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Working Group on Perception of the Environment

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Report of the IGU/MAB Workshop on Perception of the Environment

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PREFACE

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Environmental Perception Research is a series of Working Papers on research in progress. The papers are intended to be used as working documents by the international group of scholars involved in perception research and to inform a larger circle of interested persons. The series will serve as a means of disseminating results and ideas quickly, especially the research activities of the Working Group on Environmental Perception of the International Geographical Union, and for work relating to the UNESCO Man and the Biosphere Programme Project No. 13, Perception of Environmental Quality.

The series is coordinated through the Perception and Policy Working Group of the Institute for Environmental Studies, University of Toronto, and support is being provided by the UNESCO Man and the Biosphere Programme.

Further information about the research programme and this series is available from:

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Working Paper Series

1. Macrocosm and Microcosm: An exploration of the perceived alchemical environment; John B. Robinson, 1978.

2. The Measurement of Landscape Aesthetics; Carol Wilson-Hodges, 1978.

3. The Ins and Outs of Environmental Hazards; Philip W. Porter, 1978.

4. Finding Valued Landscapes; David Lowenthal, 1978.

5. Report of the IGU/MAB Workshop on Perception of the Environment; 22-29 July 1978, University of Ibadan, Nigeria.

ACKNOWLEDGEMENTS

This report records the activities and results of a Workshop on Perception of the Environment, held at the University of Ibadan, Nigeria, in July 1978.

The Workshop could not have been held without the cooperation and support (both moral and financial) of a considerable number of people.

The International Geographical Union established the Working Group on Perception of the Environment, and help and advice have been readily supplied by Dr. Walther Manshard, Secretary-General of the I.G.U. and Vice-Rector of the United Nations University.

The Man and the Biosphere Programme at Unesco headquarters in Paris has supported the Group from its inception and has provided support for secretarial operations and some travel and related costs.

The United Nations Environment Program has expressed keen interest in the work of the Group and has facilitated the participation of developing country scientists at the Ibadan meeting.

The International Social Science Council has also assisted in preparations for the meeting and has established a liaison with it.

The Canadian National Committee for MAB has encouraged and supported the planning and organization wherever possible and has designated the work in Toronto as one of its contributors to the international MAB Programme.

The Canadian International Development Agency (CIDA) generously provided funds to bring a number of developing country scientists to the Ibadan meeting, and also helped to cover many of the organizational costs.

In Ibadan, Professor Julius Oguntoyinbo undertook the complex

task of local arrangements and contended calmly with a number of unanticipated difficulties. Dr. Paul Richards of the School of Oriental and African Studies (London) helped in the organization of field work at Oyo and in the rural areas of Oyo State.

Grateful acknowledgement is made to all those individuals and organizations for their support and encouragement. The deficiencies which remain are not theirs.

The participants and authors of papers contributed their own work in the belief that collaboration in environmental perception research can produce results of greater intellectual and social value than the sum of their separate endeavours.

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Working Group on Perception
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B. List of Participants

C. Members of the Working Group on Perception of the Environment

D. List of Working Papers

1. Objectives and Purpose

The Workshop convened at the University of Ibadan on 22 July, 1978 to discuss and agree upon the steps required to initiate a programme of international collaborative studies in the two main focus areas of 1) highly valued landscapes, and 2) environmental hazards.

The objectives of the meeting were:

1) to identify and specify as precisely as possible, priority topics for research in environmental perception;

2) to formulate and suggest suitable research designs;

3) to discuss suitable methods that might be adopted by programme collaborators working in different countries.

Six days of intensive discussions were devoted to these objectives. The opportunity was also used to test methods in field situations and to discuss the appropriateness of various methods in differing circumstances.

Three major background documents were used for the meetings, as well as some twenty six papers prepared mostly by participants.

i) "Finding Valued Landscapes" - David Lowenthal

ii) "The Ins and Outs of Environmental Hazards" - Philip W. Porter

iii) Guidelines for Field Studies in Environmental Perception - Anne V. Whyte.

The first two are issued in this Working Paper Series on Environmental Perception Research. The third is published by Unesco as MAB Technical Notes 5 (Paris, 1977).

2. Major Results and Conclusions

The Working Group identified three main areas in which it would like to help develop and carry out collaborative research.

i) Perception of Highly Valued or Unique Landscapes.

ii) The Management of Pests and Pesticides.

iii) The Interrelationships of Environmental Hazards and Development, including

a) studies and communications links for hazards research

with either a hazard focus or a development process or project focus.

b) farmers' and decision-makers' perceptions of climatic variability and climatic change.

c) perceptions of soil erosion and soil degradation or loss.

In all these areas participants felt that there was a well-defined sense of problem, and that it would be possible to begin research almost immediately that would be of some value. In the case of highly valued landscapes, and pests and pesticides, however, the participants felt that they were unable to make enough progress on research design and that for the work to be mutually supportive further work, and possible further meetings would be required on research design.

It was generally agreed that the array of methods presented and evaluated in Guidelines for Field Studies in Environmental Perception (Whyte, 1977) offered a suitable set of choices and guidelines, and that for the most part, research workers should be encouraged to select and design their own methods. Two possible exceptions suggested were that it might be valuable to have the design of a general questionnaire and that a check-list of questions for key actor interviews might also be helpful. The sub-group on hazards and development proposed the establishment of a communications network.

