

Section 1: Feature Articles

Environmentalism & Education

Trevor Blake & Peter Cock

About the Authors

Trevor Blake & Peter Cock are lecturers in the Graduate School of Environmental Science, Monash University.

Abstract

In this paper we examine the tension between the development of an holistic understanding of the diverse relations linking people and environments and the dominant, technocratic orientation of tertiary environmental studies programs. Different ideologies of environmentalism are seen to be reflected in specific modes of research, education and social practice. We describe how the Graduate School of Environmental Science at Monash University has worked with these tensions. We have sought in the GSES to incorporate a more interdisciplinary, critical environmentalism that may promote a movement towards a more sustainable, equitable and enriching society.

Introduction

The development of tertiary level educational programs in 'environmental studies' or 'science' over the past 15 or so years has reflected diverse motivations. First, it has been necessary to counter the limitations of disciplinary fragmentation in comprehending environmental interactions. Secondly, there has been the allied practical need and growing social demand for professional expertise in environmental analysis, the academic and professional institutionalization of environmental understanding has been related to the gradual diffusion of a more profound ecological consciousness in industrial societies. This consciousness manifests a renewed awareness of humanity's ecological status within nature, and hence the dissolution of the Western myths of the domination of nature and superiority over other cultures which are apparently 'closer' to nature. The implications of this shift in world-view are far-reaching for education, social structures and political strategies.

Since the eighteenth century, the paradigmatic model of empirically grounded, value-free knowledge has shaped the development of the scientific and related technical disciplines as we have come to know them. This model of legitimation of 'rational' or 'objective' knowledge has transformed prevailing world-views of the relationship between people and nature. Scientific rationality has been set above the domain of 'non-rational' nature,

acknowledging only an instrumental mode of practical application of 'objective' knowledge (Adorno & Horkheimer, 1972; Leiss, 1972).

Moreover, within the framework of the dominant Western world-view of secular, empirical rationalism, it is assumed that holistic understanding can only be achieved as the ultimate product of a cumulative and reductive process of disciplinary education and research. It is supposed that reality may be divided into autonomous domains, within which we may discern systematic empirical relationships through the application of inductive inference to observational data. On the basis of rigorous, empirical analysis, untainted by subjective influences, rational prediction and, potentially, manipulation of phenomena is seen to be possible.

Disciplinary knowledge in the natural sciences has provided the intellectual foundation for the sustained momentum of technological development – that is, expansion of technical means for instrumentally rational control of nature, to meet human ends. Similarly, the social science disciplines have largely adopted the methodology of the natural sciences which have been applied to the instrumental, rational management of social behaviour – for example, to maximize labour productivity or rates of commodity consumption. Within the framework of instrumentally rational analysis of the relative efficacy of different means in achieving given ends, social values are deemed to be defined exogenously, has becoming relevant in decision-making only where calculation of socially preferred choice amongst technically comparable options is necessary. Thus, value-neutral tools of analysis – and technologies – are applied with a relativist ethical framework asserting the equivalence of competing value positions. This is the domain of systems analysis, program budgeting, environmental assessment and benefit-cost analysis – familiar tools of development planning.

The scientific legitimation of 'objective' knowledge has encompassed both professional training and research of potential technological and hence economic relevance (Biggins, 1984). Yet the role of disciplinary monopolies of

expertise in responding primarily to the needs of dominant socio-economic interests has become increasingly apparent over the past several decades, especially through the growth of technocratic control and legitimation within governments and major corporations, and selective funding of research and educational programs. The establishment of environmental studies departments to train professionals skilled in environmental analysis, assessment and management is also to be understood in the context of the political and economic necessity of mitigating the effects of prevailing patterns of socio-economic development.

In this paper, we examine the implications for educational practice of different philosophies of environmental understanding, or ideologies of environmentalism, by reflecting upon the experience of the Graduate School of Environmental Science (GSES) at Monash University in Melbourne, Australia.

