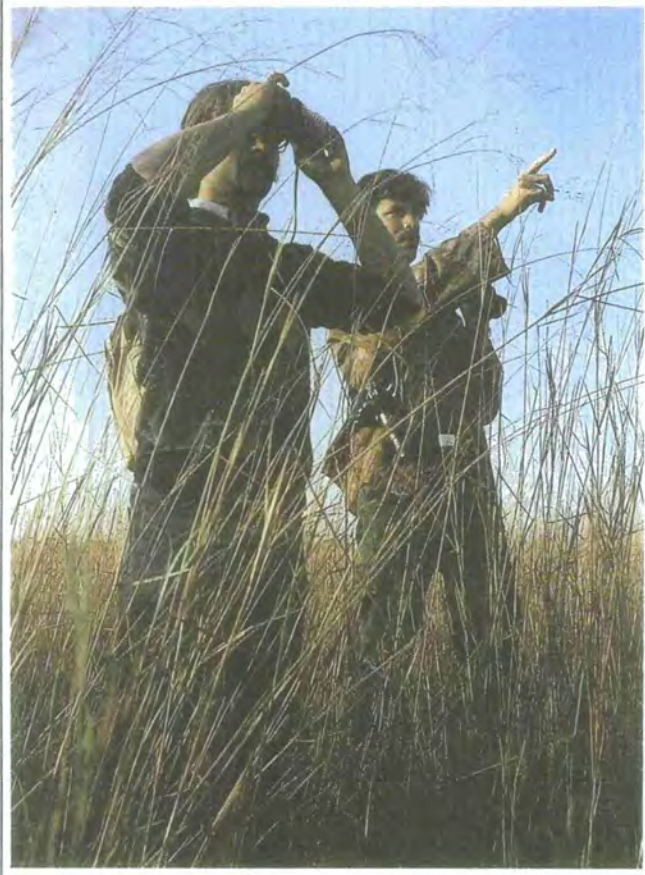

A GUIDE TO ENVIRONMENTAL ADMINISTRATION

IN-SERVICE TRAINING



A GUIDE TO ENVIRONMENTAL ADMINISTRATION IN-SERVICE TRAINING



Prepared by:

The Commission on Education of the International Union for Conservation of Nature and Natural Resources (IUCN) with the advice, co-operation and financial assistance of the United Nations Environment Programme (UNEP).

Ed
96



© 1984

International Union for Conservation of Nature and Natural Resources (IUCN)

Available from IUCN Publications Services, Avenue du Mont-Blanc

CH-1196 Gland, Switzerland

ISBN 2-88032-066-6

CONTENTS

Forward	5
Introduction	7
CHAPTER I In-service training	9
— In-service training; the present situation, limitations of current training, what is required	9
— Improving existing training programmes	11
— Organizing EAIST	11
CHAPTER II Training needs of personnel	15
— Generalist personnel	16
— Shortcomings of specialists in generalist roles	16
— Specialist personnel	17
— Relationships between generalist and specialist personnel	19
CHAPTER III Values: their role in environmental administration	23
— Conservation and development values in environmental administration	24
— Value training	26
— Value training applied to decision making	29
— Value training for interagency cooperation and coordination	31
CHAPTER IV Interdisciplinary approaches to environmental administration	33
— The interdisciplinary approach	33
— The present situation	34
— Training for interdisciplinary approaches	35
— The contribution of the social sciences	37
— The present lack of involvement	37
— The contribution of different social sciences	38
— Training aspects	43

CHAPTER V	Public participation in environmental administration	45
—	Participation in environmental administration	45
—	Requirements for successful public participation	54
—	Training for public participation	56
CHAPTER VI	The role of case studies in EAIST	59
—	Case studies	59
—	The relevance and value of case studies in training	60
—	Teaching case studies	62
—	Writing case studies	67
CASE STUDY FORMAT		
—	Preliminaries	69
—	Body of case study	69
—	Optional sections	70
NOTES		73
FIGURES		
—	Figure 1	25
—	Figure 2	49

FOREWORD

This guide has been written for those concerned with the provision of in-service training in the administration and management of environmental programmes. It sets out the case for the training of generalist and specialist personnel in environmental administration, and is intended to be used to justify, encourage, plan and help carry out such training. As an introductory text, it does not deal with the detailed planning of training programmes. Its main purpose is to serve as a first guide for those setting up in-service training in environmental administration, but it may also be used by those who wish to incorporate such training into training programmes in other areas.

