Ecological Crisis:

Some Implications for Geographical Education

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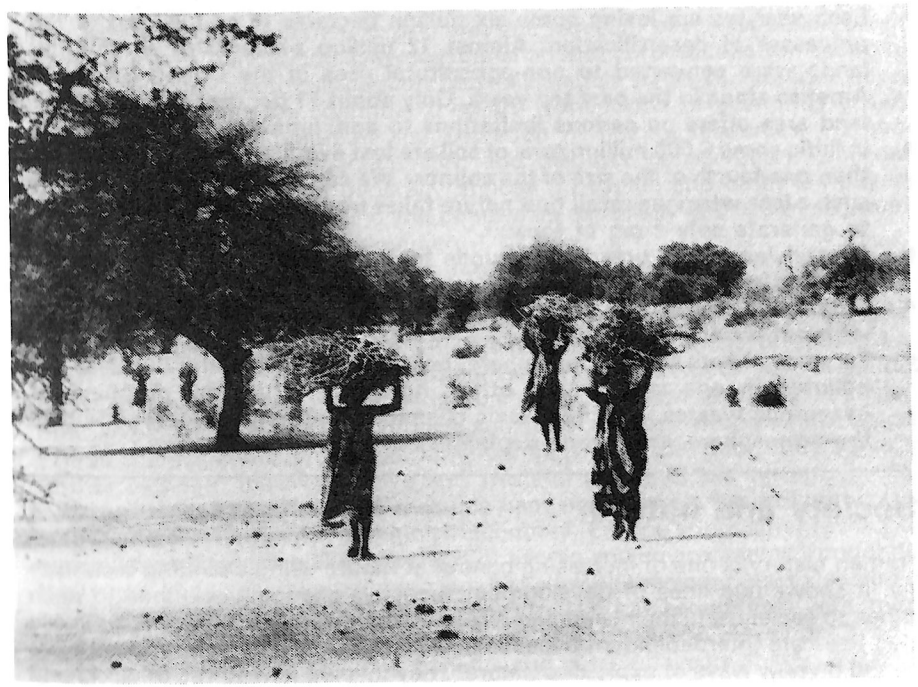
The ecological crisis is worsening. In recent years a series of national and international reports, including the world and UK conservation strategies, have warned of this. They have documented the growing threat to the planet's life support processes and genetic diversity, and have called for new policy initiatives on both conservation and ecologically sustainable development. The loss of cropland, forests, and fisheries, and the pollution of air, land, and sea is rendering dominant systems of economic production less and less viable. At the same time, the ideas and practices of alternative societies, based on production which respects nature's limits, are available and growing. Radical social change in this direction challenges powerful interests; a fact which too many pleadings on behalf of the environment are ready to ignore. It also challenges dominant forms of schooling which play their part in sustaining existing forms of economy and society and their exploitative environmental relations. School and university geography has long served to instil particular benefits and values regarding society and nature, and the challenge of radical environmentalism is therefore one which teachers should not ignore. The way in which the environmental crisis develops, and the nature of the policies which are adopted to alleviate or solve it, will have a profound impact on the people of the future. That they and their teachers are part of the unfolding history of society and nature, with some capacity to shape their destiny is the theme of this article.

In much of the Third World — as here in Niger, in the Sahel of West Africa — women carrying fuelwood for many miles are a symptom of ecological bankruptcy: a tired and degraded land which can barely support its people. Environmental refugee move to cities and to neighbouring countries. Photo: Mark Edwards/Earthscan.



'Disasters are not natural but social catastrophies. They are the result of social conditions: Deforestation, soil erosion, desertification. Lack of rain does not cause a famine, it is simply the occasion for it. It triggers off the famine.
But why do people cut down forests?
Why do they overgraze? Why do they work the same old tired land without resting it? Is it out of malice? or sheer ignorance? Not really.'

An extract from Mahmood Mamdani's speech to the Uganda Red Cross Conference, March 1985. An associate professor of political science at Makerere University, Kampala, he has since been declared an alien whilst out of the country.

