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Peace through Parks: The Environment on the Peace Research Agenda*

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The environment has now become firmly established as an item on the agenda of peace research. However, perceptions of the interrelationship between peace and environmental issues differ widely. In order to prepare the way for systematic analysis of this interrelationship, four linkages are identified here: causal, instrumental, definitional and normative. Since environmental issues are not only to be treated as non-military threats to the security of societies, but can also work to promote cooperation and peace-building, the causal, instrumental and definitional linkages are sub-categorized as having positive and negative aspects. Environmental security is identified as a normative linkage designed to cope with the negative aspects of the other linkages. Whether this will lead to a militarization of environmental politics, or rather help to demilitarize security thinking remains an open question. The answer will depend very much on the positive aspects of the causal and instrumental linkages. Up to now, ecological cooperation has to be seen as a dependent variable reflecting the state of overall international relations. However, there are some indications that environmental cooperation may develop an Eigendynamik of its own and become an independent variable with influence of its own on world politics.

1. *Introduction*

Only a few years ago, a major public concern in the Northern Hemisphere was the danger that a Third World War might emerge from the renewed tensions between the two superpowers. Visions of a global holocaust captured the minds of many. No longer did the military destruction of civilization appear as remote as the Biblical Apocalypse: instead it seemed to have become a clear and present danger inherent in the day-to-day developments of nuclear confrontation.

Now these anxieties, it seems, have gone with the wind of change that has been transforming the political landscape of the Northern World since 1985. But even as fears of a Third World War began to to recede, a new global threat appeared which has now become the object of private worries and public debate, nongovernmental action and world conferences: the depletion of the environment.

Today, there is widespread fear that the natural basis of human civilization may be destroyed through the dynamic of this very civilization; that the biosphere may be thrown out of balance, with unforeseeable consequences for all existing social systems; that non-deliberate environmental destruction will darken the expectations of present and future generations just as much as the prospect of any deliberate war. Thus one looming disaster has been replaced by another – with little time for relief in-between.

On the other hand, environmental change – just like the nuclear stalemate between the superpowers – can give rise to new hopes. Precisely because it tends to affect us all (at least in the long run), environmental change may force societies to seek cooperation and such cooperation may establish ties that could outlive acute crises and conflicts. 'Through Hot and Cold Wars, parks endure', James Thorsell has written in a recent comment on the international political role of border-straddling nature preserves (Thorsell, 1990b, pp. 57–58).

A global threat with mixed expectations

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as to possible outcomes constitutes an intriguing challenge for academic work. Peace research has readily taken up this challenge, and the environment has now become a firmly established item on its agenda. However, unless we are content to define peace research as research on anything bad done by good people, we still have to ask which aspects of the wide array of environmental problems are of special interest to peace research, and what is the specific contribution peace research may hope to make to the analysis of environmental change.

The destructive use of natural resources by one country can do at least as much harm to the people of another country (or all other countries) as a military aggression. Yet this does not necessarily imply that environmental destruction and military conflict amount more or less to the same thing. Does it make sense at all to talk about environmental matters in terms of aggression and security? Should peace research be concerned with 'war on nature' just as much as with war against people? Are the patterns of agricultural and industrial uses of land, atmosphere and water a legitimate and urgent concern of peace research? Should we shift our priorities and concentrate on ecological threats to the life and well-being of humankind, now that the East–West conflict has dissolved and the nuclear threat seems to be fading?

2. *Peace and the Environment – Four Linkages*

The question of why peace research should deal with environmental problems may elicit quite different answers. It could be argued that:

- environmental depletion may lead to large-scale social conflict including war
- environmental modification can be used for hostile purposes in inter-societal relations
- environmental depletion constitutes a specific form of violence
- ecological cooperation may help to build confidence and trust in international relations
- countries or international organizations may resort to military action in order to enforce certain environmental standards or to ward off dangers to the environment
- a healthy environment may be regarded as an integral part of comprehensive security.

In sorting out these various statements, we can distinguish at least four different types of possible linkages between 'peace and the environment'. One concerns the causal relationship between the two issue areas. It emphasizes the importance of natural resources as a source of conflict and the environmental impact of violence as well as possible environmental restraints on war and other forms of collective violence.

The second linkage may be termed instrumental. It points to the possibility of using the environment to broaden the options of warfare and also to the possibility of instrumentalizing environmental activities for peace-building.

The third linkage is definitional. It refers to the correspondence between environmental destruction and war (or other forms of social violence) and to the identification of nature as an object of peace.

Finally, there is the normative linkage which calls for a re-orientation of security policies in the face of new non-military threats to the life and well-being of humankind.

The first three linkages point to certain aspects either of war and conflict or of peace(-building). In this sense we may group these as being either positive or negative. The normative linkage would then be located between the two, since it transcends these categories (cf. Table 1).

A closer look at these linkages may help to indicate the relative importance of environmental problems to peace research, and of peace research to the solution of environmental problems.

3. *Causal Linkages*

3.1 *War over Natural Resources*

The term 'environment' may refer to nature as an antithesis or a balancing force to civi-

Table I. War/Peace and Environmental Concerns – Four Linkages

	Causal	Instrumental	Definitional	Normative
Negative linkage	War over resources Environmental impact of war	Environmental warfare	Environmental depletion as war and violence	Environmental security
Positive linkage	Environmental pressures against war and other violence	Environmental cooperation as a means to build peace	Nature as an object of peace	

lization, or to creation as a challenge to an anthropocentric interpretation of the world. But it may also refer to the natural resources which serve the human economy. Natural resources, in turn, can be understood as encompassing primary goods (living and non-living) as well as land, water and atmosphere. To these can be added genetic diversity, which is a precondition for the adaptation of all life forms to change in the overall ecosystem. If we regard these resources as a continuum of life-sustaining conditions, then the ozone layer constitutes just as much a natural resource as a fish in the water.