The central theme of this guide is that the goals of environmental administration should be closely linked to those of the World Conservation Strategy (WCS)¹, and that a major aim of environmental administration is to work towards the objectives of the WCS. These are: the maintenance of essential ecological processes and life-support systems; the preservation of genetic diversity; and the sustainable utilisation of species and ecosystems. The ultimate purpose of training in environmental administration is to foster the attitudes and values, and develop the skills and knowledge consistent with and necessary for attaining these objectives, and the integration of conservation and development. Fundamental to this training are the concepts of conservation and development as defined in the WCS², and it is recommended that the reader refer to this document in conjunction with the present guide. It is further recommended that the WCS be used as a major reference source in training.

This guide should be useful to all concerned with training personnel in environmental affairs, whether as promoters, organizers, fund-raisers, assessors, instructors, or in other capacities. While it is directed primarily towards those concerned with training government personnel, it should also prove extremely valuable to those involved with training programmes in the private sector, and to others with an interest in this area. It can be applied to a wide range of situations and can be used, or adapted for use, in training programmes throughout the world; it will be of particular interest to those in less developed areas.

INTRODUCTION

Environmental administration can be defined as the process of directing and managing public policies and activities in the area of environmental affairs. Most personnel working in this area are more involved with managing the relationships between different interests, e.g. people, development, and the natural environment, than with managing the natural environment itself. It is where the different interests meet that the problems usually arise and decisions need to be made; this is the area of concern of the environmental administrator.

The WCS states: “A major constraint on the implementation of conservation measures is a lack of trained personnel.”³ It is indeed the case that at present many government personnel, both generalists and specialists, lack any background or training in environmental administration. This is particularly true in developing countries. At the same time, professional personnel make and will continue to make many of the key decisions affecting conservation and development. A major aim of the WCS is to incorporate appropriate environmental values into decision making in conservation and development projects in order to promote the integration of conservation and development — ‘living resource conservation for sustainable development’. Thus, much of the success or failure of the WCS and other conservation measures will depend on proper training for government personnel.

There is thus a need both to expand and to upgrade environmental training. The training currently available is limited and is inadequate in that it does not develop in personnel a broad-based conservation ethic and an understanding of the benefits and relevance of conservation to development. Many environmental administration personnel have too narrow a perspective — too restricted a view of conservation, and insufficient awareness and understanding of conservation values. Such awareness and understanding are essential to the integration of conservation and development.

To be effective, environmental administration requires a holistic^{3a}, interdisciplinary and value-based approach. Training for environmental administration should therefore be similarly oriented. Since values and value judgements play a central role in policy and decision making in environmental administration, it is argued that training should focus on the area of values, and one of the chief concerns of this guide is to stress the importance of dealing in value terms throughout the training process.

There is an urgent need for improved training if current trends in resource depletion and environmental degradation are to be reversed. Full-time training of long duration is often not practical or economic, especially in developing countries where the number of professional personnel is limited. Environmental Administration In-service Training (EAIST) can strengthen and build on the existing capabilities of personnel and provides a practical and economic way of improving the quality of decision making and other aspects of personnel’s work.

At present, however, this sort of training is very rare. Generally speaking, the educational backgrounds and past training of personnel are limited to technoscientific areas and are lacking in exposure to interdisciplinary approaches and the consideration of values. Little or no environmental training is given to those whose primary responsibilities are not in the area of the environment but whose actions have a very significant effect. There are few attempts, for example, to include environmental management in the professional training of middle-level government officials and businessmen in developing countries. Since they are frequently responsible for the implementation of development projects, it is very important that they receive such training.

The need for environmental administration and training is increasingly recognised in developing countries, where it has unfortunately become only too clear that rapid development can cause serious environmental damage. Industrial and infrastructural development that occurred over the course of many decades in developed countries is being telescoped into a few short years in many Third World countries. The potential for development-related environmental destruction is thus extremely high. At the same time, the development efforts of many countries are being slowed or compromised by lack of conservation. In South-East Asia, to take one example, excessive clearing of forests has caused fluctuations in river flow that are lowering rice yields. Throughout the developing world the lifetimes of hydroelectric power stations and water supply systems are being cut as reservoirs silt up — because siltation is accelerated by deforestation, overgrazing and other unwise land uses.⁴

Developing countries are by no means unique, however, in having development-related environmental problems. Developed countries suffer from similar problems when, as in developing countries, personnel fail to take account of complex interrelationships and important environmental values. There is a need for training programmes everywhere to adopt more comprehensive approaches along the lines indicated in this guide.

