possibility to extinguish a source of pollution. Bombing of the enemy's industry was common in the second world war

and in several wars since, in order to weaken the enemy's war making potential; Israel has even destroyed a research reactor under construction in Iraq lest this country might develop nuclear weapons. It is not inconceivable that to these traditional motivations for attacks on industrial facilities the termination of pollution will contribute in the future.

A very important factor is the velocity with which environmental degradation impacts on human perception and action. Degradation may occur very slowly and in small portions. In this case, adaptation may be possible. The leeway for negotiations is larger in the case of divisible common goods or transboundary pollution (though this might also lead to complacency on part of governments); for environmental differentials, the numbers of those migrating is likely to be small in the beginning; and early warning is possible.

But the damage can also be invisible for a long while, and it can be precipitated by natural events such as flood or drought which are beyond human control. Such sudden deterioration is most dangerous in areas with no capacity for absorption, areas with a very precarious ecological balance, such as semiarid regions. The outbreak of large-scale migration will take state authorities by surprise in these cases, and the institutions will be overwhelmed by the sudden challenge. International conflict is a very likely outcome.

This possibility is all the more serious if one compares the present state of affairs with the situation in earlier centuries when large-scale migration caused conflict. Then, the absorption capacity of territories was, by and large, higher than it is today. Population density was less, and

the territorial delineation of political entities was more fluid. As a consequence, the elasticity of these entities for absorbing migration was higher than today; still, large-scale conflict ensued. Today, the world is completely divided into nation-states, and many habitats are used up to such a precarious balance that all sudden changes due to migration threaten to lead to a serious erosion of carrying capacity. For this reason, the dangerous speed of environmental change of today is doubly threatening.

#### The meaning of intermediating factors

Environmental damage does not affect directly the objects which fall under the common definition of national security: that is, the territorial integrity and the economic welfare of nation states. The environmental factors work through mediating layers. Two such layers have been identified.

1. Transnational environmental stress may pose a threat to the economic system of a nation state. This threat can result from fierce competition for a scarce environmental resource (e.g. water or fish). The "sensors" of political systems will usually react to the deterioration in the performance of the national economy. Ecological strain will not necessarily evoke the use of the strongest instruments of statecraft. When, however, economic survival is believed to be put in question, states feel far less constraint to resort to the ultimate means of power politics. An extremely important indicator for impending environmental conflict is therefore a significant loss of economic performance due to environmental degradation.

2. Migration poses a direct threat to the backbone of national sovereignty, namely territorial integrity. That it is

not the deliberate action of a neighbour state which causes this threat, in contrast to military invention, is relevant only as long as the numbers of those on the move render migration manageable. If a breakdown of national institutions looms large, perceptions will change, and distrust over the neighbour's intentions will mount.

The importance of mediating factors lies in their impact on political perception. That the threat addresses territory and economy tends to hide the initial cause, namely the environmental problem. In the migration case, the problem will be defined as a "refugee" problem; for economic strain, as the problem of scarce "input factors" for the national economy. This shortsighted perception stands in the way of defining the problem as one of common management of the habitat which promises the only viable long term solution. As long as this definition is avoided, the probability of conflict, even armed conflict, remains high.

#### Global environmental threats as a source of conflict

So far, environmental threats to peace were discussed on the regional level only: global threats - ozone layer damage, climatic change, ocean pollution etc. - have not yet emerged as a direct or indirect cause of interstate conflict. This, however, will not necessarily be the case in the future as well. The discussion of regional environmental conflicts gives several hints as to the future evolution of conflicts over global environmental issues.

Global environmental degradation is likely not to cause international conflict under two conditions only:

- a) the degradation occurs slowly, resulting in an incremental decay of quality of life and in a reduction of life expect-

ation.

- b) the damage is distributed equally or almost equally over the whole globe.

It is not clear, whether these conditions will apply. It is rather probable that degradation - or the perception thereof - will occur in leaps, and that the damage will be distributed unevenly, causing large environmental differentials with all the prospects for conflict discussed above.

For example, the damage to the ozone layer appears to occur in the far south first, moving only slowly northwards. As it will reach inhabited zones and result in visible dangers to life, migration will occur and, some after few time, grow to significant dimensions.

Even worse prospects hold for the consequences of climatic change. If the proposition holds that the warming of the atmosphere will cause the ice caps of the poles to smelt, the living conditions of the whole globe will change. This change will be utterly unequal. Some regions will become uninhabitable. Others will continue to be livable, but with a grossly reduced carrying capacity. Others, however, may thrive and improve. The resulting migration will reach dimensions beyond anything comprehensible; not millions, but literally billions of people will be affected within a relatively short time frame (remember that the enormous migrations of the 4th and 5th century took more than 100 years to evolve.) Climatic change may stimulate movements possibly within a quarter of this time). How a world war can be avoided under these circumstances is beyond the imagination of this rapporteur. Prevention of global climatic change is one of the most pivotal tasks of mankind to preserve global peace.