From this perspective, the causal linkage between the peace problematique and environmental questions becomes quite evident: throughout history, the utilization of natural resources by humans has meant not only hard work but also fighting between social entities – clans, tribes, states – over access and distribution.

In addition, control over natural resources has always been important in enabling a country to wage war. An extreme example is the war of the Pacific between Peru and Chile (1879–84). Disagreement over guano deposits caused this war, because the saltpeter which was extracted from the guano was necessary to produce gunpowder: i.e. to wage war. Later, the substitution of the guano product by a synthetic equivalent proved decisive for German fighting capacity in World War I.

Among the natural resources which have been the object of wars or conflicts involving military threats, we may cite land, timber, minerals, fuels and fresh water as of special importance. Conflicts over land probably have been most frequent and most violent, since land is also a symbol and an instrument of power. Forests have played an important role in enhancing the armament process in Europe, and in the European conquest of the world: timber was cut in huge amounts, with grave ecological consequences, to build the military fleets with which the Europeans fought each other and which later on were used to protect the economic penetration of overseas territories (Moreau de Jonnès, 1825). In turn, the resources brought back from these territories helped to spur the process of capital accumulation which formed the basis for the establishment of the 'industrial system' (Jänicke, 1979). This system, originating in Europe, set the pace for the systematic worldwide valuation of natural resources, a process still accompanied by considerable collective violence. The present struggle in the Amazon region between the people of the forest, small farmers, Garimpeiros, politicians and their bureaucratic clientele, large landholders and industrial interests is one case in point.

It is in regard to oil that we find the most dramatic linkage between the scarcity of natural resources and inter-societal conflict. However, the gravity of international conflict over the sources and the circulation of oil also demonstrates that scarcity of natural resources cannot be regarded simply as a special feature of nature. Before World War I, there was no scarcity of oil, even though very few wells had been drilled at that time and very little oil was pumped up and processed. Scarcity grew with increasing output, because demand outpaced supplies. But such oil demand was not determined by nature, and even the supply was very much a function of cost–benefit considerations

rather than of absolute scarcity. In other words, there is no 'scarcity' as such: it exists only in specific political, socio-economic and cultural contexts. For another example we may refer again to the Amazon region. Here the abundance which the forest provides for its peoples is now being defined by outside interests in terms of scarce resources which supposedly have to be opened up (through roads, power plants, mines) for the sake of macro-economic development. As a result, also the peoples of the forest may come to regard their environment as a scarce resource and may take part in turning it into a market product.

Furthermore, it is easy to exaggerate the importance of natural resources as an object of conflict. Militant conflict over natural resources seems so frequent that it can become tempting to regard competing demand for resources as the single most important cause of war (cf. Colinvaux, 1980; Leroy, 1986; North, 1984; Westing, 1986). However, a militant conflict which involves resources is not necessarily a struggle over resources. As Lipschutz & Holdren have pointed out, the need for specific resources (including oil) more often serves the rationalization of militant state behaviour than is actually the cause of war (1990, p. 123). Hitler's Lebensraum policy – the justification of aggression as being a (legitimate) quest for land – may be remembered as one of the most cynical attempts to define political ambitions in terms of scarce resources.

So the question arises whether peace research should pay more attention to the nature of societies than to nature itself when dealing with conflict over natural resources. In line with this question, Third World criticism of the first Club of Rome report insisted that the core of the problem lay not in the physical limitations of natural resources but rather in the lack of distributive justice (Herrera & Scolnik et al., 1977).

This aspect of the great North–South debate of the 1970s should not be entirely forgotten as peace research tries to define its stand on environmental questions today. True, we may all be in the same boat as far as world climate or ozone protection from ultraviolet radiation is concerned. But ecological interdependence still goes hand in hand with massive economic disparities between societies; it is linked with vastly differing capacities to externalize the ecological costs of economic activities or to construct and apply new protective devices – for instance, dykes against the effects of global warming. In the future, such disparities are likely to become more important as a source of conflict over environmental issues than the relative scarcity of non-renewable resources.

The same is to be expected of the vastly disparate pollution per capita which each society contributes to the depletion of global resources. Third World countries have already begun to demand for themselves higher quotas of long-range transboundary pollution. In all likelihood, conflict over these issues will increase. Of course, it is hardly conceivable that in the future the European Community or any other group of states would fight a war against the USA (or other states) because of disproportionally high emissions of carbon dioxide as such. However, it is conceivable that states could use military force in order to protect themselves from such social consequences of global environmental decay as, for instance, large-scale migration. In addition, within the framework of international organizations, states may agree on collective action to enforce international environmental law or treaty obligations (cf. Schrijver, 1989).

3.2 *Environmental Impact of War*

Wars are fought over natural resources and with the help of natural resources (minerals, energy sources, etc.). Wars also devastate natural resources. Battlefields have always been sites of intensive man-made destruction, which affects the environment like anything else. As war activities are no longer confined to any particular battlefield but may be spread over the entire territory of the adversaries, they may also cause increasing environmental destruction parallel to their growing impact on the civilian population (non-combatants). As long ago as during the Thirty Years' War of 1618–48, which cut down the population by two-thirds in the area immediately affected by

the war, more people were killed through the hunger which followed the military destruction of crops and the means to work them than through direct violence (Müller, 1990). Today, in countries like Ethiopia or Mozambique, we witness the close interrelationship between environmental degradation and war, resulting in chronic famine among the local populations.

