

ANNUAL REPORT TO ESRC

2003

Programme Name	:	Environment and Human Behaviour
Project Title	:	<i>Natural Capital: Metaphor, Learning and Human Behaviour</i>
Award No	:	RES-221-25-0007
Award Holder	:	Professor Robin Grove-White
Period of Report	:	1.2.2003 to 31.12.2003
Institutions	:	Lancaster University (Institute for Environment, Philosophy and Public Policy); University of Bath (Centre for Research in Education and the Environment)
Total ESRC Award	:	£37,905.47
Total Co-funding	:	None

Aims and Methods of Research

The aim of the project is to explore ways in which the metaphorical concept of natural capital can be deployed to promote behavioural change in the direction of sustainability. This was seen as involving structured dialogue, the production of working papers, policy briefing material and articles for academic publication, and the identification of key areas and topics for further research.

The project has adopted an interdisciplinary model seeking to combine educational, economic, philosophical and sociology of knowledge approaches through research seminars, workshops and internet-based discussion.

Confirmation Statement

The work of the project has been conducted very largely in accordance with the proposal originally submitted and agreed by the ESRC as the basis for funding. The only variation has been the substitution (with the prior agreement of the Programme Academic Co-ordinator) of a smaller invited workshop for the third of the four research seminars originally planned. This was to permit a more intensive mode of concentration on key themes and ideas emerging at that particular stage of the research.

Highlights of the Research and Important Findings

The ‘natural capital’ metaphor models our relation to the natural environment in a way intended to help operationalise the basic sustainable development requirement to take proper account of future as well as present quality of life in economic, social and environmental decision-making. The value of those environmental functions which support continuing human well-being is represented as that of a set of *capital assets*. Environmental sustainability is then a matter of ensuring that present activities preserve a *sufficient* natural capital stock for our successors. The favoured criterion of sufficiency is that *critical natural capital* – natural resources and services both centrally important to human welfare and incapable of being substituted for by human-made capital – should not diminish.

It is clear from our discussions that the standard approach to valuing capital assets has been carried over with this metaphor to the valuation of natural capital. The net benefits produced by an asset are summed over its lifetime, with future benefits and costs discounted to a net present value for inclusion. In the same spirit, whether or not a natural capital asset is treated operationally as *critical* depends on present assumptions about what will be of central human importance, and what will count as a substitute for what, in the future. An important part of our research has involved identifying some quite general problems with this standard capital valuation model, arising from the inherent uncertainty, and in key respects the indeterminacy, of environmental futures. Under these conditions the model generates difficulties not just for the feasibility of predictions lacking a firm basis for projecting trends, but for the social and political authority of decision-processes which seek to constrain present activities on the basis of contestable future scenarios.

In response to these problems, we have been exploring an alternative model of capital valuation, drawn from the concept of *real option* value. Originally developed in financial economics, this concept now underpins a set of sophisticated tools for non-financial capital asset management. The real option value of a capital asset is in effect the ratio between the costs of maintaining it in being and the potentiality for maximising benefits that its continued existence, under creative management, supports. Capital assets which can be used flexibly and adaptably, depending on emerging circumstances, have such value. Crucially, it depends not only on costs and options under uncertainty, but also on the robustness of the social intelligence (both the knowledge base, and the systems of individual and institutional learning) available for negotiating this uncertainty. Natural capital assets lend themselves to a real-option value model, because while there is an in-built downward pressure on the costs of maintaining them (from their characteristic self-regenerative capacities, offering a potential baseline of *non-depreciation*), they provide a wide range of opportunities for development in response to emergent knowledge, technologies and values.

This perspective on the natural capital metaphor has enabled us to begin developing an account of maintaining natural asset value which turns on *building relevant social intelligence in the present*, rather than on attempting to second-guess an inherently uncertain future. We believe that this account may offer considerable practical advantages in supporting the development of indicator- and appraisal-based methods of operationalising sustainable development at both national and local levels. The next stage is to test the value of the approach in collaboration with a number of public bodies actively engaged in this process.

Changes to Original Award

There have been no changes to the award holder, research staff or institutions involved since the research commenced.

Research Staff

Project Co-ordinator: John Foster – Research Associate, RAI 0.5 wte, in post from 1.2.2003.

Publications

A special issue of the international refereed journal *Environmental Education Research*, to be edited by Alan Reid (University of Bath) and planned for early 2005, will consist of articles based on seminar and working papers arising from the project. Authors will include: Maria Akerman (University of Tampere, Finland); Derek Bell (University of Newcastle); John Blewitt (University of Exeter); Tom Burke (Rio Tinto plc); John Foster (Lancaster University); Stephen Gough (University of Bath); Robin Grove-White (Lancaster University); Adrian Winnett (University of Bath).