It is the aim of this guide to assist in establishing and carrying out training programmes which address the above problems and which are relevant to a wide range of countries and situations. It provides:

1. a justification and rationale to policy makers and training officials for establishing EAIST, and
2. a resource guide and source of ideas and techniques for planning and conducting EAIST.

The first two chapters examine the need for improved and expanded in-service training for environmental administration, as well as the training needs of the personnel involved. Chapters III-V explore in some depth three important aspects of environmental administration: values, interdisciplinary approaches, and public participation. Training in these three areas is considered in some detail. The final chapter examines the use of case studies in training.

CHAPTER I

In-service training

This chapter explains what training in environmental administration means in the context of this guide, and why it is so important. The present situation with regard to environmental training is described, and recommendations are made for expanding and improving training. The mechanics of establishing training in environmental administration are then considered: problems and priorities are discussed and ways of organizing the training are suggested. The emphasis on short-term, in-service training as opposed to long-term training is explained.

In-service training — the present situation, the limitations of current training, what is required

In-service training can be defined as the systematic effort to develop and improve the job-related skills and performance of personnel employed in an organization or agency.

Most in-service training is at present geared to short-term objectives, principally the acquisition of skills required by the trainee for his or her current job, in the current situation. From the agency's point of view, training objectives are usually to acquire; new knowledge, certain skills, and certain attitudes (generally attitudes which reflect the agency's philosophy and policies). Many personnel, on the other hand, see training in terms of their own career development and promotion prospects, often looking on it as a reward. Ideally, training should provide both for the agency's need, i.e. for practically-oriented training for skills currently required, and for the wider, longer-term perspective of many trainees. A training programme should also take account of the wider context of the agency's activities — its relationships with other organizations, for example.

Shortcomings of present training

Fulfilling the standard objectives of training as they are listed above rarely guarantees, however, satisfactory training in the skills required for effective judgements and decision making in environmental administration. The attitudes acquired under standard training are often oriented towards narrow economic or developmental goals, rather than towards environmental values and broad, long-term considerations.

In training programmes agencies usually concentrate (understandably) on their own areas of interest. Indeed some agencies are so closely associated with economic and developmental concerns that there may be automatic resistance to environmental training that does not conform with these concerns. The problem is made worse by the fact that much in-service training is conducted 'in-house', i.e. agency personnel train other personnel with little or no input from outside. Consequently, there is a tendency to form a 'closed system' of indoctrination and reinforcement of agency views and values.

Such training can also reinforce and increase the isolation of a given agency: personnel are trained to think and make decisions in terms of existing agency values and interests. As this pattern is repeated, the same values and the same restricted perspective are perpetuated, with the result that the agency may not be aware of or responsive to the wider values and interests of society at large.

Another limiting aspect of current training programmes is the overwhelming emphasis on technological and procedural aspects. This over-concern with techniques, skills, procedures and methods is continually reinforced by the technoscientific specialisation of the instructors (and of the trainees) and the well-established bureaucratic routines by which the agency runs. Too great an emphasis on *techniques*, however, detracts from the consideration of *values*.

This tendency to concentrate on techniques is found in both training and in operation, and leads to the situation where technical feasibility becomes the governing criterion for choice in development and conservation affairs, to the exclusion of important but less tractable environmental and social criteria. Yet these factors frequently contribute to the problems to which the agencies address themselves, and any solution that does not consider them is unlikely to be successful in the long term. Technoscientific solutions may be necessary, but they are rarely sufficient on their own. As the Tbilisi Final Report notes:

*Science and technology can no doubt provide or contribute to solutions to the problems which they may in fact have helped to cause. Nevertheless, the solutions sought should not be short-term ones, nor too narrowly conceived. In many cases, solutions have to take into account the social and cultural factors which are so often at the root of such problems. What is necessary is a re-examination of the complex and delicate relationships between people and their environment, so that they can begin to pursue environmentally sound development.*⁵

What is required

There is therefore an urgent need for environmental training programmes that encourage personnel to develop the broad perspectives, the awareness of values, and the appropriate skills to deal with these complex interrelationships, so that they are in a position to make choices or to propose solutions that take full account of non-quantifiable costs and benefits. The previous training of most environmental personnel is largely technical and/or scientific, and they cannot fairly be expected to give adequate weight to non-technical considerations in their policy and decision making unless they receive intensive exposure to these considerations in their environmental training. The holistic, interdisciplinary and value-based approach of EAIST fulfils these requirements.