Structure Of The Monash Master's Program

Like most universities, Monash is a quite conservative academic institution, with a structure of disciplinary faculties and several more or less prestigious specialist schools or centres – including the GSES. During the early 1970's a number of academics in Australian universities began to lobby for the introduction of courses in environmental studies or ecological analysis and management, to train people capable of responding rationally to environmental problems. The concept of ecosystem management was emphasized from a natural science perspective, though the relevance of social considerations within the framework of multidisciplinary analysis was generally acknowledged.

The original conception of the Monash GSES Master's degree program conformed to this general model. However, it was shaped, in part, by pragmatic accommodation, in the face of competing departmental interests which variously supported and resisted the introduction of an innovative, multidisciplinary, postgraduate course. When the course began in 1973, all coursework instruction and research supervision was performed by staff in established, discipline-based departments. At that time, the university administration provided resources sufficient for a single, full-time academic (the present Director) to coordinate the activities of 62 candidates. By drawing on the staff and course units of the university's existing facilities, establishment of the GSES placed comparatively minor demands on available funds, while also being consistent with the School's basic rationale of offering a flexible, multidisciplinary training to graduates from a wide range of disciplines.

The course combines an intensive coursework program with a group research project culminating in both a combined report and individual minor theses. See Figure 1. The School now has five teaching staff from different disciplinary and professional backgrounds and the largest postgraduate enrolment of environmental programs in Australia (Ealey, 1985).

Approaches To Tertiary Environmental Education

From Multidisciplinary to Interdisciplinary Integration

The concept of environmental science underpinning the Monash program involves the pursuit of 'systematic and formulated knowledge' (science) regarding the 'relationship of humanity with nature and people with each other' (environment). This very wide definition has permitted great flexibility in the development of the program as well as in the orientation of individual candidates' studies. Indeed, over the twelve years of its existence, the program has consistently emphasized the desirability of an approach to environmental science which is flexible as well as integrative and practically oriented.

At the outset a philosophy emphasizing multidisciplinary interaction guided the course design. It was believed that candidates should acquire a general background in a range of disciplines falling within the purview of environmental science, as well as some specialist knowledge. An appreciation of the interdependence of relevant disciplinary, cognitive perspectives in relation to environmental problems was expected to emerge primarily out of the practical experience of team-based, multidisciplinary investigations. Yet, although some coursework units had an interdisciplinary character, the conceptual possibilities for interdisciplinary integration were not extensively reflected in the curriculum structure. Beyond the explicit emphasis on multidisciplinary integration through the practical experience of group research, there appears to have been a tacit presumption that a Gestalt or assimilative learning process would occur spontaneously as candidates passed through the course, yielding a more holistic environmental awareness. Undoubtedly, this type of process did occur to some extent, but a critical, social and self awareness was not generally stimulated.

At this early stage, the coursework units were concentrated in the natural sciences, with the concept of ecosystem being the main pivot of integration, but providing no clear linkage with the human sciences component. Thus, though the conceptual domain of environmental science had been defined, albeit broadly, the need for a clearly formulated model or paradigm of human ecology gradually became apparent.

Following an external review of the M.Env.Sc. program in 1978-79, attention was directed toward modifying the curriculum to provide instruction in interdisciplinary integration. Systems theory was identified as providing an intellectually viable, and academically legitimate, framework for such integration (Fisher, 1983). Two units in Science and Systems Theory were introduced, to be taken respectively in the first and last semesters of the coursework phase. These units examine the strengths and limitations of analytic, disciplinary science in comprehending the interdependent structures of which reality is composed. An approach based on reflective, contextual analysis of the interactive structures linking parts and wholes, or partial and encompassing systems, is contrasted with reductive analysis of linear cause-effect relations. The artificiality of the orthodox scientific premises of the possibility of both theory and value neutral observation and the existence of closed systems is considered in relation to the systems theory postulates

of the theory dependence of understanding and the universality of open systems. The perspective stresses the dialectical interactions which shape and transform different psychological (including cognitive), social, technological and environmental system structures. Thus, the interdependence of personality, ways of understanding, technologies, and social practices and structures, and, moreover, the pervasiveness of contradictions and paradoxes in systems, are highlighted. The essential thrust is therefore qualitative, synthesizing and reflective.