The environmental destruction caused by the two world wars was considerable. And yet it did not overtax the ability of the natural environment to renew itself. In a nuclear war this would be different. In all likelihood, nuclear war would constitute a deadly manipulation of world climate, the result of a sudden fall in global temperatures due to the absorption of sunlight by dust and black soot, thrown up through nuclear explosions. The ensuing 'nuclear winter' would cause the extinction of human life as we know it today. In addition, ionizing radiation set free through a nuclear war would affect the conditions of all forms of life on Earth for a time-span transcending the past history of the human being.

Nuclear weapons aside, even the application of conventional weapons (not to speak of chemical and biological warfare) could contribute considerably to environmental degradation.

The military contributes to environmental stress also during times of peace. Depending on the size of the military system, land is used for military infrastructure, manoeuvring, and testing grounds (Westing, 1988, p. 258). In the case of nuclear testing, the latter covers huge areas and the testing has produced considerable global fall-out. The military also consumes energy resources and contributes to pollution of the air, land and water. The sinking of a Soviet submarine with nuclear weapons on board off the Norwegian coast in 1989, and the mass destruction of sea fauna in the White Sea in 1990, presumably caused by leakages in military installations, may serve as cases in point.

Military outlays have contributed considerably to public debt in developing countries (Brzoska, 1983; Deger & Smith, 1985; Looney & Frederiksen, 1986). Growing public debt has in turn accelerated the reckless depletion of natural resources in these countries. Conversely, in an analogy to the debate on disarmament and development, funds spent for the military may be regarded as funds lost for financing environmental protection (Brundtland et al., 1987, ch. 11).

Furthermore, the military may play an important role in decision-making on the use of natural resources. Thus infrastructural penetration of the Amazonian rain forest began as a 'national security' project under the military government of Brazil which came to power in 1964. After the return of government to civilian rule, the military insisted on continuing and intensifying its presence in the Amazon region. For this purpose the Calha Norte Project was invented. It implies large-scale military penetration of the Amazon region along the border between Brazil on the one hand, and Guyana, Venezuela, Colombia and Peru on the other.

3.3 *Environmental Pressures to Reduce Violence*

The disastrous environmental effects of war point to a positive aspect of the causal linkage between the peace problematique and environmental matters: if the environmental repercussions of military activities cannot be confined to the war area, international pressure may mount to avoid wars, for ecological reasons. Those who have stressed the danger of a 'nuclear winter' have done so in order to influence decision-makers to refrain from a policy of nuclear brinkmanship. Also with a view to conventional wars, the argument has been forwarded that the international community simply cannot afford a war because of its adverse environmental effects. King Hussein of Jordan argued at the Geneva World Climate Conference of October/November 1990 that an international war over Kuwait would be intolerable for environmental reasons: in such a war, a substantial part of the local oilfields would go up in flames, releasing one hundred times more carbon dioxide in weeks than world-wide economic activities would do in the course of a whole year. This argument was taken up in the Western prewar debate and helped to arouse con-

siderable public concern and even resistance against the war. During the war, the oil fields of Kuwait did go up in flames, but contrary to the apprehension voiced in the prewar days, the ecological damage seems to have been confined, for the time being, to the region. The ecological damage in the region, however, is considerable, though probably not devastating enough to deter the various conflicting parties in the area from another war.

The argument that there are environmental pressures to avoid war may also be applied to the 'structural violence' of incomplete or deficient modernization in most Third World countries; it suffices to throw the traditional social orders out of balance but lacks the dynamics to establish new viable orders. Incomplete modernization goes hand in hand with high pressures on the natural resources of the respective countries – whether as a strategy for sheer survival (on the part of the poor) or for extensive growth (on the part of the bureaucracy) or simply as a strategy to make as much money as possible in the face of mass poverty (on the part of national and international economic interests). To the extent that the ecological consequences of incomplete modernization cannot be confined to the place of their origin, we may expect mounting pressure on the national and international levels to redefine present programmes for structural adjustment in socio-ecological terms.

Of course, we cannot realistically expect any sudden change of world (or local) politics from new ecological insights. The counterveiling interests are still far too strong. But if we tune down our expectations, we may find that environmental concerns have some importance for building peace after all. If despite the Gulf conflict we do witness an 'erosion of military power in modern world politics' (Luard, 1988), this will be the result of a long process of accumulation of many different factors. Among these factors, environmental concerns may become more important in the future – despite or perhaps even because of the fact that environmental modification can broaden the options of military warfare.

As far as non-military conflict is concerned, environmental problems again have to be seen in close interrelationship with other factors like the breakdown of Third World societies, resurgent regional conflict and increased North/South tensions. In connection with these other factors, environmental concerns could act to increase the pressure which has accumulated to overcome existing disparities in the world economic system. It is certainly too early to decide whether the world is already on the way towards 'a new political dialectic between human betterment and environmental protection', as envisaged by Lodgaard (1990, p. 20); but there is ample evidence that environmental stress not only causes political conflict but also creates pressures towards cooperation (Brown, 1977: Myers, 1986).

4. *The Instrumental Linkage*

4.1 *Environmental Warfare*

The environmental impact of military activities mentioned above may be considered an unintended consequence of such activities. However, the military can also aim at altering the environment as a means of warfare (Albrecht, 1983; Barnaby, 1976; Falk, 1973; Goldblat, 1978; Krusewitz, 1985; Westing, 1984). In recent history, such environmental warfare has been practised by the United States in the Vietnam War (Second Indochina War). One-third of the total wooded area was treated with chemicals in order to denude trees so that the 'Vietcong' would lose their cover against airborne combat action on the part of the USA. The United States also apparently tried (without much success) to manipulate cloud formations so as to enhance target performance in air raids and to cause floods (Siebert, 1990, p. 110; Westing, 1976).