Ref *Guardian Third World Review*, 10.5.85
Figure 2

The State of the World's Environment

- **Nearly half of the world's rain forests have been destroyed. At the current rate, between five and ten million hectares are lost every year.**
- **Each year we are losing some six million hectares of arable land to the processes of desertification. Almost 12 million hectares of agricultural lands were converted to non-agricultural uses in the United States of America alone in the past ten years. Only about 11 per cent of the world's land area offers no serious limitations to agriculture.**
- **In India some 6,000 million tons of soil are lost every year from an area less than one-fourth of the size of the country. We can realise the magnitude of such a loss when we recall that nature takes from 100 to 400 years or more to generate only 1 cm of topsoil.**
- **Coastal lands and breeding grounds for over two-thirds of the world's fisheries are being degraded or destroyed.**
- **Over 1,000 animal and some 25,000 plant species are today threatened with extinction.**
- **Large segments of our atmosphere, our soils, our rivers and our seas are polluted in one way or the other. Agricultural run-offs, dumping of hazardous wastes, acid rain, toxic chemicals, carbon dioxide build-up in the atmosphere, and ozone depletion are all with us.**

Society and nature

Human history is one of increasing control of nature using changing technology. It shows two lines of development: people's changing relations to each other, to society, and their changing relations to the natural environment. These two lines are interdependent because new forms of economic production are based on new ways of exploiting nature. They involve new forms of work, and require new patterns of ownership and control over human and natural resources. In the language of historical materialism, different modes of economic production have different natural environment relations, which reflect the character of their dominant social relations. *The environmental impact of an economy can only be explained by reference to the prevailing power structure of society.* What is produced, and at what social and environmental cost, is decided by those with economic and political power. In a society where natural and human resources are controlled by a minority, in its own interests, people and groups will vary in their gains from past and present environmental exploitation, will be exposed to varying amounts of pollution, and will share unequally the costs of environmental protection efforts. It is these inequalities, and their origins in the economic and political structures of different societies, which school geography lessons all too frequently neglect. A view of environmental issues informed by an analysis of the political economy unites natural and social sciences, and has far-reaching implications for the study and teaching of geography. It requires, first and foremost, an understanding of advanced capitalism; that form of society in which we live.

Environmental relations under capitalism

Capitalism involves a form of economic production in which the competitive relations between capitalists, and the (antagonistic) relations between capitalists and workers, shape society's relations with the natural world (Peet, 1985). *Our use of the environment is primarily the result of decisions based on the profit motive.* Competition between transnational corporations for economic power, and the allied competition between nation states for political power (Harris, 1983) leads to continual pressure from forms of economic growth involving increased pollution and depletion of natural resources. Pollution control, environmental management, and resource conservation, are costs which governments must generally impose on capital and other tax payers. They are a drain on profits and will be resisted especially in times of economic recession and increased competition.

Corresponding to the social relations under capitalism are political and cultural characteristics which shape our environmental attitudes and behaviour. Capitalist culture is competitive, forceful and manipulative; it leads to an instrumental approach to nature which is functional, pragmatic, piecemeal and short term. This may have disastrous consequences (see Figure 1). The relations between capitalism and nature are contradictory; decisions designed to sustain production lead to ever more complex and inter-related environmental impacts. In that the social costs of these fall most heavily on the poor, they serve to further highlight the exploitative and wasteful nature of the system.

Capital's need to expand its resource base and markets has brought it to a stage where it dominates the global economy. Europe's industrial revolution was sustained by colonial exploitation of people and environments throughout the world, and subsequent imperialism has allowed the continued extension of capitalism's resource and market frontiers. Natural economies, with more harmonious natural relations, have been destroyed (or 'developed') on a massive scale and the resulting benefits and costs unevenly shared (Croall & Rankin, 1981). The environmental consequences of such expansion did not become a matter of widespread public concern until the late 1960s. By that time the growing ecological crisis was contributing to the economic crisis.

A study of environmental issues widens the scope for questioning the 'rationality' of capitalism and focuses attention on the desirability of alternative forms of economy and society. It may also widen the scope for political action in the pursuit of these alternatives.

