

Indigenous Peoples and Food Entitlement Losses under the Impact of Externally-Induced Change¹⁾

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ABSTRACT: Three issues related to hunger, famine and food security are highlighted by the problems faced by “indigenous peoples” in many parts of the world. They affect not only the indigenous groups themselves, but also the potential for improved and increased food availability for the rest of humankind. First, indigenous peoples themselves continue to be subjected to the shock impact of outsiders in ways that remove their traditional access to land and other resources, especially those that provide customary sources of foods. The shock is therefore very negative in nutritional as well as the better-known cultural and health terms. Second, the destruction and disruption of many indigenous peoples is reducing the pool of knowledge (“ethnoscience”) available concerning the biosphere and natural resources, which is of widespread value to humanity. Thirdly, this compounds the already well-known shock impact of the “invaders” on those natural resources through environmental destruction and habitat alteration. These issues have a potential impact on global sustainability that is far greater than might be suggested by the small numbers of indigenous peoples involved. The paper argues for priority to be given to the links between hunger and food problems, the human rights of indigenous peoples, and environmental destruction.

Introduction

Vast areas of the earth’s surface, much of it including the most threatened environments, are also homeland to the world’s most threatened peoples. These fragile territories are found in countries of the North and the South, under all types of political and economic systems, and at all latitudes from the Arctic through the Tropics to the Antipodes.³⁾ Their original inhabitants – the indigenous peoples – are in many places under threat of genocide, economic and cultural disintegration. These complex crises are externally-imposed, and the loss of food entitlements plays a very significant part in producing hunger, dietary shifts and consequent ill-health.

This paper argues for a speedy and worldwide effort to build a partnership in support of their right to exist. Otherwise not only will the outsiders who encroach on their existence continue the oppression that already has led to the deaths of millions; they will also be guilty of the destruction of resources that may be essential for the continued existence of future generations of all peoples. Encroachment on (and the resulting environmental destruction of) indigenous peoples’ territories has a triple impact as far as food and hunger is concerned:

- the reduction of access to land and other resources essential for obtaining food and other necessities (whether for farming, gathering, hunting or other purposes);
- the destruction of the people (or their knowledge) who in almost all situations have the best experience of the content and management of their ecosystems;
- reduction or complete loss of species which support not only the indigenous peoples, but which are of immense value (as cultivars, or for other functions such as medicine) for all humankind.

This paper is about the dangers faced by indigenous peoples, the reasons why their fate is linked to the potential for success or failure of human existence, and the types of policies which, based on recognition of their rights to land, may make partnership possible. The next part explains the nature of the genocide they face, and the economic disintegration of their livelihoods which is part of it. This entails defining indigenous peoples, with stress on their economic systems. An argument is proposed about why indigenous peoples warrant distinct attention, and the reason this is related to global environmental problems.

The third part involves an analysis of the “modernization model”, which denies that other modes of

economic and social organization are efficient and rational. It looks at the various components of imposed economic systems as they affect indigenous peoples, from projects through to macro-economic frameworks and international systems, and the problems these entail for indigenous peoples. The fourth part examines indigenous peoples as custodians of the ecosystems they inhabit, and compares their knowledge and resource management capabilities with those of the conventional "modernization" model of development. It briefly discusses some policies which may permit the protection of indigenous peoples, especially those which they and their supporters have devised for their own defence, and asserts that a new global partnership must be constructed, with the guidance of indigenous peoples to both protect them and their territories and livelihoods.

It will be recognised that although the paper focuses on countries of the South, there are many similarities in the dangers faced by indigenous peoples and environments in the "North". This similarity in treatment of indigenous peoples in both North and South provides a valuable basis for a common global approach, one in which the North cannot claim any moral superiority over the South. The North has not had much success in its governments' or peoples' behaviour towards indigenous groups, either in their own countries or others which they have colonised. It would be difficult for them to suggest policies or recommendations to others on this basis. In some international disputes, as with that concerning greenhouse gasses and ozone-layer damage, governments of the South feel the North is making unfair demands that will restrict the South's development opportunities. But on the issue of indigenous peoples, governments and elite groups in all regions are blameworthy, but also therefore capable of sharing in the search for solutions. Moreover, the North's domination of world finance and trade, and its promotion of the modernization model, increases the harm imposed by local elites on indigenous peoples in the South. It must be recognised that there is nothing new about the conflicts between different groups of people throughout the world, and that such problems are not all the product of modernization and the present international financial system. Many current conflicts are connected with old-established attitudes of some nationalities and groups which consider themselves superior to others. But today they occur within a particular political and economic context which tends to reinforce older patterns. Modernization *justifies* past practices and stimulates new conflicts, and adds weight to the "rights" of the dominant groups to exercise their command over other peoples, and to use their resources in particular ways.

The issues are of such international importance that it can no longer be acceptable that individual states use or permit genocidal policies which deny access to food resources. The United Nations, by virtue of its human rights responsibilities, must rapidly design ways in which it can intervene, in North or South, to protect indigenous peoples, promote global partnership, and thereby pursue

global environmental protection. The issue of national sovereignty can with justification be subordinated to the rights of indigenous peoples to their food and health entitlements, to their land, livelihoods and lives.

The basis for a global partnership between indigenous peoples and those who knowingly or unknowingly oppress them is already being offered in many countries of the North and South. It is being proposed by the indigenous peoples themselves, together with supporters and allies among some other users of their environments (for example the rubber tappers of Rondonia in Brazil's western Amazon), and many local and international NGOs. In some regions, where partnership has already been rejected by the dominant nationalities and elites in government, the indigenous peoples have had to resort to resistance and guerilla struggles. Such armed resistance exists in Irian Jaya (Indonesia), Malaysia, occasionally in China, and several parts of central and south America. Some people interpret the terrorist *Sendero Luminoso* movement in Peru as at least partly a response by highland Indians to the settler state.

Forms of international intervention must be developed which encourage or embarrass states to seek other solutions than those which lead to indigenous peoples' being oppressed and invaded, so as to avoid armed conflict. These might include the active promotion of volunteer groups to go, perhaps under UN auspices, to act as a buffer between states and indigenous groups where the latter are threatened. Such cases might occur in Australia or Canada as much as in Brazil or Indonesia. The UN sanctioned war on a massive scale to protect Western interests in the Gulf. It ought to be much less controversial for it to promote an international resistance to try and implement international agreements on genocide which are already flouted by many countries around the world. A shift in international attitudes which promotes global partnership may enable or encourage dominant groups to reverse their present policies and the indigenous groups to recognise new potentials for negotiation and peaceful settlements.

The significance of international discussions and the creation of frameworks for co-operation seems both vital and possible. On a visit abroad in 1989 Davi Yanomami represented the besieged Yanomami people in north Brazil (Roraima province) and said that "public opinion is the only thing that will move the Brazilian government" (Survival International 1990). One of the most hopeful signs is a growing interest in several parts of the world in the policy of land being handed back to indigenous peoples, as in Colombia. But this is not a popular policy among those groups of outsiders who stand to lose. At a recent meeting of people from eight Amazonian countries in Colombia in 1991, it was decided to organise a further meeting "to back the President and the Minister of Agriculture and the Head of Indigenous Affairs (of the Bolivian government), who are keen to continue this process but are experiencing a tremendous resistance from other sectors of society".⁴⁾ International support is vital to provide the right kind of climate in which persuasion and moral pressure can be

brought to bear on those who want to maintain the status quo.