3. Report of the sub-group on perception of highly valued landscapes

This report comprises a) a short summary of discussions and findings of the sub-group, b) a proposal for a further meeting with a list of relevant topics on which it would be desirable to prepare papers, and c) an outline of a research proposal for the period beginning mid-1979.

a) Problems in the Field - Identification of Research Topics: A short summary of discussions and findings of the sub-group.

The purpose of research on highly valued landscapes is to identify the impact of landscape- and place-preferences on spatial decisions. The concept of value is by no means defined: a working definition of a highly

valued landscape in this context means a specific part or an ideal type of environment which is regarded as attractive.

The term 'value' lacks conceptual clarity. The definition of a place or a landscape as highly valued can be at least interpreted in terms of

aesthetic attributes of the landscape
recreational possibilities
desirability for residential purposes
personal childhood reminiscences
economic or monetary value

and certainly more.

Research on highly valued landscapes has up till now been exclusively involved with the aesthetical, cultural and personal aspects of a perceiver's evaluation of a place or a landscape (Lowenthal, 1978; Tuan, 1977). Other possible values attached to a landscape (which may nevertheless affect the overall evaluation of a landscape) have been neglected simply by assuming that there is an intrinsic property of landscape like 'beauty' which is reflected in people's evaluation of a landscape.

It seems to be more efficient if in considering the evaluation of a place or a landscape all the uses that a place or landscape can have for a person are considered at least initially. Use certainly is a function of different fundamental drives of human behaviour.

The behavioural drives considered important, are in rank order of importance:

i) drive for physical survival
ii) drive for personal security
iii) drive for improvement of living conditions
iv) drive for social promotion
v) drive for self-fulfillment

This rank-order of drives implies a rank-order of values a landscape can assume for a person, which is highly related to income and social standing. As the rank-orders may be different across cultures, a research aim would be to establish these differences and connect them to different landscape-

tastes.

Derived from this rank-order of drives are values which can be attached to a landscape and which are ranked in the same way. Of lowest rank (drive for self-fulfillment) would be

-the value of a landscape in terms of recreational possibilities

-the value of a landscape in terms of aesthetic attributes

-the value of a landscape in terms of cultural symbols (e.g. historical sites).

There is no doubt that this rank-order can easily be classified differently as already mentioned above for fundamental behavioural drives.

Most of the values of lowest rank can be incorporated into one: they are values in terms of satisfaction which stems from the agreement of a person's perception with socially and culturally derived value systems. Satisfaction is achieved if a socially highly acceptable place is visited, thus reassuring social standing and helping further social promotion (Festinger, 1954).

The notion of differently ranked values confirming to social and cultural value systems is derived partially from fundamental social-psychological work on attitude formation. To mention only a few:

Theory of perception organization (Bruner/Postman, 1948)

Theory of social comparison processes (Festinger, 1954)

Theory of cognitive dissonance (Festinger, 1957)

Theory of affiliation (Schachter, 1959)

Adaption Level Theory (Helson, 1964).

The concept of a relation between income, social rank and dominant fundamental drives as explanatory variables of landscape preferences has certain implications. It implies that lower socio-economic groups are expected to be less involved with the aesthetical or historical properties of a place or landscape because their more fundamental drives, like social acceptance or even personal security are not fulfilled. This suggests also the hypothesis that high income groups of elevated social standing will be the only groups which are concerned with the aesthetical attributes of a place and that for their spatial decisions the concept of landscape preferences or landscape tastes has any explanatory impact, which it does not have for other groups.

Rural populations and certain cultures which have different rank-orders of drives and values are different in this respect. There are rural communities which rank religious and cultural values much higher than related or nearby urban communities. The same goes for cultures which are strongly influenced by ideological or religious principles.

The perceptual process is dominantly influenced by social standing as research in social perception has shown (very clear account in Irle, 1975, p. 52-91). The longing for perceptual clarity (as the Gestalt-psychologists define an individual's tendency to find a simple image for a complicated item of the environment), and the deep influence childhood experiences have on the perception of the environment (as the Phenomenologists have pointed out repeatedly), work equally on all social groups and cultural domains.

Cross-cultural studies of value systems and the impact of the appreciation of highly valued landscapes on spatial decisions may shed some light on these problems. To know about the impact of environmental attributes on spatial decisions via their ranks in people' s value systems may help to channel and more consciously plan spatial decisions in a migration and recreation-context in the future.

These notions are valid for at least four different levels of research: the neighbourhood or local level; the regional, the national and the supra-national level. It is valid for different groups like nomads, rural sedentary and urban people in different cultures. In a very special way fundamental knowledge about people's value systems for environmental attributes of built-up places should be defined and compared cross-culturally. Urbanization in developing countries is associated with major changes of income-distribution which polarize urban and rural areas. To find out in which way and to what extent evaluation of cities is not only based on economic attributes like the number of possible places to work but also on attributes like social standing and social desirability is worthwhile to know. That aesthetic, historic and cultural attributes lack explanatory value in this context seems evident to some but has nevertheless yet to be convincingly demonstrated.

A major line of enquiries in people's landscape tastes is the influence

of landscape tastes on activity spaces and vice-versa. Research in that direction should certainly be encouraged. To connect activity spaces and landscape evaluation would enable planners to differentiate more decidedly between preferences and actual behaviour.

b) Further Meeting

The sub-group considered that more precise definition and design of research would be greatly facilitated by a further meeting. The number of participants in the sub-group was small, and further review is necessary with inputs from a wider group.