Capital's environmental crisis

While the period from 1952 to 1968 saw a doubling of global capitalism's output, the post-war boom gradually slowed as the capacity for economic production began to exceed that for consumption (Sutcliffe, 1983). The impending crisis of capital over-accumulation and falling profitability was delayed by accelerating the treadmill of production which provided the basis of

consumer society. Designed to sustain capital's profits, consumer society gained the support of workers and governments for it yielded increased material living standards, and taxes. It was the basis of a prolonged period of political consensus when the social democratic policies of governments were designed to maintain the treadmill's momentum by means of Keynesian demand management, and to ameliorate its worst effects on people and their surroundings by means of welfare, environmental management and planning.

By the early 1970s, the governments of the world economy's 'core' states were finding these policies designed to sustain economic growth and political consensus increasingly contradictory and expensive. By that time, a crisis of over-accumulation was being compounded by one of reproduction. Accelerating the treadmill, in order to counter falling profitability, was depleting reserves of non-renewable resources and damaging extensive areas of the biosphere. Capital was therefore faced with rising costs of raw materials and increased charges for reproducing such elements of the environment as clean water, previously free (Gorz, 1980). Its costs were also increased as pressure from a newly-emerged environmental movement brought tighter controls over the use and pollution of nature. In Europe and the USA, economic growth eventually gave way to recession, social democracy to the new Right. Political consensus was lost in conflict. The slowing of the treadmill rendered an increasing number of people marginal to consumer society: their plight worsened as economic and political policies designed to reduce capital's costs began to further erode the welfare state. Recession brought a decline in popular support for the environmental movement but it was not to disappear. The arrival of zero growth, in a very different form from that once proposed by the 'Limits to Growth' team, served to radicalise many environmentalists. Growing awareness of politics and power led to dialogue with movements of trade unions, women, peace campaigners, and those concerned with the active underdevelopment of the South.

The environment in the South

Consumer lifestyles in the North are sustained by the exploitation of people and nature in the South. Locked into structures of economic and political dependency, many poor people and countries are forced to over-exploit their natural resources in order to survive. Minerals and timber are sold off to transnational companies to increase cash income and repay national debts. Pastures are overgrazed, soil eroded, and wildlife hunted to extinction, to maintain the power and wealth of ruling elites and to meet the immediate needs of the desperately poor. This leads to the type of disaster currently affecting much of Africa as Mahmood Maindani suggests (see below). Peasants who struggle under the dual handicap of unequal market relations and forced extractions of labour, crops and cash, have no alternative but to work their land to exhaustion. Conventional development often serves merely to increase their dependency on local and international elites.

The environmental crisis is a product of both wasteful consumption (production) in the North and dependent 'development' and the resulting