#### IV. Environmental Stress as Incentive for International Cooperation

When we analyse the relationship between environmental stress and international conflict, we should not overlook that trans-border environmental damage has led, in various cases, to cooperation rather than to confrontation. A few cases shall be quoted to illustrate this point

The Rhine River Commission was founded by Switzerland, France, West Germany, and the Netherlands to deal with the economic and environmental issues concerning this big European river after it became obvious that only joint management could result in an optimal utilization and minimal pollution of the Rhine waters. While the commission does not function perfectly - to a great deal due to different attitudes of the members towards environmental policy - there is at least a mechanism to deal with the conflicts. A similar record, or even a better one, can be made for the bilateral U.S.-Canadian commission for the Great Lakes; reportedly the work of this body has actually resulted in an improvement of the Water quality.

In the East-West context, the Economic Commission for Europe of the United Nations started work on environmental issues in the seventies, largely as a corollary of the Conference on Security and Cooperation in Europe. The most important outcome was a Convention on Transboundary Pollution, concluded in 1979. A review conference of this Convention took place amidst the hottest phase of East-West confrontation in the early eighties, and was highly successful and constructive. This is a rare example that cooperation forced by environmental stress has actually improved the atmosphere of relations which were deteriorating on a large scale and in broad areas.

Lastly, the mediterranean convention, concluded in the con-

text of the U.N. regional seas program, is worth mentioning. Pursuing this convention, nations work together which are otherwise in sharp, even armed conflict, such as Syria and Israel, Egypt and Libya, Algeria and Morocco, Greece and Turkey. These nations are capable of working out sensible agreements on the improvement of the mediterranean environment, despite their conflicts in the general political sphere.,

Conflict or cooperation ? Factors influencing the political results of international environmental stress

The most important factor in this context is probably the status of overall relations between the contending parties ("conflict environment"). If the relationship is one of friendship, or of regulated tension (such as the East-West conflict), where armed contest is virtually unthinkable as a mode of conflict regulation, it is highly unlikely that environmental strains will translate into dangerous tensions or even war. It is far easier under these circumstances to set up regulatory mechanisms to deal with the issue than in relationships which are permanently at the brink of war. It is for this reason that the Rhine River commission, or the Great Lakes commission could be set up and could work reasonably well, while no such salutary procedure could be found for the difficult issue of water use in the Middle East.

The improbability of war has also helped to tackle environmental issues in the East-West context. But the issue was helped by another important factor: the existence of a institutional mechanism (the ECE, and the CSCE) in which environmental problems could be introduced and handled. The regulation of environmental disputes among parties not at the best terms with each other will be infinitely easier where such institutions have a tradition of successful work



and are accepted as such by the contending parties. The existence of such institutions, however, may in itself be an expression that the general political relationship is somewhat removed from the highest levels of tensions. Insofar, it depends on the first factor analysed above.

Another important factor which impacts upon the success of environmental conflict resolution is the object of conflict Parties which otherwise are on the brink of war appear to be willing to cooperate in the management of the environment if a) they share a common good which is indivisible, and b) the environmental damage reaches levels where core national economic interests are affected. The Convention on the Mediterranean Sea is a case in point. So many conflicting parties sit around the table there, because the damage done to the maritime environment has started to jeopardize one of the main economic assets of all mediterranean countries, tourism (and also fishery). No unilateral action promises any prospect for relief. A free ride - polluting above average - does not help the quality of the precious coastal regions, and no aggressive behavior towards the neighbours promises any prospects of success.

This differs very much from a situation where the object of conflict is a divisible common good, such as the use of river waters. In this case, unilateral action offers prospect of success, and violent counteraction could possibly prevent or obviate such unilateral action. If quarrels about a divisible common good occur in a conflictuous political environment, they contribute to the enhancement of tension up to the level of violence; the dispute over river waters in the Middle East is an important example.

Conflicts over environmental issues do not automatically escalate to the point of violent contest. Sometimes they enhance existing tensions, sometimes they lead to successful conflict resolution, sometimes they result in war. There appear to exist some threshold which must be surpassed to cause the use of force. It is not yet possible to define precisely where such thresholds lie in the relationship between states. Obviously, the factors discussed above - conflict environment and the type of the object of a dispute - contribute to defining the threshold. Other factors which have not been defined may also contribute. A margin of uncertainty exists.