The sub-group suggested the following list of fourteen topics or themes on which it would be desirable to invite papers for a subsequent meeting.

List of Topics on which Papers are to be Invited for a Future Meeting

1. Cultural value systems and highly valued landscapes.

   This paper should encompass relevant findings about the impact of cultural value systems on the evaluation of landscapes on a cross-cultural level.

2. Social standing and highly valued landscapes.

   This paper should give a summary of findings of all social sciences about the relation of social standing and attitude formation related to landscape taste formation.

3. Landscape planning and highly valued landscapes.

   This paper should summarize the by now extensive literature about landscape planning, relating findings to the problem of defining landscape tastes.

4. Policy implications of the research in highly valued landscapes: A set of case studies.

   In these case studies cross-cultural examples of policy implications of landscape tastes should be given. Resettlements of inhabitants of McKenzie-delta-inhabitants, sedentarization of middle-east and Sahelian nomads, resettlement of urban slum inhabitants, reconstruction of working class area in the Ruhr area and people's reactions may all give different aspects of policy implications of the research in highly valued landscapes. Recreational and touristical spatial decisions and their relation to landscape tastes should also be inquired into.

5. A phenomenology of highly valued man-made environments.

This paper should consider the evaluation of old and new townscapes and of historical monuments in the light of personal lifespaces. The meaning of the term 'highly valued landscape' can possibly be best derived with a phenomenological approach.

6. Religious and ideological attachment to places and landscapes.

   This paper more or less lists cross-culturally types of attachment to places which are dominated by religious and ideological values.

7. The semantic - philosophic history of the terms 'landscape', 'Landschaft', 'paysage', etc.

   The aesthetical concept of landscape as a visual entity has influenced the development of geography. Involvement with the scenic, 'picturesque' aspect of a landscape tends even today to dominate the concept of a highly valued landscape. This paper should critically discuss this field of the influence of class-relevant landscape tastes on the concept of highly valued landscapes.

8. The psychology of attitude formation and the concept of highly valued landscapes.

   The link to psychological research in attitude formation has certainly to be strengthened. A summary of research should be given.

9. Childhood experience and familiarity as dependent variables for the explanation of landscape taste and place attachment.

   This subject is likely to be split into two different groups of papers, the first concerned with psychological theory, mainly learning theory, and the second with case studies of different regions and cultures.

10. The impact of proximity and information on the perception of highly valued landscapes.

    Familiarity, proximity and information are the dominant variables which form a person's activity space. This paper should show the impact of proximity and information on landscape evaluation in different social groups and possibly different cultures.

11. The perceptual process and fundamental human drives in relation to the evaluation of landscapes.

    This area again has to be discussed by a specialist.

12. The aesthetical attributes of landscapes and places in a cross-cultural context.

    Aesthetical value systems are different from culture to culture. The history of the arts and predominantly of painting has more or less drastically influenced landscape tastes. A cross-cultural study could shed some light on these interrelations.

13. 'Insider's' and 'Outsider's' evaluation of hazardous areas as highly valued landscapes.

    Hazardousness of a place and its high value are not in the least

excluding each other. The conceptual implications of the terms hazardousness and satisfaction in relation to the concept of highly valued landscapes should be explored in this paper.

14. Geographical education and the role of the concept of highly valued landscapes.

This paper should find out the importance this concept has for education, the role it is likely to play in curriculae and is playing now. An investigation into current curriculae of different countries would probably be the best line of enquiry.

It is hoped to organize a meeting on these topics and to proceed further in research design during 1979. It is possible that the meeting will be held in West Germany. Interested persons are advised to get in touch with Dietrich Höllhuber or Ian Burton.

c) Preliminary research suggestions

The intended research on a cross-cultural level was intensively discussed by the working group. A general agreement was reached about the a priori limitations of this research: they should be as few and as light as possible. The planning aspect was raised as a topic of research as well as cultural standards, values and landscape tastes, influence of social class and income on landscape taste, the relation between actual behaviour and landscape tastes and so on. The following proposal in its preliminary state was decided on as a possible research on an international level which would allow scholars of different interests, background and methodology, and of different scientific fields like geography, landscape architecture, planning, psychology or cultural anthropology to engage in this research on a collaborative basis.

The aim of the research would be to get a general picture of the impact of values attached to a landscape on actual behaviour, predominantly on migration and recreational behaviour. These values may be measured in aesthetical terms, terms of recreational possibilities, cultural and historical heritage, ideological value and more. The main research hypotheses and their alternates would be these:

1. Landscape values derive from different value systems. There is no general value of a landscape, for instance in terms of aesthetic attributes or qualities.

1.A. There are some underlying dimensions of landscape valuation which are appreciated in common by all people. These might include order,

tranquility, contrast, utility, and so on.

2. The satisfaction with environmental attributes or landscape ranks differently in the explanation of actual behaviour in different social and cultural groups.

2.A. There are greater similarities in behaviour, based on landscape values, between similar socio-economic groups in different societies, than between different socio-economic groups in the same society.

3. Attachment to landscapes varies in intensity of socio-economic status. Groups of lower socio-economic status are less concerned with landscape attributes.

3.A. Attachment to landscapes decreases with mobility and higher socio-economic status.

The sub-group felt that by a series of case histories it would be possible to demonstrate how the varying cultural and social importance attached to landscape has an impact on spatial or locational decisions. This is not to underrate the difficulties of cross-cultural research.