Such environmental manipulation is of special interest for the 'counter-insurgency' type of warfare (Falk, 1984, p. 34). But it can also be an instrument of mass destruction: the dynamiting of the Huayuankow Dyke of the Yellow River in 1938, during the Second Sino-Japanese War (1937–45), may have been 'the most devastating single

act in all human history, in terms of numbers of lives claimed', as Westing points out (1984, p. 6). Today, besides dykes which protect low-lying areas (as in The Netherlands) there are more than 70 major dams in some 20 countries, the bombing of which could cause immense damage. With much longer lasting effects, the same would hold true for the bombing of any of the nearly 300 nuclear energy installations around the world, or the release of micro-organisms – as demonstrated by the British when they set free the anthracis bacillus (causing anthrax) for testing purposes on the Scottish island of Gruinard during World War II. The island will remain uninhabitable for years to come. Environmental modification as part of warfare lends itself to speculation. Up to now, capacities to control clouds, to cause tsunamis, earthquakes or even volcanic eruptions, to influence the acoustic or electromagnetic properties of water and the atmosphere for hostile purposes, etc., seem negligible (Westing, 1984). However, the 1977 Environmental Modification Convention (ENMOD Convention) prohibits only the actual use of environmental modification techniques for hostile purposes, not their development. That 'what is [already, LB] militarily attractive remains permissible, or at least not explicitly prohibited' (Falk, 1984, p. 33).

4.2 *Environmental Cooperation*

In sharp contrast to environmental modification for war purposes, there exists the possibility of environmental cooperation as a means to build peace. For example East/West cooperation for the protection of the Baltic Sea was relevant not only for environmental reasons but also as an instrument to bridge the East/West conflict and to maintain functional communication even in times of high political tension. Actually, environmental cooperation among Western European countries for the protection of the North Sea lagged behind East/West cooperation for the protection of the Baltic Sea. This may indicate that there was special interest in environmental cooperation in the East/West context for the very reason that such cooperation could also do more than handle specific environmental problems. Environmental cooperation in this case contributed to uphold the CSCE process and demonstrated the possibility of international regime-building even across the dividing lines of global conflict formations (List, 1990; Rittberger, 1990). This way, environmental cooperation on the Baltic Sea not only served the ecology, it also functioned as an instrument for improving overall East/West relations.

We may assume that ecological interdependence, just like the nuclear stalemate, played a certain role in justifying the 'new thinking' in the socialist countries vis-a-vis orthodox opposition to perestroika and glasnost. From this viewpoint it is hardly surprising that both Mikhail Gorbachev and Eduard Shevardnadze in statements to the 43rd session of the UN General Assembly in 1988, forcefully called for global collective action for environmental protection (cf. Timoschenko, 1989, p. 22).

A functional spillover may also be expected from parks that straddle existing borderlines (Thorsell, 1990a). Such parks are in the interest of environmental protection; at the same time they can serve as buffer zones between conflicting parties, they can help to demilitarize sensitive border areas, they can function as a vehicle for the establishment of lines of communication between conflicting parties, etc. For example, it may be of some importance for future relations in southeast Europe that Turkey and Greece are considering the establishment of an international peace park along both sides of the Evros River boundary. To quote Thorsell once again: 'In seeking policy areas for collaboration, the presidents of both countries have indicated that the conservation of nature in this locality may pave the way towards settlement of more contentious issues' (1990b, p. 58).

In accordance with this line of argument, Molvaer describes environmental cooperation among the nations of the Horn of Africa as a confidence-building measure. He reports on 'a firm belief that (environmental) cooperation could set the stage for greater dialogue amongst the nations of the Horn, possibly leading to increased political

and diplomatic contacts' (Molvaer, 1990, p. 135; cf. Lodgaard, 1990, p. 19; Renner, 1989, p. 43).

This is David Mitrany's 'working peace system' at its best. However, the experience with 'technical cooperation' in the context of the international division of labour suggests we should keep our expectations within bounds when it comes to the possible spinoff effects of ecological cooperation for peace. Peace through functional cooperation has been just as much a disappointment as the older ideas of the free trade pacifists. As yet it remains an open question whether environmental issues are better suited for a functionalist approach to international peace-building than the supposedly unpolitical regulation of international economic relations. Perhaps ecological cooperation can succeed in impressing the minds of men and their attitudes to each other more than rule-making in the realm of international trade. It may therefore become an independent variable of world politics with increasing influence on the overall relations between states. But this would be something to be hoped for in the future – if at all. At present, ecological cooperation is a dependent variable that reflects the state of overall relations more than it influences these relations (cf. 3.1 above).

5. *The Definitional Linkage*

5.1 *Environmental Degradation as War*

We may identify two distinct traditions in the history of thought on war: the one has its roots in the idea that war is a natural and necessary attribute of human existence (Xenophon), and may be regarded as a dynamic force underlying all human progress (Heraclitus). The other stresses the tragedy of war, the suffering and destruction that war brings about. The latter may be called the Erasmus perspective on war, because after Euripides and Aristophanes no one has lamented the destructive nature of war as eloquently as Erasmus of Rotterdam in his Querela pacis (1517). In the value system of the United Nations, the Erasmus perspective on war is clearly dominant.

In this perspective, it seems logical to compare military wars with environmental destruction. If war kills people and destroys their means of reproduction, so does environmental degradation. If war negates the claim of national integrity and self-determination, so does transboundary environmental pollution. Its effects are more long-lasting and more encompassing than those of (conventional) wars. Even the possible effects of a nuclear war can be matched by environmental destruction. The massive increase of CO_2 in the atmosphere over the past 200 years may lead to a disruption of the long cycles of warm and cold periods in the history of the earth causing a dramatic change in global climate with unforeseeable consequences for human life everywhere.