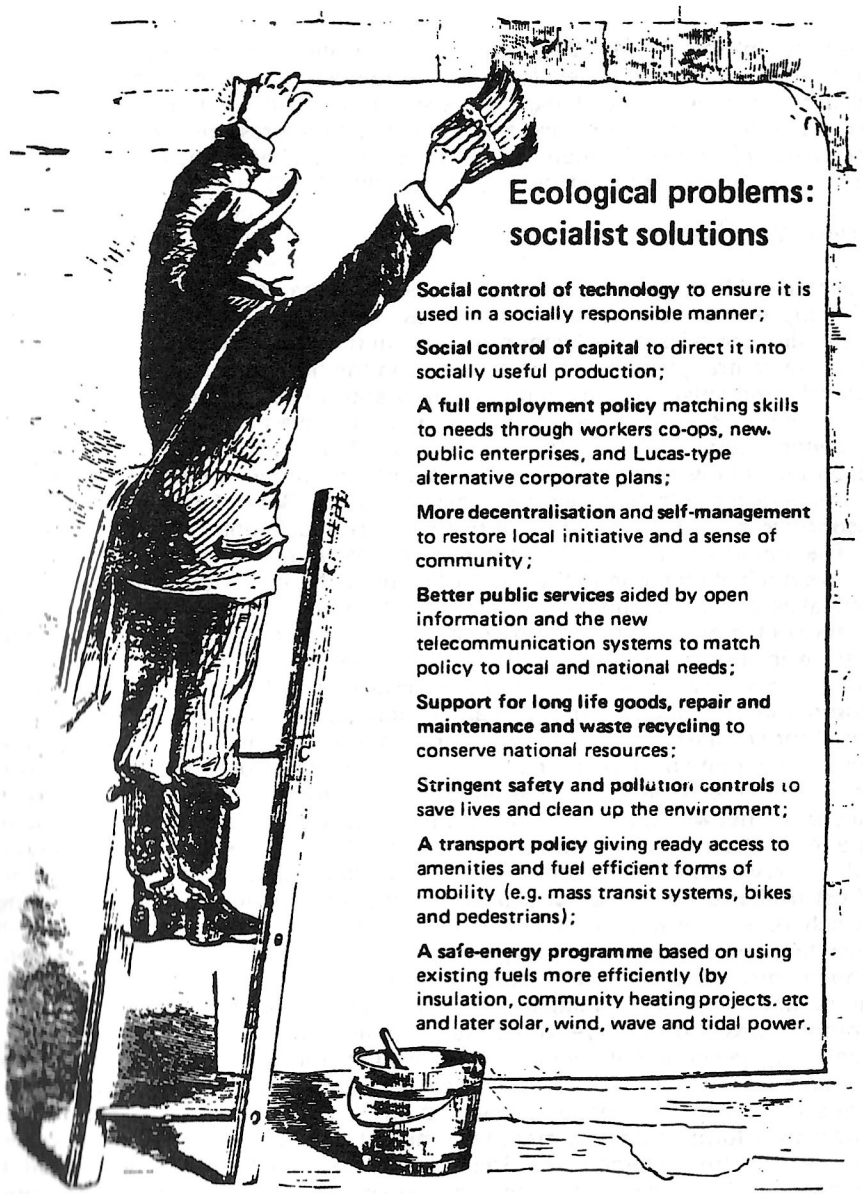


Figure 3

poverty in the South. While the World Conservation Strategy calls for ecologically sustainable development, designed to meet the needs of the poor, it fails to recognise and challenge the structural obstacles to ecodevelopment. These 'inner limits' of political and economic structures are central to socialist perspectives on development, but they are only just beginning to accommodate the 'outer limits' imposed by nature (Redclift, 1984).

Red vs Green

Following Marx, socialist thinking focused on the role of social relations in shaping economic development and restricting the full realisation of human potential. Socialist states experimented with the public ownership of resources and the central planning of the economy in the hope that such reforms would unlock productive capacity and eventually abolish scarcity. Much of their early optimism was justified as reforms brought improved economic growth, but a growing literature (Smil 1984, Komarov 1978) suggests that the planned economies now show severe symptoms of environmental abuse. The central bureaucracies of 'actually existing socialist states' (Bahro 1978) have employed economic growth to maintain public support and finance the arms race.

The majority have adopted western technology uncritically and have failed to give sufficient attention to the limits of nature in their economic planning. Their mistakes can be traced to the lack of a developed ecological perspective in Marxist ideology and to the growth of bureaucracies which exploit people and nature in their own interests. While any analysis should recognise the wide differences between socialist states, acknowledging China's experiments with communal organisation and radical technology, for example, there is clearly a need for socialist planning to incorporate a 'green' dimension. Reform should extend beyond social relations to the entire mode of production, recognising that only by reshaping what is produced and how it is produced can everyone's needs be met within the limits of nature. Ecodevelopment in the North requires the redirection of science and technology and the replacement of consumerism which serves such an important function in maintaining social control, East and West (Roberts, 1979). Social production should be reserved for 'those things which remain useful to each when distributed to all' (Gorz, 1980) and the resulting reduction in necessary work, further increased by new technology, should provide people with opportunities for self management. Recreating autonomous human capability and allowing it varied expression in local communities should serve to restore genuine democracy. At the international scale, ecodevelopment requires a reversal of the arms race which dictates economic growth and the establishment of a new global economic order which frees the South from dependency and poverty. Initiatives to create such an alternative form of development take many forms and can be seen at several scales. The striking miners, the Greenham women, the Chipko movement in the Himalayas, Solidarity in Poland, Sheffield's job creating co-ops, all contain elements of the solutions to our environmental crisis.