There will be the problem that not only rank-orders may differ between cultures but values may not be the same: a value in terms of religion may not exist in a culture, a value in terms of esthetical attributes may not exist in another. There will be the problem of personal life styles, personal backgrounds and histories which have to be separated from social and cultural variables. Notwithstanding these problems the aim of this research, finding out about which values people attach to landscapes and places and how they rank these values in terms of actual behaviour, is likely to outweigh all risks and hazards connected with it.

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4. Report of the sub-group on pests and pesticides

The group considered the background papers by Kates (on technological hazard), Tait (on farmer's attitudes to pesticide usage), and also was informed about work by Richards, Oguntoyinbo and others on farmer's perceptions of pests in Oyo State (Nigeria). In the light of these papers the group discussed and outlined some preliminary steps in a research plan.

a) Aims and Scope of Proposed Research

This is a preliminary proposal for an international programme of collaborative research to be undertaken by various people in a number of developed and developing countries. The topic is the perception and control of pests which are a nuisance in agricultural production and food storage. The research programme will thus be confined to pests as they impinge upon crop growth and food production, but will include both vegetable pests (weeds) as well as insect and animal pests. The reason for this particular focus, is the recognition that pests consume or damage some 30 percent of all food production in developed countries, and as much as 50 percent of food output in developing countries. In addition, a number of studies of farmers' ranking of environmental hazards have shown that the prime threat is not loss due to the effects of extreme natural events but crop loss due to consumption and destruction by pests.

This research proposal is designed to suit the request made by the Man and the Biosphere Programme under Project 13 (Environmental Perception) and Project 5 (Pest Control) to link the ecological and the social-political aspects of environmental management in a coherent theme. The principal aim of this research effort is to produce information which will help farmers, agricultural advisers, pesticide production scientists, pesticide marketing organizations and responsible public officials understand one another and devise appropriate remedies to suit different circumstances.

Apart from the growing realization that pest-created losses are a serious and widespread hazard to all agricultural communities, there are a number of other reasons why this research is particularly apposite.

i) The growth in the production and distribution of chemical pesticides has been rapid in recent years. There is now every reason to suspect that many of these products will be increasingly marketed and used by farmers in

developing countries. Many of these substances are highly dangerous to users and to wildlife, so it is essential that research be conducted to discover what products are being used, what precautions are being communicated, what hazardous consequences are occurring and what can be done to mitigate the dangers. In this sense, the use of chemical pesticides is a fine example of a multiple hazard for it is potentially dangerous to the health of users and their families, and to the natural environment generally. In most cases these risks are distributed involuntarily and usually in ignorance. In addition, pesticide application is a fine example of a 'hazard chain', that is, where efforts to control one environmental nuisance (pests) lead to quite new environmental nuisances (illness, genetic damage to crops, increased genetic resistance among insects and the steady shift towards monoculture vulnerable to other pests and climatic variations). To date, very little research has been undertaken on hazard chains, so the research programme outlined here could be most appropriate and timely.

ii) It is becoming apparent that the costs of trying to produce chemical pesticides that are specific to particular pests yet not environmentally or medically harmful are enormous. Indeed, some chemical companies are investing nearly 30 percent of all research and development which goes into a new product on risk reduction research. Thus the small scale speciality pesticides tailored for particular pests and circumstances are rapidly becoming commercially unprofitable. Indeed there may be a point where the 'environmentally acceptable' pesticide is simply not viable without subsidy. As a consequence, companies have to manufacture chemicals which have a global market, but what may be suitable for use by literate farmers capably advised by specialists in the developed world, may be highly inappropriate for conditions of use in developing countries. This research proposal aims to consider (a) how companies set standards for risk protection when preparing their products, (b) what scrutinizing mechanisms are available to see that these products are acceptably safe, (c) the extent to which farmers actually obey the instructions for use printed on labels or communicated to them, and (d) what improvements can be made in each of these management areas to ensure that the pesticide-induced hazard is minimized. It is important to stress that hazard mitigation techniques suitable in developed countries may be quite unsuitable for transferal to developing countries, and this research proposal seeks to assess how most appropriately these techniques can be amended to suit different social and climatic situations.

iii) It appears that in many societies, farmers have a stock of local knowledge based on well tested experiences and experimentation to enable them to identify and cope with agricultural pests. In many cases, this understanding is of a highly sophisticated kind, yet may not be apparent to agricultural advisers or to pesticide marketing personnel. It is vital that the means by which farmers in different countries identify pests, estimate their occurrence and potential damage and devise methods to control them be studied. In some societies, for instance, pests are a useful source of food, in others cropping patterns are changed. So a key aspect of this research proposal is to investigate this stock of indigenous knowledge in an effort to insure that it is not lostas inappropriate pest control technologies are imported. This conforms to the basic principle that farmers should be encouraged to cope with problems in their own way with their own resources as far as is practicable. In addition, pest management advisers might well learn much from a better understanding of indigenous techniques, integrated into the local culture over many generations.

iv) Behind the efforts to control pests are various forces at work which can lead to an overall increase in the total risk to man and his environment and thus to increasingly costly measures of risk reduction. These forces are partly the product of institutional thinking such as is found in large profit-oriented corporations and in complex regulatory bureaucracies where individuals may care but collective rationality produces undesirable decisions. Thus there may be one presumption that what is a pest in one society is a pest in all societies and another presumption that the application of chemical technology is better than the 'messy' use of other pest prevention practices. This proposed research programme hopes to unravel some of these presumptions and suggest ways in which different views can be communicated to those responsible for manufacturing and marketing products, which with a little care, could be made less dangerous to use and less hazardous to the local environment. Its ultimate aim of course is to produce findings that will lead to the further mitigation of pest-created damage in a manner that is inexpensive and appropriate to particular social and economic circumstances.

