"GEOGRAPHY MATTERS FOR THE ENVIRONMENT OF THE 21ST CENTURY": ROGER CROFTS

As a geographer, a user of geographical knowledge and an employer of geographers, I wish to see geography play a much more important role for the environment of the 21st Century.

In a keynote speech at a recent COBRIG Conference (copy available on the SNH Web site www.snh.org.uk), I reflected on three issues affecting critical environment issues: *climate change, population change* and *institutional change.*

One implication of **climate change** is the predicted rise in sea level relative to land. The consequences are: loss of habitats and the species on which they depend, loss of economic infrastructure and loss of recreation resources.

Some major questions still require to be addressed. How will the impact of the sea level rise affect different types of soft coasts in different energy situations? Will managed retreat of the coast be feasible? How can all parties be engaged so that sectional interests do not predominate? What financial mechanisms will be required which ensure the environmentally-sensitive management of change in soft coasts?

There is a potential loss of habitats and their dependent species through climate change. There are many different possible approaches to address this issue, for example, by the establishment of refuges, and by concentrating the role of zoological and botanic gardens more on our native, rather than non-native, species. We also need to consider the practicality of migration corridors, and also translocation of fauna and flora. But should we let nature take its course? Are attempts to force nature to be unnatural in the face of a shift in a major set of factors which affect plant and animal distribution destined to failure?

These are questions not just for ecologists and others trained in biological sciences or for coastal engineers but for geographers. We shall have to address the

implications of climate change on international, European and national legislation and its implementation on the ground and at sea. We need to recognise that we cannot turn the clock back to some idyllic natural period of the past but have to utilise the changes which are occurring and which are predicted, in order to determine how to protect a representative selection of what will in the future be our native wildlife and our landforms.

Population change raises key issues. There is no doubt whatsoever that global population will continue to rise. It is clear that man's footprint on the environment will be greater in terms of the demand for food, and the demand for the use of renewable and non-renewable natural resources. So it is going to be more vital then ever to change attitudes towards the relationship between people and the environment. The increase in the demand for food and the type of production systems which have evolved in recent decades will raise, in microcosm, substantial issues which must be addressed. And there is the growing demand for people to have a role in determining their own destiny. The question of 'whose environment is it anyway?', both now and in the future, is a resonant one and one which has to be confronted as positively as possible. Techniques for community participation, co-management of environmental assets, community ownership of the assets themselves, participative fora, and techniques for conflict resolution, have to be part and parcel of the toolkit of the modern environmental executive.

These issues are not a matter for just biogeographers or social geographers in their various manifestations, or just urban geographers or rural geographers. It is a matter of trying to connect the different, often disparate, issues and the scientific base which informs them so that we can see better the interactions in the immediate past and the present, and seek to model what they might be in the future in time and space.

And there are issues of institutional change. Six years on from the Rio Earth Summit, there are still significant challenges not just to the practice but to the whole philosophy of sustainable development. Other challenges are more insidious and rooted in the inherent conservatism of the administration of government: most particularly, in the sectoral and vertical institutional structures, in the lack of

recognition of Agenda 21 and the Convention of Biological Diversity in primary statute, in national strategies which are contested or which produce action plans which are undeliverable or are aimed at the deliverable but fail to hit the key targets.

Institutionally, there is a clamant need now for more integrative approaches to the strategic planning of environmental resources and of the use of land and sea. Much progress has been made; new frameworks based on good biogeographic principles are being developed in many parts of the world.

So what can geography and geographers contribute?

First and foremost is the need to **understand the dynamics of change and the reasons for it**.

Second, we need to **make connections** between issues, and to **recognise the inter-dependencies and the feedbacks** which occur.

Third, we need to have familiarity with the **manipulation of spatial and temporal information** for use by politicians and other decision-makers.

Fourth, we need to have greater understanding of, and greater engagement in, **social process issues**.

I hope that geography and its practitioners will rise to the challenge, that there will be greater coherence within the subject, and that geography does not become isolationist and defensive.