Papers jointly authored by Gough, Winnett and Foster are in preparation for submission to the international refereed journals *Ecological Economics* and *Journal of Post-Keynesian Economics*. A further academic paper focussing on the primacy of the natural capital argument in sustainable development thinking is also possible.

In addition, a Policy Briefing Note has been produced – see below.

Engagement with potential Research Users outside the academic community

A number of potential user organisations have been directly involved in the research process, either through the attendance of key staff members at seminars or through the requested circulation of seminar papers. These have included English Nature, the Environment Agency, WWF International, the North West Regional Assembly, Wiltshire LEA, the Council for Environmental Education, the National Foundation for Educational Research, Levett-Therivel Consultancy and Rio Tinto plc. This interest in our approach appears in many cases to relate to the demands confronting the policy community as the sustainable development agenda is rolled out.

With this in mind, the project has now produced an eight-page Policy Briefing Note for printing and wide distribution in early 2004. This Note summarises the research context and key ideas for a policy-world audience. It is written with particular reference to the current review of the UK Sustainable Development Strategy, but will also be of interest to both economic and educational policy-makers at other levels of governance, and to the broad range of other stakeholders in sustainable development to whom it will be sent.

As one direct outcome of the seminar series, discussions are in progress with the Action for Sustainability team at the North West Regional Assembly, to explore how far the proposed new approach to natural capital could provide a framework for regional capacity-building

relevant to sustainable development. It is hoped that further opportunities for interaction of this kind with other similar organisations will be generated by circulation of the Policy Briefing Note.

A conference bringing together interested research users and academics has also been mooted (perhaps to be associated with the special issue of *Environmental Education Research*), but this would of course require further specific funding to be identified.

Contribution to Programme

The project has been represented at, and has contributed progress reports to, both the Environment and Human Behaviour Programme workshops organised by the Academic Co-ordinator in 2003 (February and December). A brief paper was also presented at the *What is the Environment?* seminar mounted by the Programme for the ESRC's Social Science Week (June 2003)

In addition, the project research co-ordinator attended and contributed to the Theory Workshop organised under the auspices of the Programme in October 2003.

At all these events, it has been an important factor that this project is the only one funded under the Programme which has an exclusively conceptual rather than an empirical framing. This has meant that its researchers have been raising explicitly certain fundamental theoretical and indeed philosophical issues relevant to key Programme themes (for example the nature of the value-action gap in the context of quite general considerations about future-oriented behaviour), which otherwise have remained implicit in the other studies. The project's focus on social learning and its relation to the heuristic use of different models of natural capital has also been valuable here. Colleagues on other projects have commented that they have found this input both helpful and stimulating.

Detailed Progress

The work of the project has proceeded according to plan through 2003, with research seminars held in April, June and November. A smaller invitation workshop was held in September. Topics covered in the seminars have included :

- the current state of the sustainable development policy discourse;
- the nature and function of the natural capital metaphor within this discourse;
- the use of natural capital concepts in current forms of education for sustainability;
- the bearing of individual, institutional and social learning on a real options model of natural capital value;
- potential applications of such a model in political, economic and educational policy and practice.

The September workshop concentrated on combining topics and themes from the April and June seminars, together with linking material produced by members of the research team, into two substantial Working Papers. These were subsequently discussed and refined at the November seminar and are now available for downloading from the project website at www.lancs.ac.uk/fss/projects/ieppp/naturalcapital

This informational website, constructed in the early phase of the project, has been useful in attracting interest to the research and as a point of reference for enquirers. Less successful has been the web discussion site associated with it. This has certainly proved a valuable resource for the electronic circulation of draft seminar papers. We had hoped, however, that it would also encourage on-line probing of and debate around topics and issues raised by these papers, among members of the project's wider constituency of interest. Despite several attempts to stimulate such debate, this hope has unfortunately not been realised – we are not yet sure why.

Rather more of the production of written material than was initially anticipated fell to the half-time research co-ordinator (John Foster). To enable him to complete the required tasks by the conclusion of ESRC funding (31st January 2004), his hours were increased to full-time for the final six weeks of the project. This was achieved by no-cost virement of savings on the travel budget made possible because two overseas seminar invitees, from Australia and the USA respectively, dropped out in the event through ill-health or other commitments.

The original timetable envisaged as outputs from the project:

- seminar papers for web dissemination and journal publication;
- policy briefing material
- Final Report to ESRC.

All these will have been either delivered or put firmly in train by the end of January.

Robin Grove-White	Principal Investigator
John Foster	Project Co-ordinator
Stephen Gough) Steering Group
William Scott) members

30th January 2004