b) An Introductory Seminar

It is suggested that before this research programme is executed there should be an introductory seminar held, if possible, in the spring of 1979. The purpose of the seminar would be to establish the state of the art in pest

identification and management largely on the basis of reviews of the literature, but also from small pilot field surveys. The seminar would be attended by a small group of 12-15 people carefully chosen for their knowledge and representativeness. These would include ecologists with a knowledge of chemical pestology, geographers with working knowledge of pest management programmes in various countries and possibly an agricultural adviser, a regulatory official, a representative from a chemical corporation and a spokesman from environmental groups promoting alternative pest control technologies.

The seminar would review a number of background papers:

i) Review of the literature on the perception of pests.

This paper would look at academic journals, government documents, publications from research institutes and trade journals plus anecdotal field investigations to analyse -

a) any reference to the perception of pests and pest-created damage.
b) any calculations as to the scale and possible cost of that damage.
c) any attempts to classify pests and in particular any comparative pest taxonomies.
d) any reference to attempts to improve the communication between pest control advisers and farmers.

It is possible that this paper would be jointly authored with one person reviewing the situation in developed countries, and the other investigating the material relating to developing nations.

ii) Review of the literature of pest prevention techniques.

This would be based on trade literature, academic research and the publications of groups interested in promoting alternative pest control practices to the use of chemical technology. Also evidence from field investigations would be incorporated where appropriate. Hopefully, this paper would provide the basis for a simple and flexible classification of pest prevention techniques.

iii) Evaluation of research methodologies.

This paper would review the various methods useful in eliciting (a) how farmers identify, evaluate and control pests, and (b) how those responsible for manufacturing, regulating and deciding on how pests should be used view the likelihood of environmental risk associated with the manu-

facture and use of their products and attempt to curtail it. The aim of the paper would be to evaluate the differing methodologies along the lines of suitability for different countries. The evaluation criteria would be based, among other things, on degree of theoretical abstraction, cost, sampling difficulties, organizational problems, manpower requirements, and suitability for different social groups.

iv) National profiles of pest management.

It is hoped that a number of collaborators in different countries will prepare for the seminar a brief national profile of pest management as they see it. The idea here is to establish some form of comparative basis on which to launch the research initiative, and to point out the key gaps in knowledge where carefully conducted research could prove most profitable. The national profiles should, as far as is possible, address the following format:

Costs - Any estimates of the scale of pest-created losses and the present costs of pest prevention as a function of crop value. These estimates could be gathered from judicious investigation of agricultural departments of senior advisory personnel, and/or from sample pilot studies in selected areas where farmers and local agricultural advisers could be contracted.

Information - Some statement as to gaps in knowledge on such estimates and some comments on how these could be fueled with research initiative. One proposal is that farmers undertake their own 'pest census' by reporting systematically pest counts and crop losses to local coordinators.

Perceptions - To what extent are there studies nationally of user perception of pests? This literature search could follow the lines outlined for the first paper (above). Ideally this section should cover the perceptions of those who manufacture and market pesticides in the country involved as well as farmers.

Pest Prevention - To what extent are there studies nationally of pest prevention measures? This section could follow the outline for the second paper (above), with attention given to some kind of classification. Again it may be necessary to extrapolate from the basis of pilot field investigations. It would be particularly helpful if these

studies attempted to identify 'hazard chains' as discussed earlier in this document. Hopefully this section would provide data on:

i) the scale and extent of the application of chemical, biological and 'folk' (i.e. indigenous) pest control measures.

ii) the growth in chemical pesticide use and the nature of the marketing arrangements for these products.

iii) any trends in changing attitudes among manufacturers, market people, advisers or farmers toward the dangers of multiple risk and the possibilities of less hazardous alternative pest prevention measures.

Management Institutions - a detailed institutional analysis of how pests are managed. This would include a breakdown of the lines of communication and advice between agricultural advisers, research institutes, pest control manufacturers and product marketing personnel and farmers. It would also include an analysis of what chemical pesticides are manufactured (if any) or imported, and what information about the dangers of these products and how they should be used is provided. If existing indigenous (folk science) methods of pest control are being eroded by the incursion of chemical pesticides, this should be documented either on the basis of pilot field studies and/or from conversations with interested people (farmers, advisers, environmental groups, etc.).

Research Areas - A statement of key research areas in the light of the information gained and gaps identified. Ideally these research topics should be based on the themes outlined in the first half of this proposal, but it is quite possible that new research ideas will emerge. Wherever possible state who would possibly collaborate on this research and over what time scale would the research be undertaken. This statement should also include some review of appropriate methodologies and particularly any suggestions for modifications of well tried methodologies to suit the local circumstances.

It is hoped that on the basis of this seminar, a formal research proposal will be written and that individuals in various countries will apply for funds through the national MAB programme or through some other funding agency. It is also hoped that the preliminary findings of this collaborative research project will be presented to the Workshop on Environmental Perception during

the 1980 meeting of the IGU in Japan.

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5. Report of the sub-group on environmental hazards and development

a) Proposed studies and communications links for hazards research

Many of the participants in the sub-group on environmental hazards came to the meeting with specific commitments to research topics already selected or in some cases already in progress.