#### The importance of early warning

Precisely because of this uncertainty it is of utmost importance that governments become aware of imminent environmental stress before the damage actually threatens core national interests. Governments are usually not well equipped with this kind of foresight. Their attention to future environmental developments is small compared with their concern for short-term political, economic (and, in the best case, environmental) issues. It would be highly advisable if the appropriate international organisations such as the U.N. Environmental Programme, the World Meteorological Organization, the High Commissioner for Refugees as well as regional organizations pool their resources to establish a reliable early warning system for environmental conflict. This system would monitor indicators for imminent conflict such as soil erosion, growth in regional migration, and the use of divisible common goods approaching capacity. The system would warn to governments, well in advance of irreversible damage that interstate conflict may result if no measures are taken; the organizations would also offer their good services for helping the respective countries to establish principles and institutions for joint management. A prime example for this function

of international organizations was recently given by the International Atomic Energy Agency's prompt drafting of the two post-Chernobyl conventions.

The proposed procedure does not grant an absolute end to the use of force over environmental disputes. But it offers a useful tool to mitigate, and eventually solve, many of the most dangerous conflicts in this respect.

#### V. Environmental stress as source for intrastate conflict

International environmental conflict has its important sources within states. Environmental degradation occurs under the auspices of national governments for a long while before it reaches the transnational level. For this reason it is important to understand the meaning of environmental factors for internal, domestic conflict.

In this regard, the workshop has focussed on the situation in Third-World countries. This does not mean that the environment is no cause of domestic conflict in developed countries, to the contrary. But in those countries this conflict is, to a large part, channeled through the existing institutions. It is institutionalized conflict which, in the worst case, will result in no change and, in the best case, will lead to a timely adaptation of the policies of those countries to the changed circumstances. It has to be added, that, in many cases, the treatment of ecological conflicts in the industrialized countries is helped by the export of environmental problems to the South (see below).

In developing countries, the situation is far more acute. Environmental conflict, there, is a special form of conflict. between rich and poor, and between city and countryside.

The transition of self-sufficient agricultural societies to market-dominated economies has severely affected the relationship in many developing countries. As a consequence, the economic exploitation of the environment goes parallel to the exploitation of the poor farmer. Self-sustaining agriculture is replaced by large-scale deforestation (e.g. paper and furniture industry) or monocultural crop economies producing for export only. As a consequence, the living conditions of the small farmers erode; they flee to the cities where they live at the margins as shanty town dwellers. The agglomeration of a large mass of people in the cities leads to new demands on the countryside with consequent overexploitation and environmental degradation.

Moreover, the precipitation of new economic uses of the country destroys rapidly well-adapted cultures of land use. A prime example is the land use technology of nomades, who, albeit at a relatively primitive level of technology, have developed the art of living from semi-arid lands not easily usable, on a sustainable basis, in any other manner. The extension of intensive agriculture into these lands leads to a very rapid exhaustion of the available capacity, and after brief periods of use a degradation of soil quality. Meanwhile, nomades agglomerate in the remaining areas fit to their style of life. Thereby, those last reservoirs are subject to further serious overuse, again. This is but one of the many examples for the mindless extinction of a well-adapted culture on a low technology level, without the creation of any new, high-technology substitute.

These processes of deprivation of the countryside-population contribute to domestic conflict in various ways. They may create tensions between regional or central authorities and those people in the country who refuse to be expelled from their living space; movement to the cities overwhelms the city institution and leads to social conflict, anomy, and

anarchy; domestic migration puts against each other tribes and ethnicities who once lived in peace besides each other, but are now struggling for survival in the same, overcrowded environment. Dividing lines within countries, which impede the development of integrated nation-states, are sharpened by environmental conflict. This, in turn, contributes to overwhelming governmental institutions.

These institutions, however, are not always innocent of their own plight. Contributing factors to the vicious circle analysed are the frequent denial of basic human rights to populations, the complete lack of participation, by which the experiences of those adapted to a specific environment could be transferred to, and used by, the authorities, and the stupid suppression of popular movements which is regrettably part of everyday's life in many countries. These abuses of state power contribute themselves directly to ecological problems: they are an independent source of permanent migration and dislocation. And they impede the badly needed learning process which is an indispensable part of the adaptation of mankind to its new living conditions.

As this discussion shows, the problems of the environment, of human rights, and of social equity are closely related. If there is no decisive change of priorities in favor of a sustainable agriculture aiming at improving the living conditions of the farming poor, the vicious circle described above will continue. It is up to the governments of developing countries to set such priorities, and to uphold them against the pressures of the world market.