The Tbilisi Final Report recommends the following training for professionals:

1. *in-depth supplementary and in-service training, or continuing education programmes, which enable them to relate more adequately to each other on an interdisciplinary basis; and*
2. *post-graduate programmes for people already specialised in some disciplines. It is considered that a problem-solving approach on an integrated multidisciplinary team basis is an effective method of training, since it develops professionals who, while retaining their original expertise, acquire an interdisciplinary training and ability to work as members of interdisciplinary teams.*⁶

EAIST can provide an effective, economical and practical means of implementing these recommendations. It is flexible and can be adapted to a variety of agencies, organizations, and personnel.

Improving existing training programmes

The obvious way to avoid some of the problems and disadvantages of in-house training is to arrange interagency training programmes in which both the participants and the instructors are drawn from a number of different organizations and agencies. (A more limited approach that is commonly used is to conduct training in-house, and invite outside speakers to contribute to one or more sessions of the training programme.)

Interagency training programmes enable the instructors to make use of a much wider range of expertise and resources, and expose personnel taking part to different approaches and perspectives. The benefits are twofold; the perspectives and value bases of personnel are widened and the interaction helps to improve communication and coordination amongst agencies, thus contributing to the integration of their operations (this theme is developed further on page 00).

Environmental administration encompasses a range of disciplines, represented 'on the ground' by a variety of agencies with different, but interrelated and often overlapping responsibilities. The interdisciplinary nature of EAIST means that it is particularly suited to an interagency approach. To be effective, any interagency training programme needs a coordinating focus, and in training for environmental administration it is environmental values which provide this.

Of course, in-house, single-agency training programmes also have certain advantages. These include the following:

1. they are simpler to organize;
2. they enable an agency to focus on agency-specific skills and abilities it wishes to develop among its personnel (N.B. This is the other side of one argument already put forward *against* in-house training. In some situations, such agency-oriented training may be appropriate);
3. there are financial savings to the agency in using its own training programme and facilities; and
4. personnel may accept such training more readily because they can see a direct connection with their daily work.

In some circumstances, these considerations may over-ride others and outweigh the disadvantages of single-agency training.

Organizing EAIST — priorities, problems, and recommendations

Priorities

Priority should be given to the training of those who dominate decision making, i.e. senior personnel. Environmental training at managerial level has been neglected to date, with serious consequences. As a USAID report on Environmental and Natural Resource Management in Developing Countries states,

*Human resources at the managerial and decision-making levels have generally been overlooked in the design of environmental training programmes. It is a neglect that has had serious adverse implications for the quality of environmental and natural resource programmes in developing countries. ... Managers at the highest levels of government must have a sufficiently detailed grasp of environmental and resource issues to know whether data and projections put forth in support of proposals are adequate, whether they address all relevant concerns, and whether they are reliable.*⁷

Much of the success or failure of the WCS will depend on decisions made by senior personnel over the next few years. Dr David Munro, past Director General of the International Union for Conservation of Nature and Natural Resources (IUCN), has said, "Although they would be harder to influence, a great deal could be accomplished by facilitating environmental training programmes which reach officials in the senior ranks. With ten, fifteen or more years of experience, these individuals will be making the key decisions for the present and immediate future."

Problems

Any training programme faces a number of problems, especially a) financial, and b) the availability of personnel for training (time). There are further difficulties peculiar to interagency training, which also occur in other areas of interagency co-operation.

These include:

1. conflicts between different agencies' ideologies and policies;
2. conflicts over leadership, arising from personality differences;
3. practical problems of cost-sharing; and
4. practical problems of organization arising from time constraints.