The greatest part of the earth's surface is homeland to the indigenous peoples, even though their access to it is declining year by year. If their knowledge of and ability to manage these vast areas is further lost through their physical and cultural disintegration, then humanity and the earth will have lost one of their greatest assets. This fact is barely recognised by most of those who dominate the economic and political power systems of the world. The very small numbers of indigenous peoples, and the fact that in most countries they are written off as primitive and irrelevant, means that the most important custodians of the largest part of the earth are instead treated as an obstacle to progress.

Indigenous Peoples as Victims of Development

It is a terrible irony that as formal development reaches more deeply into rainforests, deserts and other isolated environments, it tends to destroy the only cultures that have proved able to thrive in these environments. *Our Common Future* (WCED 1987 p. 115)

In many parts of the world, whether in the countries of the "North" or the "South", development – a process which is meant to be life-enhancing and beneficial to all – is killing people. It is also ruining the environments which provide the livelihoods that have sustained various ethnic groups for centuries, and which less directly but just as significantly are crucial for the entire population of the world. For hundreds of millions of indigenous people, from Australia to Canada, and from Papua-New Guinea to Amazonia, development is not progress towards a better life, but instead means disruption and destruction wrought in the pursuit of supposed benefits for the majority. Such situations exist in many different types of state, including communist planned societies like China, under welfare capitalism in Norway and Canada, and in many Third World countries.

The insensitivity of dominant groups in their determination to use resources for themselves which are found in the territories of indigenous peoples, means that such "development" can lead to conflicts and genocide. This may occur directly through aggression. But it is much more likely to be indirectly, through the reduction of access to the resources needed for acquiring food, deprivation of livelihoods in general, ill-health increased through nutritional decline (and substitutions of traditional foods by new inferior types), or infection with new diseases carried by colonists. In addition to the demographic demise of many groups of indigenous people, they also face cultural disintegration because of the decline of their own economy and the impact of colonists activities in bringing in new types of economic behaviour. The disruption of crucial links between nature, economic resources and cultural attributes of most indigenous peoples leads in effect to the destruction of the nationality

and culture of the peoples. This is seen in terms of changes in materials used for clothing and housing, the types of tools and utensils, the loss of maintenance of language and traditions, and of the opportunity or possibility of determining their own lifestyles without imposed encroachment. As will be seen later, this does not mean that indigenous peoples are all demanding to be left in complete isolation. In many countries it is the policies suggested by them which makes a partnership possible. The issues involved are the right of the oppressed people to determine what happens to them, and the rate at which they are affected by any process of change.

The hunger and nutritional aspect of the invasions and disruptions of indigenous peoples seem not to have attracted much specific attention. Yet all over the world that loss of food entitlements is one of the first concerns of the affected groups, and is often highlighted to sympathetic outsiders. In a recent film on the potential of rainforests as a source of medicines, an elder and respected Shaman of the Kayapo of central Brazil looks across an area of devastated forest with a different priority. He demands to know how his people are meant to eat and survive as the forests are destroyed.⁵⁾ During the attempts in 1991–2 by some groups of the Penan in Sarawak to barricade themselves and their land against logging companies, one of their priorities was to preserve access to food sources (The Guardian, London 14 February 1992). They were also very conscious of the fate of related groups that had succumbed to the invasions, and the difficulties they had in surviving on non-traditional foods. Similar problems exist in non-forest areas, including those used by pastoralists in Africa. For example, in Tanzania tens of thousands of acres of rangeland have been alienated from the traditional users, the Barabaig herders of the Arusha region. It is being used in wheat-growing, in a project supported by Canadian aid. This has removed both primary and secondary sources of foods, derived from livestock and bartered grain, and caused severe hardship for them (Lane 1990). In the forests and Tundra of Canada, native peoples such as the Cree are being deprived of their food resources by the take-over of their lands for hydro-electric schemes and other projects. In the early 1980s there was even a rather ironic outcome of Northern environmentalists' concern for the preservation of wild animals in these regions. It led to a ban on hunting that affected the Cree, Inuit and other peoples so that their livelihoods and ability to trade for food were severely threatened.

Quite apart from the loss of access to normal foods, the consequent hunger is often not resolved by alternative sources. Expelled or disrupted indigenous peoples suffer a nutritional crisis that is a complex interaction of being deprived of normal foods, and having to try and subsist on inadequate, inferior and exotic alternatives. The ability to purchase is usually insufficient, given that even if paid work is available it is not a customary form of livelihood. The alternative foods that may be available are also often of poorer nutritional value. And in many cases around the world, the cultural shock, removal of the normal purpose

of living, and dispossession from the homelands affects the people such that alcohol is abused. These nutritional problems are compounded by the health crisis that affects the dispossessed, who come into contact with new diseases, impure water and inadequate diet.

“Development” as experienced by many millions of indigenous peoples is a process in which they and their natural environments are destroyed. Many governments around the world, in both developed and developing countries, face the problem that economic growth and “progress” results in the destruction of livelihoods (and often lives) of many thousands of their citizens, especially the indigenous peoples. How can development be reconciled with the fact that in many countries there are different ethnic groups often dominated by one nationality which has the power to define development in ways that do not accord with the needs of the other peoples.

This is especially harmful to indigenous peoples because they do not have the same economic system or mode of production as the dominant nationality. Under different economic systems people have very different attitudes to nature (the same aspect of nature will be used for very different purposes, or for the indigenous people may have no function at all). Dominant groups fail to understand this, and almost always act on the basis that they have the right to use all attributes of nature which they consider are resources for their own economy, even if this means depriving the others. Where the deprivation is recognised, and measures designed by the dominant group for the compensation of the indigenous people, it has been in the form of payments which are inadequate or renege on, or which do not at all deal with the disruption of the prior economic system, which often cannot continue.⁶⁾ In any case, much of the impact cannot be properly compensated, because it is to do with the destruction of the indigenous peoples’ culture and existence (which also affects their mental health), and especially their physical health.

The impact of “modernization” and development on the nutrition, health and mortality of indigenous peoples varies tremendously between countries and areas. In parts of the Sahel, contacts since colonial times have involved medical interventions which appear to have had a “mortality control” effect but little impact on fertility. As a consequence, populations have grown (and with them, herd sizes of some pastoralists). This has led some to blame environmental damage and hunger associated with drought on the indigenous groups, who are deemed to have exceeded the carrying capacity of the land.

This is a highly controversial discussion, and many other factors need to be taken into account. The most crucial concern the shifts in indigenous peoples’ access to their production resources (principally rangelands grazing, water supplies and the mutual exchange of products between pastoralists and farmers). In many parts of the Sahel, as in East and Southern Africa, the impact of European colonialism was to restrict or exclude indigenous groups from access to their production

resources. The demographic shifts of the peoples of the region must then be linked to their strategies for dealing with these changes in their livelihoods, and not simply an irrational failure to match lower mortality with reduced birth rates.