The relationship between domestic and international conflict

The above discussion is interesting not only to the national governments concerned. It is also of utmost importance with respect to the future of international conflict, for several reasons

- a) Domestic unrest and growing instability are not rarely the prelude to war. Either neighbouring governments perceive such conditions as a "window of opportunity" to seize territory, or to crush an old enemy; or the government concerned sees the need to make up for the lost consensus by directing the nation against an external enemy.
- b) Growing instability in several neighbouring nations may lead to increasing mutual distrust.
- c) Internal environmental problems may finally cause transnational effects, most likely in the form of transborder migration.

For this reason, the creation of more equitable relationships within countries is a pivotal contribution to the preservation of peace.

## VI. International Economic relations, the environment, and conflict

Present conditions in the international economic system contribute to the worldwide degradation of the environment. They thereby fail to fulfill the promise of international trade to strengthen cooperative relationships between people and states through mutually advantageous exchanges. Indirectly, they even add to existing tensions and sources of conflict.

The first factor is the strong pressure on the environment in developing countries exerted though the export activities of the developed world. Among those exports, there are products and processes which contribute considerably to the environmental problems of the Third World. It remains a scandal of first order that products which are banned in industrialized countries for their disastrous effects on the health of human beings and the environment are exported freely to the developing world. This is all the more damaging as most developing countries lack the necessary institutions to assess the consequences of such imports, and to take the respective measures. The same applies to industrial processes. The tendency to transfer the most polluting industries from the North to the South may relieve the industrialized countries from even worse environmental degradation than they suffer anyhow. But it does not help at all on a global scale.

For this reason, the introduction of a kind of "most favoured nation" principle for exports is recommendable. No good and no industrial process should be exported to any country which is not permitted in the country of origin. For all other goods and processes, environmental impact statements which are readable and understandable should be transferred together with the exported items.

It has been argued that importing countries should be completely free to import what they like, without any strings attached. This, however, is not a sensible proposition if one takes into account the possible transborder consequences of such imports. Industries and goods which may pollute the territory of neighbouring countries need some degree of international regulation. A certain reduction of national sovereignty is inevitable, and not without precedence. In the nuclear energy field, exports usually carry the stipulation that international safeguards must be applied to the item exported. This is a remarkable intrusion into national

sovereignty, yet it is an accepted international custom. The reason for this is that nuclear facilities and materials may have international ramifications; safeguards serve as a confidence-building measure which reassure the neighbours of the recipient that those items are put only to civilian, innocent use. In the same vein, it appears completely justifiable to subject items in international trade which may result in transboundary pollution to comparably strict rules.

The second problem with regard for international trade is the extraordinary demand of the industrialized countries for Third World biomass good. In the context of the present international division of labour, this demand leads to monocultural, export-orientated agricultural structures; the consequences of these structures have been discussed above. Unfortunately, the negative consequences are reinforced by two additional factors: the inequality in developing countries causes a continuous stream of luxury goods into those countries for the comfort of the ruling classes, with the consequence of a further deterioration of the balance of payment; this, in turn, causes international financial institutions to pose demands for frugal domestic budgetary policies (which usually lead to a further exacerbation of the situation of the poor) and for increased exports (which usually leads to the expansion of monocultural activities). For this reason, it is to be recommended that international lending institutions apply environmental impact statements to their requests to Third World governments, taking into account the poverty-environmental damage circle analysed above.

## VII. Environmental conflict and prevailing concepts of international politics



Our discussion bears serious consequences for pivotal principles of statecraft and international relations which are the basis of domestic and foreign policy today. The rapid change in the domestic and international environment cannot fail to cause change in those concepts which stem from a different past. The successful adaptation of mankind to the emerging relationship between man and the environment depends critically on this conceptual change.

### National sovereignty

The first principle concerned is national sovereignty. This concept limits outside influence on the territory and the people of a country to peaceful means, to trade, to diplomacy. It establishes the supreme authority of government over the territory concerned.

This concept has already been severely shattered by the emergence of economic interdependence, which became more and more visible during the seventies and eighties. Economic interdependence means that no state, even the strongest one, is capable to provide for the well-being of its people without some degree of cooperation from other states. Of course, this reliance varies widely among states with different size, wealth, and levels of autarchy; but no single state is by now completely outside of this network of interdependence.

It is now time to understand that the same consideration applies, even stronger, to the field of ecological interdependence. Nature does not respect national borders. As a consequence, it is important that governments recognize the limits of national sovereignty. It continues to provide a legitimate and useful claim against certain forms of transborder activities, most prominently military invasion. It is completely useless against transborder ecological "invasion" which is the most permanent threat to sovereignty today. The

concept must be supplemented by one of ecological reciprocity and joint management: the expectation to remain free of pollution from abroad depends on one's own utmost efforts to prevent transborder pollution by one's own sources. Common environmental goods cannot be sovereignly directed from a national center, but only in cooperation with all those who participate in this common good.