Time, or the lack of it, is particularly a problem with senior personnel. It is therefore advisable, especially with a relatively new area of training like environmental administration, to limit an initial training course to a three-day period. Senior personnel are far more likely to find the time for a short course than for a long one. In some cases it may be possible for the instructor(s) to travel to the trainees, saving personnel time and money. This also has other advantages, in that 'on the spot' training may be more easily seen to be relevant to the current work situation. Sometimes the distancing of personnel from their normal work environment is valuable in itself, however. Usually, some or all of the trainees will have to travel elsewhere for training.

As regards funding, interagency training programmes normally cost more to run than conventional in-house ones. Because of the unusual nature and special needs of EAIST, financial support should be sought from a variety of sources — international organizations, private trusts and foundations, professional societies — as well as from the agencies concerned. An essential part of training is its evaluation. Benefits are often hard to identify, especially so with training of a general nature like environmental administration. Allowances should be made for this by those responsible for allocating funds.

There are therefore genuine grounds for resistance to introducing interagency training. However, the temptation to continue with inappropriate training for reasons of economy or expedience must be overcome. Administrative support and encouragement from government and from the higher levels of the agencies themselves is vital. In most organizations training generally has a low status and is regarded as one of the first items of expenditure to be cut back in times of austerity. Training in environmental administration is, however, too important to be neglected; active promotion and support from outside will help ensure it receives the priority it deserves.

Preferred organization and recommendations

The essence of good EAIST is to use a holistic, interdisciplinary approach with the emphasis on values. The best way to attain this is to organize training on an interagency basis and to ensure that both generalist and specialist personnel take part.

Broadly speaking, generalists tend to be responsible for policy and decision making, and specialists responsible for providing the information and advice on which these are based. While training can be carried out on a single agency basis, and with just generalists or specialists taking part, under these circumstances it will be far less easy to achieve the interdisciplinary orientation and encompass the range of values necessary for good EAIST.

The key is to draw on the variety and diversity of the disciplines, agencies and organizations represented by the participants. This approach is advocated in the Tbilisi Final Report which speaks of the “spontaneous integration of different disciplines and different ways of thinking in a joint experience directed toward the solution of environmental problems”.⁸

The exchange and integration of views among specialist and generalist personnel is also of major benefit. There is frequently conflict between the two groups but contact during training reduces conflict and improves mutual understanding and co-operation.

The following general guidelines for training are very relevant to EAIST:

1. Essential to the success of training is the serious commitment of the agency head.
2. For maximum co-operation and commitment from trainees, it is essential that they fully understand and appreciate the purpose of their training. They should be given ample opportunity beforehand to ask questions and voice doubts they may have, and should be encouraged to participate in both the design and implementation of the training.
3. Training programmes should remain flexible so that they are capable of responding to newly discovered needs or demands of the target audience. This can be done without undermining the original goals of the programme.⁹

The exact form of the training programme will vary according to the needs of a particular group: their background and experience; their present jobs, and the skills and knowledge required of them in those jobs; and also, where possible, some awareness of their likely career development and the demands that are likely to be made of them in the future. Training needs will be assessed primarily by the employers, but the views, aspirations and needs as perceived by the trainees should be taken into account and accommodated as far as possible. This will not only make the trainees more receptive to the training offered, but will help to widen its scope.

Usually, training will consist of a combination of formal lectures, informal seminars and workshops, field visits and practical exercises. This last will include simulation games, group projects and case studies (see Chapter 6).

Instructors

Instructors for EAIST can be selected from a variety of sources, both within and outside government, including the various agencies taking part. In some countries there are National Institutes of Public Administration which can provide lecturers, government training officers, universities, and consultants in the private sector are other sources. Some of the instructors should *not* be scientists or technical specialists, but generalists, including those trained or experienced in the social sciences, such as sociology, psychology and anthropology, whose perspectives on environmental problems are different.

The instructors' aim should be not to push their own particular area of interest as being the most important, but rather to demonstrate to the trainees that there are a number of different ways of looking at a given situation, and to guide them in identifying the premises and values that underly these different views. They should present

themselves in a supportive role. Any perception on the part of agency personnel that instructors are there to 'shake things up' will lead to anxiety and resistance and may defeat the purpose of the programme.

Instructors who are outsiders should familiarise themselves with the structure and organization of the agency *before* the training is designed or carried out. This enables them to be sensitive and responsive to the agency's history, customs, problems, and needs. It is hoped that this guide will be helpful to those who are asked to act as instructors for EAIST.