School geography as environmental education

Our discussion so far has provided a radical framework within which to consider people's relation to nature together with the causes, and possible solutions, to environmental issues. This has profound implications for the teaching of geography at all levels for it suggests an integrated physical and human geography which recognises the central role of social structure and human agency in shaping the use and abuse of nature. Environmental issues should be taught as social issues and environmental education should become a form of radical political education. That this fails to happen in the majority of geography classrooms is largely a product of the continuing strength of the ideology of capitalism as it is reflected in learning materials, explanatory frameworks and teacher attitudes.

Geography earned its place in the school curriculum as a subject well suited to facilitating and legitimating capital's increasing exploitation of people and nature (Cook, 1984). Its revival in the late nineteenth century and rapid growth in schools in the early decades of this century, owed much to the adoption of a form of environmentalism which stressed the unity of the nature-society relationship, and the natural region as a framework for curriculum planning. Herbertson and others provided geography teachers with a rationale which stressed the natural foundation of economic activity and regional differences. This caused them to teach topics and regions which best illustrated the environmental structuring of society and to neglect content which stressed the social structuring of nature. Pupils were encouraged to view nature as a collection of limits, influences, and possibilities which stage human activity, and the continuing strength of this environmental perspective largely explains the substantial amount of time still given to physical geography and the lasting popularity both of natural regions, and those elements of economic geography illustrating human use of natural resources (Gilbert, 1984).

By diverting attention away from human agency and social explanation, school geography based on such a perspective clearly acts as ideology supportive to capital. This role is reinforced by an associated economic determinism and a progressive view of social change. The image so often presented is of people and society subject to the laws of nature and market economics. Progress comes about through their progressive adaptation to these laws using ever more advanced technology. The resulting costs and inequalities are largely ignored in the benign images often presented, and the planning of such change is generally presented as a rational, consensus activity, free of conflict, racism, sexism or class struggle. Where controversy is acknowledged it is often treated superficially. Pupils are asked to discuss issues or form opinions without analysis of the relevant political history.

Against this background, how have school geography teachers adapted their curriculum in response to capital's environmental crisis? Firstly, they have continued to seek purely natural causes for such phenomena as desertification and the onset of the Ethiopian famine. Where this is clearly not possible, they

have presented universal or asocial explanations. Environmental problems are portrayed as 'global' problems and attributed to such common causes as overpopulation, resource scarcity, inappropriate technology, overconsumption or overproduction. All such teaching fulfils an ideological role for it fails to relate issues to the different social settings in which they arise, and fails to explain to pupils how population, scarcity, technology, consumption and production, are structured by economic and political forces. Blame is effectively transferred; the crisis attributed to nature, the poor, or inappropriate values. Lessons which acknowledge environmental management and planning are too ready to consider this solely within the context of existing social relations. Such teaching denies pupils alternative views of conflict between capital, environmental activists and the state, fails to consider adequately the use and abuse of nature in other social contexts, and consequently renders them impotent as agents of social and environmental change.

School geography as radical environmental education

A school geography which reflected the continuing radical tradition in geographical and environmental education would provide pupils with an overview of changing social formations, their different social and human-environment relations and their varying expressions in landscape. It would seek to introduce them to a political economy perspective on environmental issues as outlined above, and would provide opportunities for reflection and action on social alternatives designed to overcome economic and environmental poverty. Political education would be a central outcome of such a curriculum:

Developing political literacy (Crick and Porter, 1978) through reflection and action on environmental issues requires a curriculum with four components (Porter, 1982):

- pupils require propositional knowledge about environmental decision making in different political settings. They need to know how our present political systems work, what policies and beliefs are associated with different actors, and what the major alternatives are elsewhere in the world.
- pupils require procedural knowlege or 'know how'; the knowledge, skills and attitudes, necessary to participate in environmental politics in a way which is both effective yet respectful of the rights and sincerity of others.
- pupils need to develop a type of understanding, found within Paulo Freire's notion of conscientisation, which leads to skepticism and critical awareness. The curriculum should develop the ability to question propositional and procedural knowledge, to search out alternative evidence and explanations, and to continually review one's developing political beliefs and values.

- lastly pupils require experience of environmental politics. They need to use and evaluate their knowledge of real or simulated experience related to the environmental issues considered by the class. Most schools provide limited opportunities for such engagement within the real world and that in itself is a cause for reflection and action.