Technocratic versus Critical Environmentalism

Human societies are open systems as a result of the interaction of individuals' reflective capabilities and the social possibilities for action to transform existing practices and underlying structures. Frameworks of social understanding which do not acknowledge this openness, will inevitably contribute to the reproduction of existing structures.

In responding to these realities, in recent years staff of GSES have sought to balance the emphasis on technically-oriented professional environmental training by introducing new units and encouraging research having a more socially critical orientation.

Professional or technocratic environmentalism is predicated on the possibility of objective, systematic empirical knowledge of environmental processes, integrated within a multidisciplinary framework, to guide instrumentally rational decision-making. In contrast, critical environmentalism is characterised by an emphasis on the interdependence of social knowledge, values and practices, and human-environment relations – it denies the substantive reality of key conceptual divisions underpinning technocratic environmentalism (Adorno and Horkheimer, 1972; Redclift, 1984; Robertson, 1983). It acknowledges that the way in which social and environmental relations are understood cannot be independent of the way in which those relations are evaluated and practised.

Understanding, evaluation and practice are dialectically related rather than essentially autonomous. World-views and related ideologies reflect the interdependence of modes of understanding and social values: consider, for example, the symbiotic connection between liberal-conservative ideology, neo-classical economics and capitalist social structures (Bhasker, 1979). Critical-dialectical models of knowledge recognise that all understanding – including science – is produced through social interaction within definite frameworks of interpretation and relations of social power. Critical understanding requires an open process of dialogue, clarifying and exploring the connections between different perspectives, drawing upon the full range of experience and insight relevant in a given context. Consequently, a participatory learning process is essential, overcoming the barriers of putative monopolies of expertise.

Critical environmentalism acknowledges that human-environmental relations both shape and reflect social relations – in particular, environmental conditions constrain economic activities while being reciprocally affected as a result of political-economic pressures. Indeed, it generates a challenging assessment of the human and environmental costs, on equity and sustainability, of dominant social structures.

The divergence between the technocratic and critical modes of environmentalism has not been formally articulated within the Master of Environmental Science program – for quite pragmatic reasons. A self-consciously eclectic approach is maintained. While offering candidates an educational opportunity to acquire professionally relevant skills, largely within orthodox disciplinary frameworks, we also seek to stimulate a more critical understanding and moral sensitivity with respect to underlying issues so that they might become concerned or caring practitioners. At a practical level at least, these two approaches are not mutually exclusive despite the profound tensions involved. A critical perspective can only develop in reaction to unreflective perspectives. More over, it seems to us that a critical understanding of ecological and social processes is necessary to sustain a mode of practice which is both morally defensible and practically effective.

Since 1976, in response to pressure from candidates, an increasing emphasis in the Master of Environmental Science program has been given to coursework units concerned with the economics, politics and, indeed, political-economy of environmental management, development and related issues. Recently a critical environmentalist approach has been introduced in new units. In the units Environmental Planning and Environmental Decision-making, we explore the interaction of ecological, technological, economic, political and cultural factors in shaping patterns of development. Attention is particularly directed toward the relationship between the conceptual structure, ideological character and practical implications of different explanatory frameworks and models of planning or policy analysis used to guide development decisions. Thus, the premises and social implications of supposedly objective models of analysis are examined – for example, environmental capability assessment, benefit-cost analysis, systems modelling and optimization techniques. These technocratic planning procedures are contrasted with alternative models of social guidance based on market competition, liberal-democratic political structures, and participatory self-management.

A central theme in the unit Environmental Planning is that orthodox techniques of 'rational' planning and policy-making based on empirical analysis and centralized control must presume the persistence of prevailing social structures – which may not be compatible with criteria of environmental sustainability, satisfaction of basic human needs, strengthening of social networks, and expansion of opportunities for creative self-expression. For example, one of the most widely espoused planning techniques, benefit-cost analysis, represents a technocratic adaption of capitalist market principles to the public sphere. It is based on the commodification of social needs, resources and activities; it arguably serves to mystify social inequalities and differential power; it is inconsistent with principles of long-term ecological sustainability and does not establish a coherent role for democratic process (Blake, 1983). In contrast, the substantive criteria listed above provide an alternative basis for evaluation of the relative merits and implications of various strategies of development.