CHAPTER II

Training needs of personnel

This chapter focuses on the different categories of personnel who may require training in environmental administration — their professional characteristics, and their particular needs and problems. The nature and roles of generalist and specialist staff are discussed and compared. The relationships between the two are examined, and the role of EAIST in reducing conflicts is discussed.

Professional personnel working in the field of environmental administration can be divided, broadly speaking, into two categories, **generalists** and **specialists**. Generalist staff are those in managerial or policy-making positions which may involve the administration of several areas. Specialist personnel are in positions which require the use of their expertise in a particular specialist field, e.g. soil science, forestry, or wildlife management. In practice, of course, there is no rigid distinction between the two groups: many generalists retain some specialist responsibilities (e.g. a hydrologist may administer the water division of an agency while continuing research on development work), and many staff who are primarily specialists have administrative and managerial responsibilities (e.g., a wildlife manager may have responsibility for other staff and for the administration of a protected wildlife area).

In some cases non-professional personnel are also involved in environmental administration. This is frequently true of technicians, non-professional personnel who have been trained for a short period and whose technical skills are used to service and support the work of higher level staff. In many situations, however, a shortage of professional personnel and other staffing arrangements will mean that technicians have responsibilities normally associated with professional personnel, such as the collection and analysis of data, and management activities. In such cases, their activities and decisions are comparable to those of professional personnel. This situation frequently occurs in field locations, where 'technicians' may be employed as wildlife managers, park managers, foresters, and so on, and may be involved in environmental administration of living resources over large areas. Such technicians should be included in environmental administration training programmes.

The majority of generalist and specialist personnel have usually had formal professional education in a scientific or technological field such as biology, engineering, forestry, wildlife management, etc., and for training purposes a technoscientific background can generally be assumed. It is recommended that both generalists and specialists be combined in EAIST. It is helpful, however, to examine separately the characteristics and training needs of the two categories.

Generalist personnel

The WCS defines generalists as ‘individuals with a broad grasp of the theory and practice of conservation — either within a sector or cross-sectorally — and with an overall understanding of the various disciplines involved.’¹⁰

Generalists usually begin their careers with an agency as specialists and, by moving upwards through the agency’s hierarchy, end up in generalist positions. It quite often used to be the case, particularly in Europe, that many generalists did not have a technoscientific background. Instead, their training was in one of a number of non-technical fields such as law, economics, or history. This situation is changing rapidly, however, and among agencies and organizations with a scientific or technological orientation (which means most of those involved in environmental affairs) there are few opportunities for personnel without scientific or technical training to become generalists.

Thus generalists normally begin their careers with similar educational and professional qualifications to specialists, and entry requirements are based on these, rather than on experience and qualifications that may be required for their future positions within the agency. They move on to positions where their work involves decision making and management of people rather than activities strictly related to their own specialist area (frequently they become administrators of specialists). There is often nothing in their previous training, however, to equip them for their new role as generalists. Past competence in a particular technoscientific field does not necessarily guarantee competence in a generalised administrative role dealing with complex social, political, economic, and environmental values and relationships. All-round competence for generalists requires knowledge, understanding and analysis of these wider aspects for effective decision making on issues affecting the agency and its relationships with others. Change and ever-increasing complexities in technology and society add even greater dimensions and responsibilities to the generalist’s role. Exposure to only technoscientific subjects in formal education, together with early career experience as a specialist are clearly not adequate to meet the full range of these responsibilities.

Shortcomings of specialists in generalist roles

Many generalists still operate on the basis of the assumptions and premises of their earlier roles as specialists, i.e. they continue to behave as though they were still foresters, engineers, or whatever. The contemporary high regard for scientific and technical expertise confers respect on environmental personnel by virtue of their professional specialisation (as forester, wildlife manager, etc.). But complications arise when specialist personnel reach generalist or administrative levels where they are expected to make, or have a say in, decisions determining the ‘public interest’ in terms of conservation and development.

Their decisions are no longer of a professional, specialised, and technoscientific nature, but are increasingly fundamentally value judgements. They may still claim the respect, detachment, and neutrality associated with their profession (its ‘image’), while actually making value judgements and decisions which go way beyond its legitimate scope. ‘Professionalism’ (identification with a particular profession) can be a dominant as well as a restricting force in environmental administration.