The destructiveness of war has grown tremendously since the first industrial revolution, because of the development of ever more powerful weapons and of the tendency of wars to inflict more and more damage on the civilian population in comparison to total losses. Environmental degradation has developed along the same lines. Over the past 200 years, the process of environmental degradation has experienced a tremendous acceleration. In addition, the number of people affected by environmental degradation is increasing rapidly. This reflects not only a growing world population but also the technological advancement of environmental destruction. More and more people are suffering under transboundary or global environmental degradation which does not originate in the area where they are living.

Thus it seems that the intra- and international consequences of environmental degradation can well be compared with those of war. This functional equivalence of war and environmental depletion could lead us to conclude that the possible 'erosion of military power' referred to above would be a sign not of the 'obsolescence' of war (Luard, 1988; Mueller, 1989) but rather of the changing face of war. Military destruction would be simply replaced by transboundary pollution. Thus we could define the continued attempts to externalize the environmental costs of production on the international level as 'aggression', and the

competing efforts of two or more countries in this respect as 'war'. Defining transboundary pollution as 'aggression' would have grave consequences: Article 51 of the UN Charter could then be evoked to justify counter-measures as an expression of the right of each country to its individual or collective self-defence (cf. Mayer-Tasch, 1987, p. 113).

Such a move would not be quite as revolutionary as it may appear at first sight. Throughout history, war has never been the sole way to inflict damage on another country – only the most dramatic one. Other ways include unequal economic relations, through which countries can exploit each other, but also the destruction of cultural identities through the non-military penetration of other societies. In the 1970s, the plea for a new international economic order was dramatized by referring to the economic policy of the North vis-a-vis the South as 'economic aggression'. As we enter the 1990s, it may seem appropriate to stress the need for a change in the dominant patterns of exploitation of natural resources by branding these patterns as 'ecological aggression' or 'war on nature'. In this perspective, the necessity that peace research should deal with ecological degradation would become self-evident. However, some counter-arguments may be in place here.

1. We should be careful not to gloss over the difference between war and conflict (cf. Deudney, 1990, p. 463). War involves conflict, but is not identical with conflict: it rather signifies a violent approach to the solution of conflict or a violent outcome of conflict. Peace research deals among other things with the question of which conflicts and under which conditions are likely to lead to war. It cannot and should not try to evade this task by simply labelling all social conflict as 'war'. Often the term 'war' is applied to emphasize that a certain conflict is carried out with great vigour and could have repercussions on the general relationship between the entities involved. (Thus we have witnessed the 'chicken war' or the 'steel war' among OECD countries.) For peace research, the important thing is not that these conflicts exist, but rather that they are not being fought out in wars.

Past and present patterns of exploiting natural resources may be as destructive as war, and they may generate international conflict which in turn could lead to war. But they do not in themselves constitute war. Our task is not to redefine the meaning of war but rather to analyse the conflict potential deriving from environmental degradation and the conditions under which such conflicts may lead to war.

2. Environmental degradation lacks an important feature of military aggression. The latter can be defined as hostile action designed to force the will of the adversary, to take something away from him or to destroy him. There is a desire to exert violence in order to affect the adversary, against his will. This dolus malus is missing in ecological destruction, with the exception of environmental warfare. Except for the latter, environmental degradation does not take place in order to harm someone else. The damage done comes as an unintended consequence of economic activities. This is reflected in the Environmental Modification Convention of 1977 (ENMOD Convention), which prohibits environmental manipulations carried out with a deliberate hostile intent.

There are good reasons, of course, for discarding this restriction and for prohibiting any environmental modification that has 'widespread, long-lasting and severe' effects on human life (ENMOD Convention, Art. 1). This would be quite in line with general criminal law, which does not confine its sanctions to cases of hostile intent. However, such a general prohibition again would have to distinguish between environmental modification in the context of interstate conflict on the one hand, 'normal' economic activities on the other. In interstate conflict, the subjects are states; in the case of 'civil' environmental depletion, most actors are non-governmental, ranging from the landless poor to big transnational companies. These actors cannot all be treated in the same way and subjected to the same administrative regulations just because the result

of their respective economic activities (e.g. de-forestation) is comparable. While the big commercial exploiters of natural resources may be suitable objects of administrative restrictions on their activities, the poor, who have no manoeuvring room for environmental adjustment, can hardly be subjected to the same restrictions, unless we want to solve environmental problems through more social injustice.

A more radical approach to interpreting the similarities between the effects of war and the effects of environmental depletion would be to define the entire process of industrialization as a functional equivalent of war or even as a form of (protracted) war (cf. Finger, 1990). Such an approach would not only blur the distinction between war and economic activities, it would consciously discard this distinction in order to stress the destructive character of the industrial system. This would leave us only two options: either to stop industrialization, or to return to the old Social Darwinist proposition that to sustain life means to destroy life.

The latter choice is unacceptable for peace research; the former seems impracticable. So we will probably have to follow a pragmatic course and concentrate on how to prevent violent clashes over environmental issues in order to create or stabilize the conditions conducive to substantial conflict resolution (i.e. the reduction of existing and the prevention of new environmental destruction).

To sum up, if we do not wish to abandon the task of differentiating human behaviour analytically so as to be better able to understand it, we must be careful not to gloss over the specificities of war, on the one hand, and environmental depletion, on the other. Tempting as it may be to brand environmental depletion as war in order to mobilize counter-forces, this would cloud the issue and distract our attention from the danger that environmental depletion may lead to war, and war in turn contributes to environmental depletion.