It was agreed that these topics should be pursued, where practicable, with due regard for the questions and approaches being adopted by others. Two groups of research directions emerged strongly from the discussions - those with a hazard focus and those with a development process or project focus. These are listed in Table 1. An additional study to be undertaken by Porter in Kenya is concerned with many hazards in one place.

The group decided that it would like to cooperate on the following lines:

i) That comparative information be collected on the perceptions of hazards (what they are and their order of importance) in several places. That data on hazard perceptions of grass-roots level (farmers, residents) be collected and compared with those of government agencies, "external" experts and the like.

That information of this sort be reported to a central clearing place (suggest I.E.S. Toronto).

ii) That a communications network be established, centrally linked, (through IES, Toronto) to facilitate the following:

- share methods, discussion of training, and use problems and evaluation of results, particularly of pilot studies which might be undertaken soon.
- establish an occasional newsletter to exchange ideas about on-going research and applications
- exchange directly copies of questionnaires, other research instruments and techniques.

TABLE 1

HAZARD AND DEVELOPMENT STUDIES UNDERWAY OR PROPOSED

A

HAZARD FOCUS

1. Flood hazard in urban places and rural growth centres - Akintola

2. Water conservation and soil erosion in (Kenyan) development - Ongweny

3. Precipitation deficiency (drought) in relation to development - Aboubakar

4. Charcoal supply and the hazards of deforestation - Mujwahuzi

5. Environmental hazards as constraints to development in flood-vulnerable areas in Bangladesh - Islam

6. Flood hazards in the Ganges valley - Kayastha

7. Soil erosion in the Himalayan foothills and river silting - Kayastha

C

MULTIPLE-HAZARD STUDIES

16. Hazards of livelihood for the Mkamba of Kitui - Porter

B

DEVELOPMENT PROCESS OR PROJECT FOCUS

8. Hazards in urban slums and low income housing - Muwonge

9. Planning for reconstruction in Friuli, Italy in the face of environmental hazards - Geipel

10. Combined threat of environmental hazards on the development of Zambian settlements - Nag

11. Environmental hazards in relation to the farming and consolidation of communal villages in Mozambique - Wisner

12. Environmental hazards in the planning and development of Lesotho - Wilken

13. Perception of hazards in relation to rural water development - Whyte

14. Rural overpopulation and its related hazards in highland E. Africa - Muwonge

15. The interrelationship of environmental hazards and development activities in the lower Ganga Plain - Nag and Bhattacharya

- cooperate in the comparative use of similar research techniques as seems appropriate. Those cooperating are encouraged to prepare reports for a meeting scheduled to be held in Sapporo, Japan, July-August 1980.

iii) That the group undertake the compilation of a handbook of actual questionnaires, and other methods, giving detailed examples, with evaluations. Such a handbook to be completed at a central point and circulated prior to subsequent meetings.

iv) That field studies include a self-evaluation of their effectiveness in aiding people and communities where research is carried out, giving attention to self-help education, increased awareness and improved understanding, systems of early warning and their communication, the adoption of new or different methods to hazard reduction or reduced vulnerability.

b) Perceptions of climatic change and climatic variability

One possible research activity that was discussed at the Workshop concerns perception of current climatic change and variability. There is much scientific interest at the present time in the possibility of long-term climatic change and especially in the prospect that such change might be induced by human activities.

Similarly at the policy level there is considerable interest about climatic effects on world food supply. Plans for an expanded programme of research are being formulated under the rubric of "the world climate programme".

It seems important to gain better understanding of how agricultural decisions are or might be affected by information about climatic change, and forecasts of variability (excess rainfall, drought etc.) expressed in probabilistic terms.

Agricultural decision-making is a complex subject because it involves partial decisions made by many different actors - national governments including trading agencies, price regulating bodies and the like, and many "individual" farmers varying in kind from peasant farmers and small holders, to large agro-business enterprises and collective and cooperative enterprises. Some of the research questions to be posed include:

1) In what ways have farmers' perception of climate and climatic variability changed in response to recent experiences and/or information about climate research from the media, agricultural extension services and the like?

2) Have farmers altered their management priorities or strategies in response to this information/experience, and if so in what ways?

3) Are farmers now contemplating other changes in their farming decisions in relation to climate and climatic variability and if so with what ends in mind?

4) How does farmer response vary according to the sources, credibility, and form of the climatic information they receive?

5) If farmer response to information about climatic change and variability is small and if farmers respond that economic and other considerations are paramount, what level and type of information would be significant and would result in different or modifeid choices and decisions?

Such a study would be designed in the context of an overall typology of farming and climate systems. It would draw upon existing studies of farmer response to climatic hazards such as drought and flood.