A much clearer picture is found for the devastating impact of outsiders in other areas, especially tropical forests of countries in the South, and on indigenous peoples in countries of the “North” (including Australia). This is evidenced both by the secular decline in indigenous populations even in this century, and by current data on morbidity and mortality. Long-term decline is indicated by the estimates of Amazonia’s Indian population for 1900 (4 million) with that of the late 1980s, which Survival International puts at approximately 500,000.

The reasons for the long-term decline are complex. Diseases unknown to indigenous peoples and to which they have no immunity (such as measles, still a major problem in many areas) led to many deaths. Nutritional levels have declined as a result of disruptions in livelihoods and access to food, leading to increased morbidity. With such disruption comes the necessity to sell labour and buy different types of food, and this new set-up is often linked with diet deficiencies, alcohol abuse and cultural disintegration.

Other factors in certain areas include the pollution of water supplies by various activities introduced from outside. Lastly, there are attacks on and murders of indigenous peoples, both in the exercise of state policies for the acquisition of their territories, and in the actions of outsiders and colonists. In Australia, the hunting of Aborigines for sport continued as late as the 1930s, and throughout the world people from dominant groups have felt confident that their attacks on indigenous peoples would not lead to any legal reprisals.

Current information indicates continuing high levels of morbidity and mortality among many of these indigenous peoples after contact with outsiders. Amazon Indians are under new threats in a number of areas. One tribe which was first contacted by officials of Brazil’s Indian Agency only in 1983, the Uru Eu Wau Wau (in Rondonia province), are reported in 1991 to have suffered deaths of half their number from disease and in violent clashes with invaders.⁷⁾ Recent reports on the health problems of the Yanomami show that malaria is a major threat, leading to morbidity rates as high as 90% in some communities.⁸⁾ It was brought in by settlers and gold miners (*garimpeiros*). Poisoning of water supplies and fish has arisen because of pollution from mercury used in gold extraction by *garimpeiros*.

Defining Indigenous Peoples: the Significance of Economic Systems

The term “indigenous” has become widely accepted as a label for peoples which experience the problems discussed in this paper, but it is not without difficulty. It is usually

intended to signify peoples whose ethnicity (or *nationality*) is distinct from that of the nation-state in which they find themselves living, and whose cultural identity is not afforded equality with that of the nationality or ethnic groups which dominate that state.

A crucial and often neglected aspect of the distinctness of indigenous peoples is their economic system or mode of production, which is almost always different from that of the state's dominant nationality. Often this system is discussed in terms of the special relationship that supposedly exists with nature and the land. It is recognised by some outsiders that indigenous groups live differently, often in ways which are supposedly "closer to nature", less damaging and in harmony with the environment.

There are three dangers in this attitude to indigenous peoples. One is that dominant groups will only oppress them less if it can be demonstrated that the indigenous groups can be useful because of their greater environmental knowledge. The second is that indigenous groups have more expectations put on them than it is reasonable for them to be responsible for. (If damage is occurring to the environment, then it largely the responsibility of those causing it to put it right, and it is highly unlikely that production and livelihood systems developed over thousands of years by indigenous groups can be adopted by outsiders in very meaningful ways.) The third is that outsiders may have an unrealistic and romantic attitude to indigenous peoples as entirely virtuous societies devoid of negative aspects and conflicts. Even the notion that they are best managers of the environment needs to be qualified: we cannot know what systems may have failed, and while many indigenous systems seem today to be remarkably successful, there may be significant variations. As one researcher of traditional methods asserts:

An enduring myth is that traditional land managers live in mystic harmony with nature, attuned to natural laws and flows, and are culturally conditioned to husband their scarce resources. The myth does not square with the record: traditional managers past and present have proven quite as capable of destroying their resource bases as modern commercial farmers... (Wilken 1989 p. 47)

In particular, tropical rainforest and mountain economies of many groups seem successful, but there is controversy about the ability of rangelands systems of semi-arid regions to provide uninterrupted well-being for their original inhabitants, as for instance in the Sahel. Some groups of people in the Sahel recall severe famines of pre-colonial times in their oral history. A passing reference is given by Salifou (1975, p. 22):

In the Niger Sahel, men have known famine for a long time. From the time before foreign conquest, they still remember the "Ize Nere" (the sale of children), in which they had to sell those they could no longer feed. Then there was "Goasi Borgo", or "grinding up the water gourd" and eating it as meal to avoid starving.

Much of the present impression of the success of indigenous peoples is because of the image of tropical rainforest peoples. The suggestion of harmony with nature

is also often transferred to relations between different groups of indigenous peoples. This masks the histories of conflicts between groups, as for instance between nations in North America, between Inca and other peoples in south America, and between pastoralists and other groups in Africa. Indigenous peoples deserve to be respected in the same way as all peoples, not because they are different or special. Because they are all today subjugated by outsiders there has been a tendency to imbue them with qualities of egalitarianism, fairness and non-expansionism. These are probably wishful-thinking on the part of outsiders who are sympathetic to past and present oppression, but are unfair to the indigenous peoples in making them out to be super-human rather than basically similar to all other peoples on earth.

However, what is certain is that in almost every case, indigenous peoples experience a food crisis, and worse living conditions as a result of contact with outsiders, whether that contact is through their incorporation into the dominant group's economy, or through the invasion and colonisation of the land resources necessary to the indigenous peoples' own economy. It is also evident that much of the environmental damage which is perpetrated by "traditional cultivators" is done knowingly and reluctantly, often as a necessary coping or survival mechanism. Such groups are "aware of the consequences of their action, but ignore long-term costs in response to external pressures." (Wilken 1989 p. 47).

The justification for discussing indigenous peoples separately from other issues of hunger are twofold. The first is that they are ethnically different from the dominant peoples of the states in which they live. The second is that they generally have little or no say in the character of economic and social change in the country which incorporates them, even in aspects of so-called development in which they are directly affected. What is remarkable is that in almost all countries the vast majority of people of the poorer as well as the richer classes of the dominant ethnic groups join together in condemning the minority and indigenous peoples to patterns of development determined by the ethnically more powerful groups. When this is disputed by the indigenous people (for instance when there is an invasion of resources and land by the dominant group), the indigenous people are denounced for holding up development, for acting as a small minority resisting the progress needed for the benefit of the majority.

Because of their subordination to other ethnic groups, indigenous peoples have generally not had a great deal of attention paid to them by international organisations, although in the last twenty years or so there have been many campaigns by them and for them, and numerous organizations set up by the peoples to defend themselves. The international system is itself biased against considering indigenous peoples because it operates on the basis of mutual respect for sovereignty of nation-states. It is therefore structured to accept the dominance of whichever ethnic group or nationality controls state power,

even when this leads to the most blatant acts of suppression which contravene international codes and treaties, as well as national constitutions of the states concerned.