Generalists with specialist backgrounds who work in specialist agencies are usually good at furthering the objectives of the agency, gaining support for its programmes and so on, but their own limitations mean that this work often proceeds at the expense of wider considerations — for example, resource protection when the agency is mainly concerned with exploitation of the resource (say, wildlife).

Further, the technoscientific professional image of the majority of managers in environmental administration gives them the status of 'experts' whom the public do not feel authorised to question or criticise. Their actions are thus far less subject to public scrutiny than those of managers in 'lay' areas such as housing or education. Consequently, environmental administrators are more isolated from the issues and values the public see as important, and less likely to take them into account sufficiently in their decision making. This usually results from isolation and lack of exposure to the public, rather than from a conspiracy to avoid public involvement. (Chapter V deals with the role of public participation in environmental administration.) For good or ill, lack of public accountability allows the technoscientific administrator far greater flexibility and scope in his actions. This extends to giving him a major input into decisions as to *whether* a project should be undertaken.¹¹

Whatever the shortcomings of his background and training, in practice the role of the generalist is to make judgments and decisions that involve values. Many of the values that should be considered lie outside the immediate interests of the agency and relate to the broader public interest. The generalist himself is often only aware, of a restricted range of values, however, these may be further constrained by pressure from vested interests both inside and outside the agency. Furthermore, unacknowledged and therefore unscrutinised values held by the administrator will influence his decision making. Under these circumstances it is impossible for the generalist to perform his true function properly.

There is thus a need for special training to equip generalists who have technoscientific backgrounds with appropriate knowledge and skills. Specifically, they require exposure to the humanities and social sciences, through value-oriented as opposed to technically oriented approaches. EAIST provides such experience.

Specialist personnel

How specialists operate in their work

In order to understand why special training for environmental administration is necessary, and what form it should take, it is helpful to consider in some detail exactly how specialists operate, i.e. what it is that determines their views, values, and ultimately, their actions.

Their actions may be said to stem from three 'conceptual frameworks', or value systems, which are distinct though interrelated.

First, they have a *professional conceptual framework* based on their own specialism. This encompasses the principles of the specialism, its theories, methodology, and terminology. There is no one technoscientific conceptual framework that applies to all disciplines, but one for each. And there are subdivisions too within wide-ranging disciplines such as forestry, where the various different aspects such as timber, recreation, soil, and forest ecology have different conceptual frameworks.

While education is the principal agent in establishing the professional conceptual framework, it is reinforced by professionalism and by professional societies. For example, if one is trained and working in forestry or engineering, one 'thinks' like a professional forester or engineer. Many professional societies are oriented along fairly narrow lines, often economic ones — the American Society of Foresters, for example, is oriented towards timber rather than towards other forest products — and they exert and impose varying degrees of influence and conformity on the members of a given profession.

Secondly, all individuals have a *personal conceptual framework*. This is the individual's value system and personal view of the world, influenced by his or her personal experiences and relationships. All individuals constantly, and usually unconsciously, make value judgements which are based on personal perspectives. These, of course, vary enormously from one person to another. Thus, two specialists in the same field holding similar positions in the same agency may have different approaches to the same problem, and arrive at different conclusions because their personal conceptual frameworks differ. Thus personal conceptual frameworks can play a significant part in *professional* decision making.

Thirdly, specialists develop an *agency conceptual framework*, prescribed by the policies, programmes, values and overall philosophy of the agency for which they work. For example, a wildlife manager with a National Park agency will develop a different agency conceptual framework from one with an agency primarily concerned with hunting game species. Agency conceptual frameworks are arrived at both by indoctrination and by active internalisation of agency values, i.e. learning to think in agency terms. The strength of the conceptual framework will depend on the individual's commitment to the agency, but all specialists develop it to some extent, merely through carrying out their day-to-day tasks.