To the extent practicable, the study would be organized on a comparative international basis with research workers in several countries (and a range of economies and levels of development) following a common research design.

c) Perception of soil loss

Soil loss has many different aspects: erosion, salinisation, alkalinisation, waterlogging, pollution and urbanisation. The causes of soil loss thus lie in:

- agricultural practices: especially irrigation, monoculture with heavy machines, declining use of organic fertilizers, overtilling and overgrazing
- overgrazing and overtilling of steep slopes leading to dramatic soil erosion in some parts of the world
- desertification which has made soil more vulnerable to wind erosion
- deforestation which leads to gullying, sheet erosion and wind erosion

- use of acid mineral fertilizers and industrial effluence which has increased the acidity of rain and led to more acid soils contaminated with sulphuric, hydrochloric and carbonic acid
- expanding cities, transportation networks, water reservoirs, and mining and industrial areas which remove land from the agricultural sector
- land tenure systems which force subsistence farming onto marginal land which is erosion-prone

The scale of soil degradation is so widespread and serious that a global assessment of the situation is being urgently undertaken, including a worldwide mappping programme by FAO, Unesco and UNEP. The loss of agriculturally productive soil from all causes is estimated at 5-7 million hectares per year. Some 20 million square kilometers have already been lost. This is about the same as the present arable area of the world. (Kovda, 1977. An Overview on Global Soil Losses. UNEP, Nairobi)

Soil loss is often characterised by differing perceptions of the problem held by resource managers operating at different levels. It is high on the priority lists of central government officials and environmental scientists in most developing countries as well as being a priority target for international action. However, for many of those closest to the problem, particularly in the primary agricultural sector, awareness of the magnitude of the problem is complicated by several factors, including:

- many individual management decisions, each one small in itself, add up to the overall problem, especially in small scale subsistance agriculture, so no one individual feels responsible
- even if they are aware of the effect of overgrazing or cultivating too steep slopes, many of the resource managers involved have neither the resources, organisational capacity, nor political strength to take appropriate action towards halting the loss of soil
- some forms of soil loss are directly observable, such as gullying, but others are imperceptible until their accumulated effect leads to other impacts (such as sheet erosion eventually

exposing and killing tree roots or pollution leading to lower crop yields).

Soil loss thus presents a hazard which may be imperceptible to those closest to it and often involves many individual managers no one of which is able to respond effectively.

It is suggested that interested members of the IGU Perception Working Group should contact Dr. Anne Whyte, Institute for Environmental Studies, University of Toronto, Toronto M5S 1A4, Ontario, Canada, with a short description of the research on soil loss they would like to undertake. These can then be circulated with a view to developing some comparative components within the projects on a collaborative basis. It is also recommended that perception researchers should contact physical geographers, soil scientists, etc. in their own countries and institutions, to see how far perception studies of soil loss can be integrated with physical soil loss monitoring measurements and surveys. Such work is being established on a worldwide scale by physical scientists and it presents a valuable opportunity for social and physical scientists to collaborate on a major environmental problem.

Sub-group report prepared by:

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d) Direction and implementation

Those scientists interested in helping to establish a network of communication for environmental perception research should contact Professor Ian Burton at the Institute for Environmental Studies, University of Toronto.

Research workers interested to find out more about particular lines of research should direct their enquiries as follows:

Perception of Highly Valued Landscapes:

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and

Dr. Dietrich Höllhuber
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Perception of Pests and Pesticides:

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and

Dr. Timothy O'Riordan
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University of East Anglia
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Environmental Hazards and Development

Dr. Ian Burton
Institute for Environmental Studies
University of Toronto
Toronto M5S 1A4
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and

Dr. Philip Porter
Department of Geography
University of Minnesota
Minneapolis, Minn., U.S.A.
55455
(in Kenya until July 1979)

Perception of Climatic Variability and Climatic Change

Dr. Ian Burton

Perception of Soil Loss and Hazards Related to Rural Water Development

Dr. Anne V. Whyte
Institute for Environmental Studies
University of Toronto
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It is expected that a number of collaborating scientists will pursue the research directions that were formulated at Ibadan, and will prepare reports for a subsequent meeting which it is planned to hold in 1980. In the meantime, small group preparatory meetings may be organized on special subjects as opportunity is presented.

References

Bruner, J.S. and Postman, L.J., 1948, Theory of Perception Organization: A Symposium. Greenwood.

Festinger, L., 1954, Theory of Social Comparison Processes. Human Relations, 7: pp. 117-140.

Festinger, L., 1957, Theory of Cognitive Dissonance. New York, Row Peterson.

Helson, H., 1964, Current Trends and Issues in Adaptation Level Theory. American Psychologist, 19 (26), p. 38.

Kovda, V.A., 1977, An Overview of Global Soil Losses. Nairobi, UNEP.

Lowenthal, D., 1978, Finding Valued Landscapes. Working Paper No. 4, Environmental Perception Research Series, Institute for Environmental Studies, University of Toronto.

Schachter, S., 1959, Psychology of Affiliation. Standford University Press.

Tuan, Yi-Fu, 1977, Space and Place. Minneapolis, University of Minnesota Press.

Whyte, A.V., 1977, Guidelines for Field Studies in Environmental Perception. Mab Technical Notes 5. Paris, Unesco.

APPENDIX A

Programme of the Workshop

A total of 28 background working papers was produced for the meeting. A few were previously published papers and reports of special relevance. Most were newly written papers reporting on research completed or in progress or making suggestions for needed research activities.

It was agreed that no papers would be formally presented at the Workshop, but the papers were grouped into sets according to topic and used as background information for the discussions.

Saturday July 22nd	9 a.m.	Opening Meeting Welcome. Introductions. Local arrangements.
	Afternoon	Reading Period
	Evening	Reading Period
Sunday July 23rd	9 a.m. - 1 p.m.	Plenary Session Organization and Objectives of Workshop. Programme for Meeting.
	Afternoon	Field visit in Ibadan City. Discussion of Yoruba urbanization, urban landscapes and flood hazard problems.
	Evening	Informal social
Monday July 24th	9 a.m. - 1 p.m.	Plenary Session 1) A discussion led by Paul Richards on perception research in Nigeria, and background information on the field work. 2) A session on general frameworks and methodology for perception research.
	2 p.m. - 6 p.m.	Plenary Session Discussions of problems of man-made and natural hazards in the light of selected background papers.