The framework for political literacy, proposed by the Programme for Political Education (Crick and Porter, 1978, Stradling, 1978), can provide both a curriculum framework and legitimation for a more radical form of environmental education in geography classrooms. Its adoption would clearly place environmental issues more firmly in a social context. However, if only a narrow range of propositional and procedural knowledge was taught, and the need for critical awareness and experience was neglected, the resulting curriculum would continue to act as ideology. Those who support the aims of the Association for Curriculum Development in Geography should be alert to such distortions of political literacy and should argue for more honest interpretations which allow a consideration of the causes and possible solutions to environmental issues outlined above.

In making our case, we can draw support from recent developments in political geography where alternative theories of the state are now being used to interpret disputes over environmental issues (Johnston, 1982, Blowers, 1984). The dominantly pluralist theory of the state, which is often the only one acknowledged in schools, has been challenged by theories based on elitism, managerialism, corporatism, Marxism, and the new right. Some political geographers suggest that elements of these different theories may be complementary in explaining environmental politics but others believe that neo-Marxist theory is adequate for the task. That debate will continue, but it is clear that geography teachers wishing to develop critical awareness of political institutions and processes now have the literature to guide them. It helps us to understand how the state deals with the competing interests of capital, labour, and environmental pressure groups, how the reformist environmental policies of the state serve to preserve class relationships, and how some groups within society are far more likely to win environmental concessions, often at the expense of the least privileged. The literature also examines the power of the local and national state to set agendas, to control information, and to manage decision-making. Environmental activists must adopt a range of tactics to counter such power and there is much scope for our pupils to study the effectiveness of the different forms of action they pursue. The nation state's need to protect its legitimacy and maintain the economic status quo is also a major factor at the global level where international conservation law is drafted and where disputes over the global commons are debated (Boardman, 1981). A study of the dispute over the International Law of the Sea, or over the future of Antarctica, can teach our pupils a great deal about international politics and the global economy. The sovereignty of national states, and the interests of transnational capital, generally subvert the idealism of inter-governmental and non-governmental agencies seeking to protect the global environment.

FIGURE 4

The Certificate of Pre-Vocational Education

In its section on Industrial, Social and Environmental Studies, the consultative document (Joint Board of Pre-Vocational Education, May 1984) lists amongst its aims:

Sub-Aim 5

To develop a sense of social responsibility in relation to various social, technological and environmental issues.
The course should provide opportunities for the young people to:

5.4 Investigate the relationship between energy usage, production methods, materials and the division of labour in industrial production and assess any environmental implications.

5.6 Develop an awareness and understanding of the pressures on the environment on a global scale by:

5.6.3 investigating the problems caused by industrial pollution and the impact on the balance of nature.

5.6.4 assessing the importance of habitat and wildlife conservation to human beings.

5.6.5 considering how responsibility for the environment can be exercised at individual, local, national and international levels.

This is only a selection of the aims which could be seen to relate to environmental education.

New opportunities

As capital's environmental crisis worsens there is increased pressure on schools to train the technocrats who will manage the crisis, and to further develop ideology which masks its true causes. Contrary to the hopes of some, geography teachers have not heard the last of environmental education. Business interests are providing it with increased funding and there are renewed calls to inculcate an environmental ethic (UKWCS, 1983). While much of the pleading should be seen as socially regressive such aims as those of the

Certificate of Pre-Vocational Education (see Figure 4), sustain a debate and create the space in which progressive and radical teachers can argue and work for more critical and emancipatory teaching about environmental issues.

The new technology, based on micro-electronics, offers us alternative futures (Vorz, 1985). It could free many from the drudgery of work, could be harnessed to socially useful and ecologically sound production, and could provide for greater decentralisation, democracy and creativity. Instead, the new technology is being adapted to a new wave of capitalist industrialisation. The replacement of such public services as health care and education by computer-aided private services, and the exploitation of people's increased leisure time by such commodities as cable television and computer games, provide new sources of profit. The seeds of alternative futures are already to be seen around us. Our work as geography teachers will play a small, but not insignificant, part in shaping the future of both society and the natural world on which we depend.

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