In the unit Environmental Decision-making attention focuses on the interaction of state, capitalist, labour, environmentalist and other social interests in shaping environmental policies and patterns of economic development. The major aims of the unit are, first, to enhance participants' critical understanding of the political dynamics of environmental and related decision-making and, secondly, to consider the character of the difficulties which the state faces in attempting to promote a pattern of development which is economically, culturally and environmentally sustainable. Two questions posed are: What is the relationship between development and conservation from different political-economic perspectives? What socio-political conditions must prevail if a movement toward a sustainable society is to become feasible? The basic dilemma the democratic-capitalist state faces revolves around the contradiction between, on the one hand, action designed to sustain private capital accumulation, and, on the other, action designed to sustain the support of non-capitalist interests, for example, through social welfare and environmental protection programs.

In both of these units a case study approach to current issues is adopted. In Environmental Planning, course participants undertake a case study investigation of a current land use issue, usually in the local region. The aim is for participants to gain an appreciation of the political character of environmental problems and planning processes in relation to competing social interests and ideologies. They are asked to recommend a strategy of response consistent with criteria of environmental responsibility and social equity – as defined by themselves. Some of the most successful studies have resulted from actual political involvement in the issues examined, generating subtle insights into the interaction of political and economic power and social values in conditioning environmental change. In Environmental Decision-making, the ideological and political dimensions of the issues are explored through advocacy presentations by professional environmental managers, environmental activists and representatives of public and private development organizations. In addition, role-playing exercises involving course participants are designed to highlight the links between personalities, social interests and values, and institutional structures. The latter technique is also used in Environmental Planning.

The unit Conserver Society has been particularly innovative. This unit has the unambiguous objective of facilitating active exploration of the paths and obstacles to, and the characteristics of, an environmentally sustainable, non-materialistic, culturally enriching society. The links between world-views, values and social practices are exposed through personal reflection, critical discussion and practical action. Attention is therefore focused upon the need for personal involvement and change as essential aspects of structural change and environmental attunement.

The gap between growing environmental awareness and the continuing dominance of a competitive, materialistic lifestyle orientation in Western societies is confronted at the level of practice. Techniques used in this process include:

- a series of retreats concerned with clarification of world-views, values and lifestyles;
- an internship within a conserver-orientated organization concluding with an evaluation of its activities;
- a series of seminars organized by staff and participants to consider both theoretical issues and practical experiences; and
- the keeping of a journal describing personal reactions and reflections during the course.

Through this process integrating theory and practice, candidates have an opportunity to cultivate their personal awareness, sense of social/ecological responsibility and confidence in the possibility of change. Effort is directed toward consciousness-raising and empowerment, occupationally and personally.

This type of approach begins to provide a framework for a critical, engaged and transformative human ecology, in which opportunities are opened for people to overcome their alienation from their environment.

However, the experience of teaching these 'critical' courses has revealed some difficulty in countering the weight of candidates' disciplinary training. The importance of contextual thinking in comprehending interactive structures is readily recognised to be essential to environmental analysis (see Figure 2), but more subtle, dialectical aspects of knowledge and social practice are often obscured by a deep faith in and dependence upon the objectivity of disciplinary science. This tension in understanding corresponds to profound divergences of philosophy which persist both within in the university as a whole and within the actual Master of Environmental Science course structure. The means by which these conflicts might be drawn upon creatively within teaching practice is a vital issue. The isolated and rarefied reality of the university environment compounds students' difficulties in connecting abstract issues with their personal experiences.

Environmental Research and Action.

Since its inception the GSES has emphasised the desirability of obtaining external funding for research projects carried out by M.Env.Sc. candidates. While project funding helps to sustain the activities of the Graduate School, it is also seen to ensure that research meets a real community need, as well as providing 'real life' experiences for candidates. Inevitably, however, an emphasis on funding largely restricts potential client organisations to government departments and private businesses, leading to a bias in the type of research undertaken. Funded projects have mainly been in the areas of land and water management, pollution hazards and ecological conservation.