Indigenous people are forced to live in a state which has been formed around them. They are unable to participate in it, or determine what affects them. That state is alien to them, and although it incorporates their territory, it is dominated by, and serves the aspirations of, another dominant nationality. In this problem, indigenous peoples share the situation of other groups often referred to as ethnic minorities or tribals in various countries of North and South. In conjunction, all such groups of people might be termed *nations and peoples without states*, or non-state nations. "Nation" here refers to the cultural identity or nationality of a people, not the country into which they are incorporated, which may have very little to do with them as a nation. By nationality is meant not the legal nationality granted to a person by the state in which they reside, but the ethnicity a person possesses by virtue of characteristics of culture, language and (often) economic livelihood system. Many states contain more than one nationality in this sense, some of which may be indigenous; others may be part of a nation which is divided between several countries (as with the Kurds), or exist as ethnic minority groups in minority in states such as Spain, or in supposedly federated states such as the old USSR.

This commonality of being unrepresented (and usually repressed) has led to various global organisations being set up in recent decades which reflect this demand for representation by such "peoples without states". A recent example is the Unrepresented Nations and Peoples' Organisation (UNPO) which met in The Hague in 1990. This brought together people from groups as diverse as Baltic peoples of the USSR, American Indians, Tibetans and "tribal" peoples from different parts of Asia. However, our concern here is more specifically with the countries of the South, and with groups which exist in states established by the expansion and colonialism of European or other dominant groups in the last 500 years or so. Against their will, many millions of indigenous peoples have been incorporated into economic and social systems which reduce their access to food, and damage their normal means of gaining a livelihood. The peoples we are most concerned with here are those who exist in the following situations:

- in states which were colonial creations and who are subordinated to dominant nationalities which control those states (as with many groups in Africa, which are therefore not really any more "indigenous" than those who control the state, but who have little part in determining their own future;
- those who are the original peoples who inhabit territories which have become dominated by outside powers in the last five hundred years or so, and who clearly see themselves as being-oppressed by the state which now claims power over them. These include those in territories which became dominated by European

expansion, and which now have European-derived dominant groups (as in the Americas), also those which have become multi-nation states with the inheritance of colonial domination being in the hands of a local power group (as with Indonesia), and also those which had identifiable distinct nationalities or "tribes" as part of non-European Empires (eg China, India, Ethiopia).

Definitions of indigenous peoples are difficult, partly because of the tremendous variation in different parts of the world of the peoples, and partly because change and cultural contact has led to ethnic mixing. The United Nations has available a working definition which derives from the UN Sub-Commission on Prevention of Discrimination and Protection of Minorities (ICHI 1987, p.7):

Indigenous communities, peoples and nations are those which, having a historical continuity with pre-invasion and pre-colonial societies that developed on their territories, consider themselves distinct from other sections of the society now prevailing in those territories, or parts of them. They form at present non-dominant sectors of society and are determined to preserve, develop and transmit to future generations their ancestral territories, and their ethnic identity, as the basis of their continued existence as peoples, in accordance with their own cultural patterns, social institutions and legal systems. (UN Document No. E/ CN.4/ SUB.2/1966/ 7/Add.4, para 379, quoted in ICHI 1987, p. 8).

Because they are ethnically distinct from the group which holds state power, and because the formation of the state they are forced to live in was not of their creation, indigenous peoples have the right to question the manner in which their lives are affected by "development". States which incorporate indigenous peoples should be judged in terms of the relevance or otherwise which their development policies have for those peoples. In almost every case around the world, indigenous peoples are not party to the deliberations about such policies. They are either deliberately excluded, or have decided themselves to refrain from formal participation because experience has shown them that previous discussions and agreements are not respected.

Indigenous Peoples and the Modernization Model

Do the two hundred thousand Amazon Indians who still remain in Brazil have the right to hold up development and economic growth in that country of more than a hundred millions? Is it unreasonable for the government of Indonesia to use the less populated islands of its vast archipelago to solve the land pressure on Java, Bali and the inner islands, even if it means disrupting the existence of the outer islands' inhabitants and environment? Why should not the governments of China, Tanzania, and Sudan promote the use rangelands for conversion to agriculture to improve food security, even if it means the expulsion of existing pastoralists?

These are some of the dilemmas of modernization. Once that model is accepted, it defines progress in terms of

the use of resources in its service to the exclusion of all other systems. Even if genocide of minority groups is the outcome, the dominant groups' control of the territory of the nation-state is seen as providing a resource-base for them to determine. Land for agricultural colonisation, for extensive ranching, for mineral extraction, water for its irrigation and hydro-electricity potential, and other site-specific uses (such as remoteness, for nuclear weapons testing) can all be justified by dominant ethnic groups as projects which ostensibly solve the problems of the majority in the country. China has conducted atmospheric nuclear tests (in the 1960s and 1970s) in Xinjiang, a region which then was ethnically predominantly non-Chinese. Britain used test areas in Australia without adequate precautions or protection for nearby Aborigines. The French and USA governments have conducted tests on islands in the Pacific which have affected local people very badly. There are suggestions that in some cases local people were deliberately put at risk in order to examine the impact on them of radiation.

This relationship between majority and ethnic minorities appears to confer democratic credentials on such uses of territories which are part of the traditional resources of the indigenous peoples. But the changes in use of the land involves destruction of food-producing environments for future generations, and so the notion that problems are solved for the (existing) majority is spurious. All people, including those of the majority groups, will be deprived of food resources, species and other benefits managed by the indigenous peoples, and inherent to the destroyed ecosystems. When the impacts on future generations are taken into account, the idea of majority beneficiaries is shown to be inappropriate anyway.

But the point is not simply whether the indigenous people are in a minority or not, awkwardly resisting developments which will benefit the majority. Even where they are in a majority (as for example in Guatemala and Bolivia, the only Latin American countries where the Indians outnumber the European-derived population), there is a similar pattern. Indigenous peoples are excluded from determining what priorities are pursued in the country, and usually endure repression or subjugation by the state and the rest of the population. Their definition of how they would organise their livelihood and use the land have become irrelevant under the dominance of a model which belongs to more powerful groups.

Almost all nation states are dominated by interest groups which, with remarkable consensus (given the wide variation in their politics and provenance), share a view of human progress that involves the "modernization model". Its principle characteristics include:

- Economic growth (in terms measured by GNP or related methods) as the major determinant of the degree of success of the economy;
 - A conviction that industrialization is the main basis for economic success and that it entails a substitution of mechanized production for handicraft and manual forms of production of goods;
 - The promotion of high external-input agriculture with reduced labour and increased mechanization as the best method of production of food and industrial crops;
 - High levels of energy use (and the promotion of the means for creating it from sources which generate value-added and profits rather than renewability and low environmental impact);
 - The substitution of machinery for labour on the assumption that mechanization is more efficient and productive, whether or not a balance is maintained between the level of job creation and job losses;
 - A general tendency to promote processes of production and the acquisition of values from nature without counting the destruction of stocks for future generations, or considering the damage to environments for existing and future generations;
 - An underlying ideology and culture that reinforces the superiority of "modern" processes over all others, and which denies the efficiency of other systems. This denial excludes the favourable environmental superiority of other systems;
 - The financial calculations inherent to conventional economic cost-benefit analysis, and concepts of profits and loss, are not properly applied to non-modern systems of production, on the assumption that traditional methods could not possibly compete. However, in some situations this may not be the case, and indigenous systems could be the most "profitable".
- Those countries that arrived first at "modernization" have been able to influence the pattern of economic and social change for the entire world, and have established that model as the norm. As a result, other countries which subsequently have engaged in trade in order to themselves pursue modernization are subjected to a number of factors which influence their exchanges with nature.