Evening Informal session

Tuesday July 25th 10 a.m. - 11:30 a.m. Official Opening Ceremony, in the presence of officials and leaders of Oyo State, the University of Ibadan and the International Geographical Union.

1:30 p.m. - 6 p.m. Plenary Session

1) A discussion of perception problems in rural and agricultural development.

2) Perception of highly valued landscapes.

Evening Informal discussions of field techniques. Presentation at Ayo board scaling technique developed by David Atteh.

Wednesday July 26th All-day field work in Oyo town and in villages nearby organized by Paul Richards.

The Working Group split up into small parties and met with farmers, chiefs and other local leaders for discussions of local problems in agriculture, development, hazards and urban planning.

Thursday July 27th 9 a.m. - 12 noon Plenary Session

1) Reports and discussion of field experience.

2) Formation of working sub-groups.

1:30 p.m. - 5 p.m. Sub-group meetings.

Group A. Perception of Highly Valued Landscapes.

Group B. Risk Ensembles - Hazards at a Place

Group C. Pests and Pesticides.

5 p.m. - 6 p.m. Plenary Session

Interim Reports from sub-groups.

Friday July 28th	9 a.m. - 12 noon	Sub-group meetings
	12 noon - 1 p.m.	Plenary Session
		Report of Sub-group A and discussion
	2:30 p.m. - 4 p.m.	Plenary Session
		Report and discussion of Sub-groups B and C
	4 p.m.	Closing Statements.
		Thanks and appreciation of local organizer
		Dr. Julius Oguntoyinbo
	Evening	Farewell party
Saturday July 29th	Participants depart.	

APPENDIX B

List of Participants

Adamou Aboubakar	Maitre-Assistant Université de Niamey, Ecole des Lettres B.P. 418, Niamey, Niger
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APPENDIX C

Members of the Working Group on Perception of the Environment

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Ian Burton, Chairman	Institute for Environmental Studies University of Toronto Toronto M5S 1A4 Ontario, Canada

APPENDIX D

List of Working Papers

1. Porter, P.W. The Ins and Outs of Environmental Hazards
2. Lowenthal, D., Finding Valued Landscapes
3. Wilken, G.C., Agroclimatic hazards and risk perception in Lesotho
4. K. Johnson, The Ethnoscience of Hazardous Landscapes (Abstract only)
5. Höllhuber, D., Cultural differences of attitudes to environment; the case of Südtirol (Italy)
6. Kates, R.W., Improving societal management of technological hazard
7. Burton, I., Comparative perceptions of environmental hazards
8. Baumann, D.D. and Baumann, N.S., A Model of Public Perception
9. Kayastha, S.L. and Yadava, R.P., Flood hazard in lower Ghaghra Plain
10. Garst, R.D., Rural African Perceptions of the City
11. Wall, G. and Webster, J., Coping with Tornadoes: A Case Study
12. Nag, P., Environmental hazards and their effect on human settlements in Zambia
13. Eringis, K. and Ardzijauskas, G., Aesthetical Evaluation of Landscapes and the Perception of Environmental Quality
14. Wall, G., McBoyle, G., and Mock, T., Perception of weeds as an agricultural hazard
15. Williams, A.V., Flinn, J.C. and Knight, C.G., Constraints to smallholders development: understanding the farmer's perspective
16. Townsend, J.G., Perceived Worlds of the Colonists of Tropical Rainforest, Colombia
17. Barker, D., A Note on Research Methods in the Study of Indigenous Environmental Knowledge
18. Ayoude, J.O. and Akintola, F.O., Public Perception of the Flood Hazard in Ibadan and Lagos
19. Islam, A., Agricultural Adjustment to Flooding in Bangladesh
20. Tait, E.J., Farmers' attitude to pesticide usage
21. Richards, P., Community environmental knowledge in rural development
22. Chapman, N., A Preliminary Study of the Effects of Agricultural Extension on Farmer's Images

23. Zaidi, I.H., Land use hazards in an arid environment - Lower Indus region

24. O'Riordan, T., The National Risk Profile

25. Geipel, R., Perception of Natural Hazards...Earthquake in Friuli

26. Robinson, J.B., The Perceived Alchemical Environment

27. Wilson-Hodges, C., The Measurement of Landscape Aesthetics

28. Geipel, R., Social geography aspects of earthquake catastrophe

Other background references

Whyte, A.V., 1977, Guidelines for field studies in environmental perception. MAB Technical Notes 5; Paris, Unesco.

Kates, R.W. (ed.), 1977, Managing Technological Hazard: Research Needs and Opportunities. Program on Technology, Environment and Man, Monograph No. 25. Boulder, Colorado, Institute of Behavioral Science, University of Colorado.

Hewitt, K., and Burton, I., 1971, The Hazardousness of a Place. Department of Geography Research Publication No. 6. Toronto, University of Toronto Press.

Burton, I., Kates, R.W. and White, G.F., 1978, The Environment as Hazard. New York, Oxford University Press.

Canada MAB, 1977, Report of a Workshop held in Victoria, B.C. 24-30 May, 1976. Canada/MAB Report No. 9.