It remains to be asked whether environmental degradation may be defined as a form of 'structural violence'. This question is difficult to answer. On the one hand, structural violence also lacks a dolus malus. Thus the arguments put forward against the use of the term aggression in connection with transboundary pollution would also apply against the whole concept of structural violence. On the other hand, the merits of the concept of structural violence may be a strong argument for playing the dolus-malus argument down. But if we did so, this would not solve the conceptual problem: In a country in which practically every family owns a car or a refrigerator it would not make much sense to brand car driving or refrigeration as a form of structural violence, because those from whom the structural violence emanates would also be its victims. In this context the concept of structural violence would lose whatever merits it has.

The case may be different if we refer to the uneven international distribution of pollution per capita in connection with the uneven distribution of gains from pollution. In this case, the application of the term structural violence, at first sight, would make more sense. But here, too, we get into problems by applying the concept of structural violence. If we do so, levelling pollution ratios could lead to contradictory consequences: it could reduce the structural violence inherent in the uneven distribution of pollution ratios without necessarily reducing the structural violence inherent in pollution as such; the former may even be attained at the price of more pollution (i.e. more structural violence). This danger looms large in the debate on the distribution of pollution ratios in North–South relations. Also, bringing down worldwide pollution may solve the global environmental problem (in the interest of every human being) without necessarily reducing the inequality of pollution ratios. So for reasons of consistency it would probably make more sense to speak of injustice rather than structural violence in this case.

5.2 *Peace with Nature*

A positive aspect of the definitional linkage could be seen in the call for 'peace with nature' (Meyer-Abich, 1984). This term

points to the need to transcend a strictly anthropocentric reading of environmental degradation. The churches have taken up this idea by referring to the integrity of creation, and not just a healthy environment for humans (Seoul Declaration of the World Assembly of Churches, 1989; cf. also the World Charter for Nature, Art. 1). But thinking in terms of 'peace with nature' (and the negative equivalent of 'war on nature') creates the impression that people could do something to nature without at the same time doing it to themselves.[1] This assumption would contradict ecological interdependence.

The most important argument against continued attempts to externalize the environmental costs of production and consumption is that environmental degradation, no matter where it takes place, interacts globally because all local and regional ecosystems are indissolubly interlinked on the global level. In this respect, nature does not confront the realm of human life: human life is part of nature. All our advances in protecting ourselves against wind, weather, rain, cold and heat – the so-called 'forces of Nature' – by well-insulated houses and warm clothing have not made us any more autonomous vis-a-vis nature. In no way have we become the masters of the laws of nature: we have only learnt to apply them. We are still the objects of these laws. We have the freedom to ignore the laws of nature, but not to escape them. In talking about 'peace with nature', we may create the misunderstanding that we are dealing with a segment of creation of which we are no part. In reality, there is no conflict of interest between nature's right and the right of humans to exist. Peace with nature implies peace among people. In this sense 'ecology can be defined as the study of the balance of *all* life on Earth' (Brock-Utne, 1988, p. 88, emphasis added).

6. *The Normative Linkage*

6.1 *Environmental Security*

The interrelationship between ecological issues and those issues which peace researchers and analysts of international relations in general are concerned with may be highlighted by the concept of environmental or ecological security.[2] This concept is based on the assumption that there are increasingly non-military threats to the territorial integrity of a state, its right to self-determination and to its economic well-being. Environmental degradation is seen as one such threat (Environmental Security, 1989; Holst, 1989; Lodgaard, 1990; Mische, 1989; Müller, 1987; Myers, 1986; Renner, 1989; cf. Ullmann, 1983; Westing, 1986).

The concept is being discussed not only in academic circles. It has also been taken up by international organizations (especially the UN General Assembly and UNEP) and national governments. In this respect, the present Soviet government has been especially responsive. Thus, former Soviet Foreign Minister Eduard Shevardnadze contributed to the clarification of the concept by defining environmental security as a state of international relations, 'in which the maintenance, rational use, reproduction and qualitative improvement of the environment in the interest of a stable and assured development of all states and favourable living conditions for each person are being guaranteed'. In this sense environmental security calls for 'a system of normative, organizational and economic measures within the framework of comprehensive international cooperation based on international law'.[3]

The notion of ecological security takes up some of the more recent developments in scientific and political thinking on security. Especially relevant is the concept of common security (Palme, 1982) which is centred around the observation that traditional security policy enhances overall insecurity and that this contradiction can be overcome only by pursuing a policy that defines the security needs of the one party in terms of the security needs of all parties. Cooperation and reciprocity are key elements of this concept. By stressing ecological interdependence, the concept also underlines the necessity of thinking in global terms and of abandoning the idea that security – no matter with which connotation – can be attained on a national level.

The concept is clearly normative in that it pleads for a reorientation of security policy under the impact of environmental threats and especially the depletion of global commons like climate, atmosphere, fresh water and oceans. According to Lodgaard:

> . . . the concept of environmental security challenges established frames of mind and political conduct. It conveys the message that environmental problems have a legitimate claim for status at the level of 'high politics', just as much as military problems have (1990, p. 18).

Despite these features and claims, the concept of environmental or ecological security invites some second thoughts, not necessarily to be discarded but perhaps to be used with some caution (cf. Deudney, 1990).

6.2 *Sustainable Development*

Security policies are essentially status quo oriented. The most common argument against change is that it might jeopardize security. 'Don't rock the boat!' is the central message of security thinking. With this connotation of security, the term 'environmental security' would become a contradiction in itself, because ecological thinking is dynamic and global, whereas security thinking is static and particularistic. The one stresses adaptation, the other enforcement and control. This contradiction can be overcome by re-defining security to make it conducive to ecological thinking as stated above. But why need we stick to the term security at all, why not refer to sustainable development – a term which would much better signify what is now being labelled as 'environmental security'? As I see it, the central explanation must be seen in efforts to instrumentalize the high standing which security has in the realm of 'high politics' for environmental purposes (cf. Lodgaard, 1990, p. 17). But trying to claim the term security for environmental matters, it seems to me, may go off in the wrong direction. Here we should recall the experience with another attempt to define non-military aspirations in terms of security – the experience with 'economic security'.