By virtue of sharing the consensus that a modernized economy is desirable, or by being drawn into world trade and engaging in the supply of various primary products, the dominant groups of less developed countries involve not only themselves but – almost always against their will, the indigenous peoples – in the use of resources and land. The problem is that the definition of that process of modernization, and the patterns of resource use and trade that are made necessary by it, are determined by the government and dominant groups in the population, not by those inhabitants whose land and livelihoods become disrupted in the pursuit of trade and modernity.

If indigenous peoples had the opportunity to decide how their lands were going to be used, and who would use them, in most parts of the world (including the North), they would be opposed to the role determined by others. In many places their resistance to outsiders' definitions of resources has been firm and demonstrated very clearly, although in some places local chiefs or elites amongst some groups or tribes have compromised the livelihoods of their own people by making their own deals with the dominant groups. Despite the resistance to invasion, it is also often the case that indigenous peoples do not want to

maintain themselves in complete isolation from others. But the nature and pace of the process by which they interact needs to be determined by them.

Development Projects and Direct Impacts

Ten years ago the World Bank claimed to recognise that "tribal people are more likely to be harmed than helped by development projects that are intended for beneficiaries other than themselves." (quoted in ICIHI 1987 p. 111). In 1982 the Bank published *Tribal Peoples and Economic Development: Human Ecological Considerations*, as a response to criticisms of the impact of its clients' projects in various countries.

Of all the externally-imposed changes affecting indigenous peoples, the direct impacts of development projects are the most obvious, and are well-documented in many countries. They include dams (with upstream and downstream effects on people and environments, and forced relocation of the people), industrial and mining projects, ranching schemes, commercial plantations and irrigated agriculture, land colonisation and resettlements in territories of indigenous peoples.

Projects are normally justified within the terms of the modernization model because they supposedly improve production and therefore generate economic growth. Unfortunately, it seems that the real driving force is the increase in value-added, and the opportunities this gives to various private or state interests to generate privately-appropriated surplus. Thus although the financial rationale for projects is supposed to be provided by a calculus based on the balance of costs and benefits, there are many examples of projects around the world that were devised in a such a way that they pass the test of cost-benefit analysis, and then in the course of implementation are found to actually cost a great deal more.

Current methods of project design are capable of including some elements of environmental damage in the calculation of costs and benefits (or to incorporate the costs of environmental protection or restoration). Yet there are severe limitations on such modifications, especially as far as indigenous people and environment are concerned. Many environmental costs cannot be calculated in any meaningful way in money terms. And many of those that can be calculated are not included simply because to do so would in most cases immediately show the project to be non-viable. In general, there are a number of inadequacies in the concepts inherent in project costs and benefits. These are:

- the underestimation of the value of existing production;
- exclusion of certain costs (especially to the environment, and to existing users of the territory) which are not even conceptually valid according to the modernization model;
- failure to appreciate or predict social and political conflicts which can arise out of projects or from the clashes of interest exemplified by the project.

- overestimation of the values to be produced by the project;
- overestimation of the viability and time-span of the project;
- underestimation of the costs of the project.⁹⁾

These are potentially much more damaging for indigenous peoples and their environments, because the first three items are more significant for them than for people who already share in the modernized economy.

The prejudice and frequently the racism of dominant groups towards indigenous peoples is demonstrated by the undervaluation of their production and knowledge systems. Such attitudes are not necessarily new or directly associated with modernization. But a result of such attitudes in the implementation of projects is the consistent underestimation of existing production engaged in by indigenous peoples. The corollary is the overestimation of benefits of development interventions which encroach on indigenous peoples' territories. This is often also associated with the underestimation of the costs of projects in such areas, and the non-valuation of environmental costs both for existing users and those who supposedly benefit from the project. In some situations, there may be civil strife and war associated with projects, the costs of which are ignored (Scudder 1990). In addition, some projects may incur debts which have an impact on income distribution in the country concerned. This may lead to environmental damage resulting from increased pressure by marginalised people from the dominant groups forced onto indigenous peoples' land and other marginal areas either for colonisation or commercial activities.

Resources Are Defined by Dominant Production Systems

Projects usually arise as a result of the recognition of particular "modernization resources" and attributes of nature which can be realised for the dominant production system, and which are of no use to the indigenous peoples (like minerals) or have a different function from that perceived by outsiders (such as timber and forests). The manner in which the worlds largest iron ore reserves were found in north-east Brazil (which became the centre-piece of the Gran Carajas programme) is now part of folklore. A steel company helicopter refuels in a forest clearing, and a geologist on board recognises that beneath their feet is high-grade ore. A subsequent survey reveals the massive size of the resource and Brazilian and US interests frantically negotiate their share-out of this bonanza (Hall 1989, p. 43).

It is vital that the assumption about the resource inherent in this event be recognised: for whom is the iron a resource? It is clearly not a resource for the local inhabitants, nor the other indigenous peoples whose lives are being disrupted in the process of the iron's extraction (which will require an estimated ten per cent of the timber of Brazil's Amazon region for charcoal), associated

developments, and transportation to the coast by rail. The use of this iron by outsiders as a resource for modernization denies the indigenous peoples the use of the forest as their resource base. In other words, the definition by outsiders of this as their resource denies other prior users of their own resources. Moreover it threatens the very existence of the indigenous peoples through the disruption and health-crisis associated with the mining, smelting and transport operations.

Similar events around the world, North and South alike, show how the concept of a resource must be seen in terms of particular economic and social systems. For Australia's Aborigines, or Canada's Indian peoples, findings of uranium or iron ore on their land is not the discovery of a valuable resource, but the denial of their own resources. In the countries of the South, the needs of states and dominant groups define what is and is not a resource. Forests and rangelands in many regions of the South are subjected to commercial activities as a result of the demarcation of these areas as resources for other forms of activity than those of existing users. In the 1960s and 1970s, the Awash Valley in north Ethiopia was "developed" for commercial agriculture by the use of the flood plain for irrigation schemes. As a result, the existing users of the valley (principally the Afar pastoralists) were deprived of dry-season grazing, and it is alleged that as a result of the denial of their access to this their own traditional resource, they suffered high mortality during the drought of the early 1970s (Bondestan 1974).

International Trade and Finance: Indirect Impacts

Such definitions of resources are also inherent in the patterns of trade and international finance in which countries of the South engage, in order supposedly to pursue modernization. By sharing the consensus that a modernized economy is desirable, or by being drawn into world trade and supplying various primary products, the dominant groups of less developed countries involve not only themselves but – almost always against their will – the indigenous peoples in these uses of resources and land. The problem is that the definition of the modernization process, and the patterns of resource-use and trade that are made necessary by it, are determined by the government and dominant groups in the country, not by those inhabitants whose land and livelihoods become disrupted in the pursuit of trade and modernity.