Over the past five years the proportion of group research projects concerned with community development, social alternatives or critical political analysis has increased; for example, 'Current Energy Strategies – Critiques and Alternatives', 'Sharehousing', 'Western Science, Technology and Cultural Imperialism in the Third world', 'Conserver Society Initiatives in a Small Suburban Village', 'Social Impacts of Radiation Technology'.

Project teams must demonstrate the social relevance of their research and seek a formal relationship with a client organisation, even if funding is not available. The next step beyond this type of arrangement might involve actual collaboration between the academic researchers and the target organisation in conducting the investigation.

In addition to the encouragement of socially relevant research, coursework recognition is now available for contributions by candidates to community organisations, where a concrete written output can be evaluated. Candidates can be involved in a submission to a public inquiry, assessment of an organisation's activities or management, or even generation and evaluation of a public campaign. Guidelines for such Environmental Internships are negotiable. Both involvement in and evaluation of the work of community groups are now encouraged in several units of the course. This emphasis on learning through social practice is seen to be important both educationally and, through offering support and critical feedback, to community organisations.

One important form of interaction with the community which has thus far been beyond our resources, has been the provision of open access to information and advice to the community. The recent establishment of 'science shops' in Europe represents a significant initiative in this context. Only by breaking the barriers between researchers, teaching institutions and the community at large can a broad scale educational process, involving the interaction of theoretical knowledge and practical experience, become an essential element of a socially responsive path of development. Expansion of community access to centres of advanced research and learning is dependent on some structural change to create dispersed, small-scale, multi-faceted facilities that are specifically designed to respond to community needs (see Illich, 1973; Jungk, 1976).

Towards A More Holistic Environmentalist Perspective

The task of environmental education is, ultimately, to promote awareness of the manifold interdependencies which exist within the human environment. Recognition of such interdependencies is the essential index of ecological awareness. Yet, tragically, dominant Western traditions of thought have been profoundly anti-ecological in orientation, misguidedly emphasizing conceptual divisions separating people from nature, and thereby legitimating practices destructive of ecological interdependencies. Dominant traditions of research and education have sought to sustain a division between the disinterested pursuit of knowledge and the concerns of everyday life, between empirically based reason and subjective belief, as well as between human culture and the natural domain (Polanyi, 1958; Roszak, 1973; Schumacher, 1977).

Critical environmentalism goes some way toward revealing the interdependencies of interpretative frameworks, individual experience, social and ecological structures. It begins to provide a means of bridging the barriers separating theoretical understanding, technological capacities and people's experience, needs and energies. It can contribute to the cultivation of a reflexive, caring, ecological and social awareness and commitment, leading to lifestyle modification and community action. Para-

doxically for the technocratic environmentalist, the substitution of a critical engagement for a quixotic detachment or objectivity may yield greater causal insight and practical capabilities. This is because of the critical environmentalist concern to apprehend both the causal structures underlying surface phenomena – e.g. symptoms of environmental decay – and the relationship between social needs and technical possibilities. Moreover, only through the democratization of social understanding and control can social development become consistent with the environmentally sustainable and socially equitable satisfaction of human needs (Bookchin, 1982; Habermas, 1975; Di Norcia, 1974).

Yet the critical imperative may prove inadequate to its declared goal – perhaps even be self-defeating. For a social philosophy grounded in critique may be incapable on the one hand, of sustaining a pragmatic response to the immediate needs of social production and intergration and, on the other, of resisting the slide into cynicism or despair. The perversions of revolutionary politics are to be understood in this context. A purely critical perspective tends to dissipate capacities for the postulation of and experimentation with possibilities for a sustainable humane society.

While self-reflection and participatory organization may contribute to the diminution of competitive individualism, the affirmation and growth of a profound empathy between people, and between people and nature is vital.

The development of an empathetic consciousness arises from the perception of some element of shared origin, experience, need or vulnerability – and hence identity – linking human subjectivity with external objects (Heidegger, 1962). It is, of course, a central aspect of diverse mystical traditions that humans must establish a direct subjective relationship with other objects *qua* subject if the essence of their existential state or being is to be apprehended. Indeed, the role of intuitive, holistic, empathetic knowing – encompassing the unconscious processes – in generating creative insight in 'orthodox' science has increasingly been acknowledged in recent times (Capra, 1982). This shift in metaphysical and epistemological paradigms of science has been greatly stimulated by developments in feminist philosophy, reacting to the patriarchal dualities of knowing and being, subjectivity and objectivity, human reason and natural process (see Easlea, 1981; Goodfield, 1981; Harding and Hintikka, 1983; Keller, 1983; Merchant, 1980). The challenge is to link empathetic, intuitive understanding and critical, detached analysis through a dialectic of modes of knowing.