In the 1970s, when detente went through its first phase, preoccupation with military security was modified by concerns over 'economic security'. To my knowledge, this concept was first used by the Latin Americans in their post-World War II negotiations with the United States. At that time, the USA called for inter-American cooperation in the field of security in order to transform the all-American front against Fascism into an all-American front against Communism. Against this quest for political and military cooperation, Latin American nations stressed that their real problems were of an economic nature: they were not concerned with military but with 'economic security'.

This attempt to characterize the needs of the developing countries did not impress the United States; likewise, it failed to move the economically most potent industrialized countries to make any substantial concessions to the Third World in the debate on the New Economic World Orders some 25 years later. Instead, the industrialized countries of the West were to take up the term 'economic security' to defend the existing international order. They argued that any attempt on the part of the developing countries to put pressure on the industrialized countries by threatening to disrupt the free flow of strategically important raw materials would be considered as a threat to the security of these countries. In other words, the status quo of the international economic order was defined as a security matter for the industrialized countries.

In the light of this experience, we should realize that the concept of environmental security – regardless of intent – may be invoked to defend the status quo of the present world ecological order, in which the distribution of benefits from environmental degradation is clearly in favour of the highly industrialized countries.

6.3 *Traditional Security Thinking*

The term 'security' refers to a universal aspiration centred around the desire to live in the expectation that life and physical integrity will not be threatened by any other person, group, or society. Security involves existential interests. The protection of existential interests, however, can be used to legitimize the use of force as a last resort –

regardless of the fact that this, in turn, may jeopardize life and integrity of others. Art. 51 of the UN Charter guarantees to every state the right to individual and collective self-defence, despite the prohibition of war and the obligation to pursue peaceful conflict resolution.

Defining environmental degradation as a threat to the security of societies may help to legitimize the use of force when it comes to protecting certain economic and ecological interests, or warding off negative consequences of environmental degradation. In this context we could recall the argument of Lipschutz and Holdren: references to the need to acquire natural resources have quite often 'served as rationalizations, for consumption by publics and legislators, in support of policies with much more elaborate origins' (1990, p. 123).

With the demise of the East/West conflict, the armies in all Northern countries stand ready – though perhaps with reduced numbers – to serve new tasks as the old ones are fading away. Protection of certain features of the global environment or of the controlling power exercised by the industrialized countries over the use of natural resources may be regarded by the military as such a new task. In this way, defining ecological interests in terms of security needs could contribute more to the militarization of eco-politics than to a demilitarization of traditional security thinking. Indeed, as early as 1969, NATO took up ecological questions to give the alliance a role to play in this issue area. As yet, it remains to be seen whether this will contribute more to a transformation of NATO than to a symbiosis of military and environmental politics (Krusewitz, 1985, pp. 166–171).

Such a symbiosis has recently been suggested by Senator Sam Nunn, chairman of the US Senate Armed Services Committee, who proposed that substantial Defense Department and intelligence resources be shifted to solve ecological problems through a 'Strategic Environmental Research Program'. According to Senator Nunn, some data gathered by the armed services and intelligence agencies could be opened up to non-military scientists, and military aircraft, ships, submarines as well as satellites could collect information on air and water quality and on global climate. The powerful computers used by the Defense and Energy Departments could also be made available to civilian researchers. As reported by Philip Shabecoff in the *International Herald Tribune*, a Defense Department spokesman said that the plan 'sounds good', though 'we have to see what the specifics are before we can embrace everything he has proposed'. This positive reaction is hardly surprising, since the idea behind the proposal was to combine environmental concerns with the interest of the defense establishment in retaining research and technological capacity for the military, at a time when military budgets will be shrinking substantially due to changing international threat perceptions after the demise of the East/West conflict (*International Herald Tribune*, 30 June to 1 July 1990). The Gulf War has taken away some of the pressure from the military to look for new assignments, but it remains to be seen whether the postwar situation will leave the military satisfied with what it can hope for in the future if disarmament should proceed.

6.4 *Comprehensive Security*

One other possible pitfall of 'environmental security' should be mentioned here. 'Environmental security' is to unfold in the context of 'comprehensive security' which stresses the interrelationship between military, economic, social, cultural and ecological factors. However, in the programmatic report issued by the USSR Academy of Sciences, the International Peace Research Institute in Oslo, the United Nations Environment Programme and the Ecoforum for Peace (Sofia), formulated in December 1988, environmental security together with politico-military security was given priority over economic and social concerns. The report states:

> It is clear that politico-military, environmental, economic, and social problems are all interconnected. Thus, it makes good sense to include all of them in the concept of comprehensive international security. However, the primary security issues – those upon which the very survival of humankind

> depends – are the politico-military and the environmental ones (*Environmental Security*, 1989, p. 12).

It follows, as indeed is spelled out in this report, that 'new opportunities for shifting attention and resources from the military sector' should be used in favour of the environmental sector. However, if we are serious about the interrelationship between economic, social, ecological and politico-military factors, then there is no reason to single out one or two of these aspects for special treatment. Of course, a third world war would make all other considerations obsolete. Likewise, a collapse of the biosphere would affect everything else. In this sense, politico-military and environmental aspects of security are of special importance to the well-being of human kind. But the thesis that all the various aspects of security are linked up with each other implies that ecological problems can be solved only in connection with the solution of economic and social problems. As a matter of fact, if we define environmental security as being in the interest of 'stable and assured development of all states' and of 'favourable living conditions for all persons', we are contradicting ourselves if we give environmental security priority over economic or social aspects of security.