The dominance of the modernization model of development leads to a definition of natural resources perceived as minerals, timber, hydro-power potential, marine life, and the combined qualities of land and water transformed for various forms of agriculture. These are used in particular types of economic and social relationships which differ quite markedly from those of other people who may inhabit the source areas of the resource. The priorities inherent in the calculation of economic benefits are very inadequate in dealing with

significant factors which, if included, would result in very different valuations. There are alternative definitions used by indigenous peoples which relate nature to their type of economic system. It is possible that such definitions are also superior for all peoples in present and future generations, if environmental protection and sustainability is properly valued.

Given the opportunity, indigenous peoples in most parts of the world (including the North) would be opposed to others deciding how their lands were going to be used. In many places, their resistance has been firm and demonstrated very clearly. There are numerous examples of Amazon Indians organizing themselves and working with sympathizers to protest about dam projects, gold-digging invasions, land colonization and cattle-ranching schemes. In 1990 Bolivia witnessed one of the largest protests by some of its Amazon peoples, when more than seven hundred marched on La Paz in a protest "for territory and dignity". The protesters covered about 650 km from the north of the country to the capital city (involving a climb of 3,400 m). One observer described the march's significance:

It summoned wide popular support and forced onto the national agenda several basic issues regarding the rights of native peoples to land and resources in Bolivia. And as the debt-burdened country's multiethnic society, with its fragile political democracy, gropes toward neo-liberal economic policies, the march also placed on that agenda basic questions regarding the domain of the state versus that of the private sector. Several Bolivian authorities rank the march among the country's major events of this century. (Jones 1991 p. 2)

It is interesting that Jones sees the significance of the Bolivia protest in terms of the international economic context of debt and adjustment, as well as national policies.

Unfortunately, the emphasis of critics of the World Bank on projects has tended to distract from the wider impact of macro-economic policies, and the general significance of the modernization model of development. These involve broader attitudes and policies of governments, states and elites, and the types of priorities they set for the country. Moreover, individual countries are involved in an international framework within which modernization is promoted as the only path of development. The World Bank is only one part of this, and although criticism of its projects has often been justified, indigenous peoples' problems are caused by processes much broader than the imposition of projects. Furthermore, projects affecting indigenous peoples in the North are not related in any way to World Bank activities. Those states are perfectly capable of ruining the lives of their own indigenous peoples without any help from the World Bank.

Development projects then are only one aspect of the set of processes that are leading to genocide and cultural disintegration among indigenous peoples. Since it announced new policies for projects affecting indigenous peoples in 1982, the inadequacies of the World Bank's procedures for its own projects have been highlighted by

many organisations in the North and South.¹⁰⁾ But whatever the continuing deficiencies of projects funded by the World Bank and regional development banks, the more significant factors are the attitude of governments and dominant ethnic groups in the countries concerned, both North and South. That the World Bank and other project-funding institutions (multilateral, bilateral or private) should not collude in national policies which oppress indigenous peoples is clear. But much more is needed than good policies for projects.

Projects are discrete and visible, and their impact on indigenous peoples and the environment is easily identified and even predictable. But they are only a part of the impact of modernization. Much more difficult to trace are the connections between the disruption of indigenous peoples and the "normal" day-to-day operation of domestic activities of different private interest groups and governments, and the relationships of these processes with international finance and trade.

In recent years, much concern has been expressed about the harmful impact of debt and structural adjustment policies on the environment. Two major processes are suggested: the "poverty effect" (involving poor people having to survive by using land and resources in a harmful manner), and the "export earning effect" (where private and government interests extract resources more rapidly to pay off foreign debt or increase export earnings). By extension, it might seem obvious that indigenous peoples which inhabit environments threatened by these processes would benefit from reductions in debt and reforms in structural adjustment policies SAPs. Unfortunately, the situation does not seem to be so straightforward, and the needs of indigenous peoples may not be well served by such shifts in policies.

Two qualifications can be mentioned. The first is that considerable environmental damage has been observed in countries of the South which have engaged very little in the international economy (like China until 1978 or Burma until recently), or which during relevant periods had little debt or trade balance problems (as with a number of oil-exporting countries). The second is perhaps more significant: that even if debt and structural adjustment have intensified environmental damage, there is no guarantee that any reduction of debt or reforms in adjustment policies will alleviate or end that damage. The growing calls for a reduction in debt in order to safeguard the environment by a number of organisations (including Oxfam) seem rather difficult to sustain as a solution to environmental damage. The main reason for this is that there is no necessary direct relationship between earnings from the exports of natural resources and the servicing of the debt by the state. So it is possible for exports to continue or even increase without any proportional reduction in the countries indebtedness or an improvement in trade imbalances.

The principle reason for this is private control over resources, private accumulation of dollars, and capital flight of foreign exchange earnings. For instance, in a

number of tropical countries where deforestation is a major problem (affecting many indigenous peoples), the foreign earnings from exported timber are privately appropriated by business people and some government officials. A recent Oxfam report suggests this process in at least three countries (Oxfam 1991):

Forests represent one of Indonesia's most important economic assets. But weak administrative capacity has meant that the revenue obtained does not necessarily find its way into the national exchequer. A comparable process has happened in the Philippines. Between 1972 and 1988 the profits derived from exporting timber were estimated at \$40 billion - more than the national debt. This would seem to suggest that most if the money had left the country and that about half the timber had been smuggled abroad. ... The Ghanaian government was found to be owed \$49 mln in unpaid taxes by timber companies, which were engaging in various sophisticated methods of fraud.

If this situation is common in many countries and relates to a variety of environmental problems, then debts reduction may have no effect at all, as private beneficiaries of foreign earnings will be unaffected by any reduced incentive to export.

The key issues then are related to national policies and attitudes of dominant ethnic groups, and the international framework of trade and finance and its associated pattern of product exchanges between countries. Linked with this is the international promotion by the powerful countries of the North of the modernization model of development, and the widespread national acceptance of it by governments and elites in the South. This constitutes the framework in which indigenous peoples in the South have to face nationally-determined attitudes and policies as part of their everyday existence, with or without the element of project lending. Incorporated in this is the specific international context of structural adjustment and indebtedness which arises out of the imbalance in power between north and South, and the inappropriate or poorly-implemented modernization model in the South.

Indigenous Peoples, Access to Food, and Environmental Protection

Two types of policy, direct and indirect, can be considered to remove hunger and end cultural disintegration, genocide and conflicts with indigenous peoples. Those which specifically protect indigenous peoples and their territories can be termed direct. Those which aim to modify various aspects of national and international behaviour (economic and political) to reduce the pressures on indigenous peoples by outsiders and permit their recovery are indirect. Here some implications of direct policies are considered, since the situation requires their urgent implementation; discussion of indirect policies is omitted.

In most parts of the world, direct policies have failed because of the financial rewards available to outsiders from encroaching on indigenous peoples' land and resources.