Empathetic understanding entails a tacit recognition of the existential value and hence moral worth of the object/subject under examination. Reflection upon this recognition therefore leads to a perception of the moral obligations of the subject towards ... other people, creatures or natural objects. Repression of this empathetic moral understanding, for example, under the traditional methodological strictures of 'objective' science, leads directly to pathological, destructive consequences (Nandy, 1983).

It emerges, then, that the cultural transformation required to integrate a movement towards an ecologically sustainable society must entail a shift in world-view manifested at the level of both the theory and practice of science and technology, as well as in other domains of social life (Birch and Cobb, 1981). It is the task of a holistic practice of environmental education to contribute to the reconciliation of humanity and non-human nature (Sessions, 1983). We must encourage a process of reflection which acknowledges the tension between, on the one hand, tacit emotional, moral and political commitments, and, on the other, the dialectical necessity of striving for self-reflective, critical detachment, as we develop our understanding of the ecological reality of which we are an intrinsic element.

Conclusion

The radical implications of an ecological world-view are only slowly filtering into established educational institutions. While many universities and technical colleges have introduced 'environmental studies' or 'science' programs, the dominance of disciplinary perspectives – and departmental interests – has restricted the development of a socially critical, interdisciplinary mode of environmental teaching and research (Martin, 1977). The challenge of the ecological perspective is that it exposes the limitations of disciplinary perspectives rooted in an uncritical empiricist epistemology.

In this paper we have examined how the GSES has worked with the tension between the technocratic model of multidisciplinary environmental training and research – responding to prevailing socio-economic pressures – and a critical model which promotes both understanding of underlying structures and self-awareness of moral implications. Thus the GSES has gradually incorporated a more interdisciplinary, critical environmentalism that confronts prevailing ideologies of science and social practice. We have sought to promote a social relevance of teaching research and praxis that may assist a movement towards an environmentally sustainable, culturally enriching society. We see the task of environmental education as the development of a more holistic mode of understanding that is both critical and empathetic, which intergrates the acquisition of skills of disciplinary and interdisciplinary analysis with personal development and social commitment.

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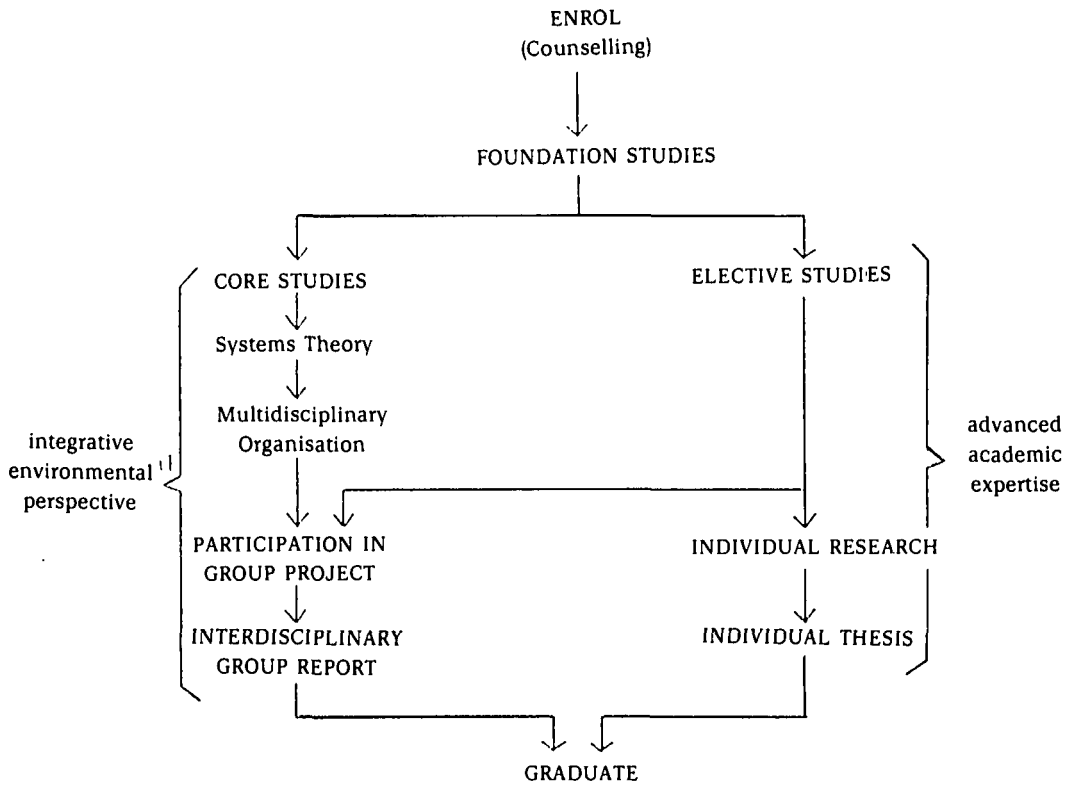