Furthermore, such priority of environmental aspects over economic and social aspects exists only on a high level of abstraction. The poor in many countries deplete the natural resources in order to survive. Protecting the resources against them would speed up the deterioration of their living conditions. So there are obviously conflicting security interests which can and should not be solved without due regard for the concrete economic and social contexts in which they develop. Categorically establishing a priority of environmental security over economic and social considerations would contradict precisely the dynamic features which 'environmental security' is to display.

7. *Conclusion*

Environmental depletion constitutes a legitimate and necessary concern of peace research. However, we need further clarification of the underlying issues and the concepts that have been developed so far to deal with them.

Central to the entire debate on the interrelationship between the peace problematique and environmental issues is the assumption that transboundary environmental pollution and the depletion of the global commons constitute a non-military threat to the security of societies. While there are good reasons for this approach to environmental problems, the following caveats should be kept in mind:

(a) In referring to non-military threats to the life and well-being of societies we are talking of nothing new. Time and again the identity of societies has been destroyed through their economic, political and cultural penetration by others; their economic well-being has been harmed by international exploitation; their right to self-determination has been rendered obsolete by one-sided dependencies, etc. The debate of the 1970s on economic security is an expression of these non-military threats to the security of societies. Concern for environmental security should not replace the task of tackling economic and social aspects of the security of societies, lest 'environmental security' should deepen structural violence and pave the way for continued recourse to direct violence in intra- and intersocietal relations.

(b) When we are talking of increasing non-military threats to the life and well-being of societies, this does not imply that military threats are automatically becoming less important. As the above observations on the causal and instrumental linkages between 'peace and the environment' show, environmental depletion can constitute a new source of military conflict. In addition, military activity can contribute to environmental degradation, and the conscious manipulation of the environment can be used to broaden the options of military warfare.

(c) Defining environmental issues in terms of security risks is in itself a risky operation.

As pointed out in section 6, we may end up contributing more to the militarization of environmental politics than to the de-militarization of security politics. Negative causal linkages are quite strong, and it may be just as tempting for the military to embrace environmental concerns as a fashionable field of activity as it is for peace researchers. On the other hand, if the military is tempted to take over environmental tasks, then, of course, peace researchers should formulate some counter-claims. Whether this can be done by first referring to environmental problems as security issues and by then trying to give the security issues a meaning conducive to the values of peace research remains an open question.

Much will depend on positive causal and instrumental linkages. Here the question arises whether environmental concerns are better suited to fulfil the promises of interdependence and functionalism than economic matters. With a view to ecological interdependence, Klaus Meyer-Abich has recently stated: '. . . changes in world climate will do as little to compel us to live in peace as nuclear weapons did. To the contrary: peace will be further threatened because there will be losers and winners [of the climatic change, LB]' (1990, p. 70).

This is exactly the point: the degree to which social groups, societies or geographical regions are affected by global environmental degradation still differs widely. Before the effects of environmental degradation can become globally more homogeneous, further differentiation is most likely. To take two examples: the depletion of the ozone layer may proceed with highly different repercussions on the polar areas, the adjacent areas in the North and the South and the regions close to the Equator. Global warming would lead to even more dramatic disparities: especially low-lying countries would be affected severely through flooding caused by rising sea levels (cf. The Netherlands and Bangladesh), while other countries of the Northern Hemisphere might well profit from climatic change.

Such local and regional disparities are accentuated by economic disparities. The combined disparities modify the meaning of ecological interdependence. States and groups of states will seek to exploit or to escape these disparities, and they will try to find partners in doing so. Therefore, antagonistic eco-alliances may develop despite ecological interdependence.

On the other hand, ecological interdependence has already led to some cooperation. In the course of only a few years a huge body of international environmental regulations and principles has been worked out which are slowly but steadily acquiring the character of international law. Of course, international law in itself is weak, but the difference from national law is not quite as great as it appears at first sight. National law, too, depends largely on its norms being internalized by the citizens. Enforcement has only a marginal regulating effect. This is, perhaps, where functionalism comes in: environmental problems may contribute to the establishment or expansion of routine international communication and cooperation, thereby helping to marginalize the acceptability of the use of force in international conflict resolution. More important, environmental cooperation and networking on a transnational level, including the communal level, may help to develop a public awareness of national, regional and global environmental problems in their specific economic and social contexts; this in turn could have a considerable influence on the formulation of national or regional politics. It could also influence the degree to which internationally agreed regulations are actually put into practice.

In this respect, 'peace parks' may serve as a symbol for what can be done. They 'offer alternative visions for the border regions that hitherto have been military staging grounds and fields of battle' (Renner, 1989, p. 44). On the other hand, the delineation of nature preserves usually goes hand in hand with the practice of opening up the adjacent territory to commercial exploitation. In this sense, the idea of peace parks in regions of conflict like Central America, the Horn of Africa or South-East Europe could get stuck in a practice of confining peace to parks. But this only shows the functional ambivalence of environmental problems. The problems

are real: but they can also be used to distract attention from other equally real problems.

NOTES

1. Cf. Lodgaard (1990, p. 1), who speaks of 'man versus nature' types of conflict. *Environmental Security* (1989, p. 16) refers to 'security of the biosphere'. Cf. in this context also Huber (1987).
2. Both terms are used in the literature. Cf. Mische (1989), Timoschenko (1989), *Environmental Security* (1989), Lodgaard (1990).
3. *Literaturnaja Gazeta*, no. 47, 1989, cited after the German text in Stepanek (1990), p. 88.

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