This process has been justified by the racism and assumption of superiority by dominant ethnic groups, who see access to such resources as a right derived from their supposedly superior achievements. In this final section, it is suggested that this outlook can be reduced by promoting the achievements and knowledge of the indigenous peoples in many areas, and especially in terms of their capacities to understand and manage their environments in a manner that is normally far superior to those of outsiders.

Recognition of Knowledge Systems and Resource Management Capabilities

The extent of the territories which are ostensibly home to indigenous peoples is enormous. It is matched by the variety and size of the related biomass, and the range of other natural attributes (minerals and power potential) which attract outsiders. The ecology of these regions is almost certainly better understood by the original occupants than anyone else. It has become common to argue for the protection of indigenous peoples in order to preserve that "ethnoscience" knowledge. Dominant groups and foreign interests see it in terms of commercial gain, for instance in the development of pharmaceuticals, as well as for the exploitation of plants and gene pools. It is now also being incorporated into the design of some development projects, with the associated dangers of incorporation linked ambivalently with the increased acceptance of the worth of the local peoples (Warren 1991b).

The worth of such indigenous knowledge is still not fully appreciated. It ranges across an enormous body of natural phenomena, including not only plants and fauna (and their many uses), but also climate, water and soil management, and long-distance navigation over land and ocean. In the Amazon, soil management by the Kayapo has been compared with the "modern" model scheme of Yurimaguas in Peru. Hecht found Kayapo knowledge of soils to be of a very high level. Their traditional management systems demonstrate a

"rich array of techniques and strategies for managing relatively low fertility soils . . . The Kayapo system includes a soil taxonomy, selection for varietal diversity, a complex spatial planting pattern of concentric rings, intercropping, continuous planting for certain crops, relay planting, and successional strategies. Several soil conserving practices are incorporated . . .".

She argues that "the Kayapo agricultural system is much richer, and requires no purchased inputs." (Hecht 1989, p. 170-1). In part of the Sahel, similar levels of sophistication in soil analysis were found in the Soninke people of Mauritania (Bradley et al. 1977; Bradley 1983). Management of plant varieties is another crucial aspect of indigenous knowledge. Richards (1986) provides a fascinating survey of the local botany of rice as developed by the people of central Sierra Leone, who experiment with different types and can identify seventy rice varieties.

The implications of this for the future of food production for all humanity cannot be underestimated. Recent research projects also suggest the potential of indigenous ecological knowledge in forestry use, for instance that reported in Walker et al. (1991) on "Formal representation and use of indigenous ecological knowledge about agroforestry". The journal *Agriculture and Human Values* surveyed the value of indigenous knowledge in relation to a wide range of agricultural issues in a recent number (Warren 1991a).

Dominant ethnic groups argue that the livelihood systems of indigenous peoples are an inadequate or inefficient use of land and other resources, which deserve to be brought into use by the majority of the country. They argue that the indigenous groups survive by virtue of their low population densities, and that the land itself can support many more people for agriculture, or be used for livestock or plantations, or that it contains valuable mineral resources or hydro-electric potential needed by the wider dominant economy. But doubts have been cast over such arguments, and in cases (which are unfortunately few) where surveys of comparable productivity in agriculture have been done, indigenous land-use and production is found to be superior in conventional economic terms, and a considerable improvement in sustainability terms.¹¹⁾

What never seems to be included in the costs of imposed modern agricultural systems is the disruption or demise of the existing inhabitants' livelihoods. It is also now clear that in many parts of the world the new uses of such territories are themselves unsustainable. In other words, the supposedly more efficient use of the natural resources which results from development interventions or spontaneous uses of indigenous peoples' lands often leads to destruction or damage of those resources, making them unavailable for future generations and unsuited to existing ones. A threat to the indigenous peoples' environment also threatens everyone else's, and there can be no long-term winners. This situation applies in much the same way in developed and less developed countries.

By contrast, indigenous peoples' use of environmental resources is increasingly being recognised as being sustainable and efficient. This evaluation can be made without being over-romantic: indigenous peoples are not necessarily any more "ethical" than other humans. Nor, given the relevant modern financial incentives, survival needs or self-indulgent circumstances are they inherently less environmentally destructive.¹²⁾ It must also be accepted that we cannot know much about past societies that have failed because of self-inflicted environmental destruction: we only observe today those that have been successful in surviving.

If "development" continues in such a way that the remaining traditional lands of indigenous groups are subjected to the short-term needs of outsiders, then these vast areas and their ecosystems will be damaged irrevocably. As a result, they will have much less value (in all senses of the word) for everyone in present and future generations. The commercial exploitation of the gene

pools which fall in indigenous peoples territories is significant and is leading to a shift to acceptance of indigenous knowledge. But the key reason why policies must be changed is to protect indigenous groups and their rights to land. It must be based on the recognition of the right to continue their existence, under conditions in which they determine the character and rate of any transformation of their culture and economy. Indigenous peoples have every right to resist policies and projects which damage their livelihoods, health and lives, even if they have no knowledge or resources that are coveted by outsiders.

At least one government appears to have recognised this, and claims to have instituted policies for the protection of indigenous peoples and their territories. Colombia has accepted that "the Indians alone to date have achieved a mode of existence and survival in the rainforest that enables sustainability without causing long-term damage." (Bunyard 1989 p. 4). This policy may be a model for the protection of other peoples and environments; it seems to recognise both the inherent rights of the people concerned, but also sees the issue in terms of the long-term needs of the wider population. The idea underlying it (apart from the human rights aspect) is that indigenous people have the resource management skills and ethnoscience crucial to the sustainable existence of everyone else.

This might appear simply a matter of pragmatism, and a rather tardy recognition that indigenous peoples are *useful* and therefore worth preserving like some endangered species. But the policy will work only with a fundamental change in the attitude towards the supposed primitiveness of the indigenous peoples on the part of most of the dominant groups. In some parts of the world, such restorations of land to indigenous peoples are urgently needed for their safety, as for example with the Yanomami, whose lands in north Brazil was illegally divided in the late 1980s into nineteen pockets, with gold-diggers and others invading the spaces between. The reserve was re-established as a single unit by the president in 1992, after considerable campaigning by supporters of the Yanomami in Brazil and abroad. Other regions may require different policies; whatever they might be, the crucial lesson of the Colombian case is its embodiment of the respect for Indian knowledge and rights to existence on traditional territory.

If indigenous peoples are to fulfil their potential as custodians of fragile ecosystems, and are accepted as tutors in their management for use by larger numbers of people, then huge areas of the world (in both North and South) must be protected from further trespass, invasion and encroachment by outsiders. Indigenous peoples' own lives must be protected for their own sakes. But more than that, the majority of the world's population owes it to themselves to recognise indigenous groups as protectors of everyone's sustainability, and not merely an inconvenience or constraint on progress. Indigenous peoples are the most important inhabitants of the largest land areas of the world, areas which together contain more habitats, often greater

species diversity, and (especially because of their habitations in the tropical rainforests) the greatest biomass of the world.