FIGURE 1. THE STRUCTURE OF THE M. ENV. SC. PROGRAM

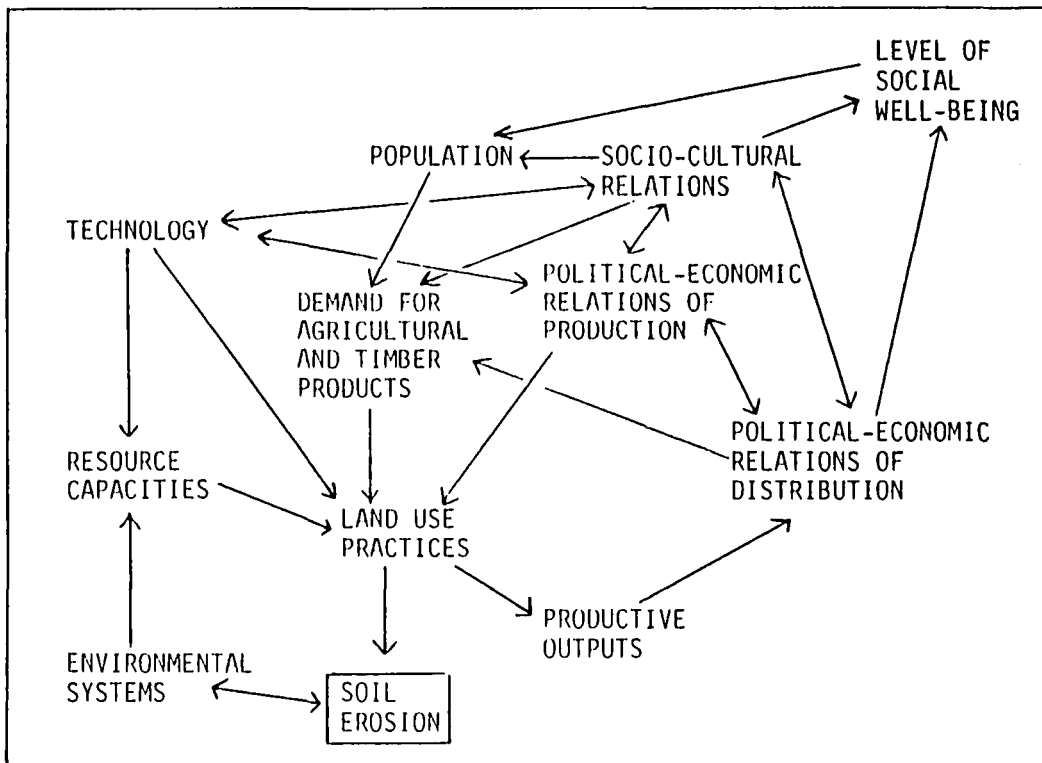


FIGURE 2 STRUCTURE OF INTERACTING FACTORS INFLUENCING SOIL EROSION