### National security

The same principle applies to another important concept, closely related to sovereignty, namely national security. National security has been and is understood widely as absence of military threats to the national territory. As the above discussion has shown, there are now considerable threats to the core values of the nation-state, its economic well-being and the welfare of its citizens, threats, which are not of a military nature. Transborder environmental impacts could effect similar damage and destruction as military activities. And such activities may also result, eventually, from conflicts caused by environmental degradation.

For this reason, it is essential that a new understanding of national security is developed which threspasses the narrow boundaries of the traditional definition. This is essential not only because the nature of threat has changed so much. It is also needed because new instruments must be developed to cope with this threat. Military means are completely useless for fighting environmental degradation. Should they be used to destroy a source of pollution in a neighbouring country, this is equal to deal with the symptom rather than with the cause of the disease; and, as our discussion of the war-environmental degradation cycle has revealed, the cure may actually turn out to be worse than the disease.

How could a new definition of security look like ? A proposal which attracted considerable support during the workshop reads as follows:

"security is the sustainable condition in which we enjoy the right to a livable habitat with dignity and without the threat of murder, domination, or eviction"

This definition bears several advantages: it takes as the subject of security the individual human beings in their habitat. This is an appropriate reminder that "national security as a state purpose is legitimate only as far as it serves to protect the citizens of the state. In the environmental context it is adequate since individuals are the first affected by degradation.

The third advantage is that the definition combines the absence of war with the absence of exploitation and abuse of human rights which, as shown above, is closely related to the vicious circle of poverty, environmental degradation, and conflict.

A further advantage rests in that the definition implicitly includes a recognition of the necessary dynamics of security. Security in this broader definition is not equal to the status quo. It requires that all states adapt mutually to rapidly changing circumstances. What the definition, however, stipulates is that no unwanted adaptation is forced upon some people and some state by others. Change is necessary but has to occur in dignity. This is a particularly appropriate thought, given the gross differences in power globally, and given the high speed of scientific, technological, economic, social and environmental change today.

The last advantage is that the requirement is for a sustainable condition. This takes into account the interests of the young, and of the unborn generations.

On this fundamental security definition, the task of the state becomes obvious: it is the creation of intra- and interstate relations in which these conditions for the citizens

can be created and maintained. This means that the state has to continue to grant safety against violent intrusion. But to this it is to be added the obligation to work for safety against environmental encroachment. Such safety, however, is only achievable through a combination of determined national actions and international cooperation. Only by reciprocity can it be expected that neighbouring states take the necessary measures which deliver their neighbours from transboundary environmental damage. While traditional national security policy focussed mainly on military means and unilateral measures to grant security, a new understanding of security must, by necessity, include multilateral and, eventual, global cooperation. An understanding of security which includes environmental security can only be thought as collective security. This, it should be emphasized, is not the outspring of globalist idealism; rather, it is derived from the hard facts of present environmental developments, and from the hard-nosed calculations of state interest.

#### VIII. Recommendations

As stated at the outset, the workshop did not arrive at firm and systematic recommendations for policy. However, the following possibilities for action were mentioned during the workshop or derive from the above analysis. While they are far from a systematic programme, the Commission may be interested in considering some of these proposals.

1. To focus regularly attention of the issue, the U.N. Security council should hold regular sessions on the issue of environmental strain and international conflict.

2. To this session, a report could be provided by the "Early Warning System", jointly operated by several U.N. and regional organizations. This Early Warning System (discussed in section IV.) would also notify directly the government concerned if it arrives at the conclusion that environmental conflict is imminent

3. Because the feedback relationship between war and environmental damage makes war an even more inappropriate instrument of conflict resolution increased efforts should be undertaken to sanction war completely.

4. Strong efforts should be undertaken to strengthen existing agreements controlling weapons of mass destruction and nuclear proliferation. Determined steps must be undertaken to stop the nuclear and conventional arms races.

5. International trade rules should be amended to include a "most favoured nations environmental clause" and a binding obligation to accompany exports with an environmental impact statement.

6. International lending and development aid institutions should be obliged to consider the environmental impact of their activities.

7. Regional organizations dealing with environmental issues should be build and/or strengthened. These organizations should establish rules and procedures for conflict resolution.

8. Further studies on the relationship between environmental degradation and conflict are necessary, particularly in the context of a reliable early warning system and the drafting of a more reliable and systematic agenda for political action.

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