If they are the best managers of these ecosystems, then their demise will result in the decline and loss of values and livelihoods for everyone else. Such a utilitarian argument may appear itself to be racist, implying that if they were not so useful to others it would be less important whether indigenous groups lived or died. But this ignores the fact that the racism itself is partly a result of the manner in which expansionist groups (European-derived populations in many parts of the world, but also dominant ethnic groups in countries like Indonesia, China, Sudan, India and Ethiopia) perceive others as inferior and primitive, so that their lands become resources for the more "valuable" advanced expansionist groups.

In many parts of the world, resistance campaigns and struggles by indigenous peoples against repression is winning them respect, even if it is only the respect the powerful feel for opponents when their power challenged. But there is also growing recognition within the dominant groups that their own and their descendants' lives are bound up with the ecological and other knowledge systems of the indigenous peoples. This must reduce the racism underlying the assumptions that indigenous groups are primitive and backward. Part of the process of establishing indigenous peoples' human rights is the change in attitudes of those who deny them, and in that process there has to be growth in the respect for the immense capacity of indigenous peoples' for resource management. In a related argument, Wisner (1992, p. 22) writes: "These are the *biologically diverse* properties that can only be tapped with *culturally diverse* systems of livelihood."

Conclusion

Indigenous peoples are distinct by virtue of their not participating in the formation of the state in which they have been incorporated. Those states are a product of either European colonial rule or the expansion by more powerful groups and tribes into territory beyond their homeland areas. Indigenous peoples have economic systems that differ fundamentally from those of the dominant ethnic groups, and a distinct attitude towards nature. When they experience "invasion", it almost always has a shock impact in terms of health, culture, but also disrupted livelihood and especially a major loss of access to traditional food entitlements.

Those attributes of nature which are considered resources by the dominant group can normally be used or extracted only by disrupting and sometimes destroying the livelihoods of the indigenous people. For them "development" is something which creates hunger, destroys lives and livelihoods rather than enhancing them.

Indigenous peoples are no more or less virtuous than other peoples on earth, and their rights are deserved because of their being part of humanity and not because

they may be useful to others. Although their knowledge of the environmental systems they inhabit is almost always better than that of outsiders, it should not be assumed out of romanticism that indigenous peoples are always able to manage the environment in a non-damaging manner.

However, it is apparent that the racism of dominant groups towards indigenous peoples is fuelled to a large extent by a belief that those peoples are inferior, primitive, economically backward, and an obstruction to progress for the majority. It is therefore important to emphasise the fact that in almost all situations around the world, indigenous people have a far superior knowledge of the flora, fauna, soil, climate and other aspects of ecology of their area. They are also capable, in most situations, of much better utilisation of those ecosystems than outsiders. The recognition of these capabilities is therefore part of the process of changing other peoples' attitudes and altering

the way in which dominant groups behave towards indigenous peoples, and not simply an opportunistic policy valuing them only for what they can give.

By protecting indigenous peoples, the environment can be protected in huge areas of the globe where the best knowledge of the management of those areas rests with those peoples. The vast majority of the world's surface is composed of areas, from the Arctic and tundra to the rainforests, deserts and semi-deserts of the equatorial and tropical regions, where indigenous peoples have the first rights of habitation, livelihood and undisturbed existence. There would be significant benefits to all humankind from such a shift in attitudes, because of improved maintenance of indigenous knowledge systems and of natural resources (especially potential foodstuffs), and the protection of environments that will enhance sustainable food production in other areas.

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Endnotes

- 1) An earlier version of this paper was published in Hans-Georg Bohle (ed.). *World of Pain and Hunger: geographical perspectives on famine and food security*. Saarbrücken/Fort Lauderdale: Breitenbach Publishers, Freiburg Series in Development Studies, 1 (1994)
- 2) I would like to acknowledge the support of the ESRC (UK), the IGU, the University of Greenwich, and the Henry R. Luce Food Programme at Hampshire College (USA) for enabling me to attend the IGU Workshop at which this was presented. This paper has benefitted from the helpful criticisms of members of that workshop, and of other colleagues in Britain and The Netherlands; I remain responsible for its opinions and any errors.
- 3) I use the term fragile to indicate that such regions are at risk of losing their capacity to fulfil their present functions (for humans and in ecological terms) very rapidly, and not in the sense of a lack of robustness in the capacity for the global systems to adjust to change (as is suggested by some supporters of the Gaia viewpoint, and by others who consider the environmental movement exaggerates the problems of damage).
- 4) Information from a report of Seminar 1 in the Amazon Network Series organised by the Gaia Foundation, March 1991.
- 5) Seen in the "Fragile Earth" series programme *Jungle Pharmacy*, made by Central Television and shown on British Television's Channel 4 in 1989. Directed by Jamie Hartzell and produced by Herbert Girardet.
- 6) Examples of the cheating of indigenous peoples by governments and their agents, including the revocation of land rights treaties and renegeing on compensation for mineral extraction or relocation are many, from North and South. A few examples are given in Morris (1990).
- 7) The original encounter was filmed by the team led by Adrian Cowell during the making of their long documentary about Brazil's Amazonia, *The Decade of Destruction*. In 1990, author George Monbiot visited the area as part of an investigation of illegal logging, which had led to a road penetrating the Uru Eu Wau Wau people's reserve. He reported on the connections between the logging by a local cattle rancher, and customers in Europe who cannot determine the origin or legality of wood they buy. See *The Guardian*, London, 3 May 1991.
- 8) Survival Urgent Bulletin (London) July 1990, and information from CIIR (Catholic Institute for International Relations) translation of documents from CCPY (Comissao pela Criacao do Parque Yanomami), Brazil.
- 9) Scudder (1990) links river basin development projects to the exacerbation of civil war and international conflicts in several countries. Related issues of the Sahel are discussed in Rahim et al. (1990).
- 10) In conjunction with its 1982 policy document, the World Bank produced new operations manuals which claimed that henceforth projects would not knowingly harm "tribal" peoples. For discussion of the criticisms of its inadequacies, see ICIHI (1987 pp. 110-111).
- 11) There is a survey of some related studies in McNeely et al (1990 pp. 29-31).
- 12) The reviewer of a recent book on Easter Island comments that its authors "argue that the ecology of Easter Island, like that of Mesopotamia and North Africa, was abused by prehistoric societies, thus undermining the cherished Western notions of primitive peoples acting as green guardians of the planet." (Nick Saunders: Prehistoric myths demolished. *New Scientist* 25 July 1992). The barren uplands of Britain today are far from being the natural climax ecology, and are apparently the product of severe prehistoric and subsequent pre-modern deforestation. Ironically many people have the impression of them as a beauty representing untouched nature.

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- Sea Ice Mapping
- Mapping and Charting
- Data Fusion, Integration, and Interpretation
- New Sensors and Systems
- Training and Education

Paper Submission

Interested contributors should submit a one-page, single-spaced summary, between 200 and 500 words (no figures or references), on or before **15 February 1995**. Your summary must specify the conference topic(s) addressed and include the problem explored, methodology used, results, and conclusions. Approved papers will be published in the conference Proceedings, which will be distributed at the meeting. In addition, please indicate whether you would like your paper to be peer-reviewed for publication in a major international journal. Notification of your paper's acceptance and an author's kit will be mailed in **March 1995**. Your camera-ready paper will be due on or before **12 June 1995**.

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