Agency conceptual frameworks can have very real effects on specialists' perceptions and ultimately on their work. To take one example, in Rocky Mountain National Park, USA, population surveys to determine the extent of overpopulation by elk and deer, carried out by National Park specialists, tended to produce conservative estimates. Federal and regional wildlife specialists, on the other hand, came up with higher population estimates and made stronger recommendations which resulted in action being taken to reduce the populations.¹²

As one might expect, these three conceptual frameworks do not operate in isolation. There is overlap, interaction, and frequently conflict between them. The specialist faced with a situation in which his loyalties are divided will often turn to the values of his professional (specialist) conceptual framework, in his anxiety to project an objective, 'professional', value-free image. At the same time, there are pressures on personnel in most agencies to conform to the agency's own value position, i.e. to the agency conceptual framework. The reward systems of agencies and considerations of job security tend to discourage personnel from advancing views which might involve conflict with their employers, now or in the future.

It should be noted that these considerations apply equally to generalists, who also operate according to these conceptual frameworks. However, it is more widely recognised that generalists are continually making value judgments in their work, whereas with specialists, the process is not so obvious; they see themselves, and tend to be seen, as providing neutral, impartial information and advice, while this is often far from the case. Value considerations in fact permeate the entire range of activities of specialists in their day-to-day work, from the selection (choice) of problems for study, through the choice of methods of study and data collection, to the way in which the data is analysed and interpreted. Therefore 'objective', 'professional', 'scientific' conclusions and recommendations are as value-laden, albeit less obviously, as overtly subjective ones.

Some specialists in environmental administration spend most of their time studying, researching or managing some aspect of living or non-living resources, in line with their own specialist professional training. As already stated, however, many have wider responsibilities, and much of their work is related to the social and value aspects of their specialist role. This is particularly true of specialists who are primarily resource managers (e.g. wildlife or water managers), much of whose work consists of deciding

the degree of utilisation, protection or regulation of the resource, i.e. deciding what others may or may not do with a resource. Thus, specialists should also be aware of the value implications of their role as managers.

Training programmes in environmental administration need to be aware of the ways in which values influence the work of specialists through the different conceptual frameworks. Through exploration and discussion of these ideas, specialist personnel will become more aware of the various factors that influence their decisions. They can then make more informed choices with regard to how they carry out their work and what work they do, and will be more aware of the implications of their decisions. Through such training they can be encouraged to be more receptive to environmental and WCS values and to promote them actively in their work.

Relationships between generalist and specialist personnel

A major purpose of having mixed training groups of generalist and specialist personnel is to enable the professional relationships of the two groups to be explored, with a view to improving mutual understanding, communication and co-operation, and to reducing conflicts.

Traditionally in public administration, generalist personnel are in managerial positions, exercising authority over other staff, including the specialist personnel who provide the advisory and support services. But in many modern organizations, specialists are in positions of considerable power and influence because managers are ever more dependent on their specialised knowledge and skills to provide the up-to-date information, advice and recommendations needed for policy and decision making.

The two groups are clearly mutually dependent, and a good working relationship is essential for good environmental administration. However, there is often a good deal of conflict between them resulting from poor communication. There may be several reasons for this:

1. Some specialists, especially those who are research-oriented, may be unwilling to commit themselves to a particular position and to make concrete recommendations when asked to do so, because they think they have inadequate information on which to base recommendations. There is a well-known tendency among specialists to ask for more time for study whenever an answer is needed.¹³
2. If and when they do commit themselves, specialists often make recommendations which are essentially conservative, in the sense of involving least change and, by implication, least risk.

These positions are entirely understandable in that our present knowledge and understanding of ecosystems is far from complete, and our ability to predict the outcome of interference with natural ecosystems is extremely limited. However,

Such a lack of knowledge often causes difficulties between policy makers and resource managers on the one hand and the ecologists and other scientists that advise them on the other. The former expect a clarity and precision of advice that is premature (and if attempted, may well make the advice wrong); the latter cannot avoid stressing the real and important uncertainties that exist.¹⁴

It is generally not possible for the manager to await the results of a lengthy research programme — assuming there are funds available for the research — before making a decision on some conservation or development project. He finds the delay and uncertainty frustrating and far from helpful in his decision making. His own technoscientific education, with its emphasis on facts and results, leads him to expect unambiguous answers and recommendations from his specialist advisers.

The specialists, on the other hand, are right to be cautious; past experience of environmental damage resulting from developments carried through with inadequate knowledge of the likely effects suggests that we should be more cautious in our approach to change. As the WCS points out,

*Governments and resource users are scarcely ever in a position to defer action pending the outcome of a protracted research programme. Yet action based on inadequate knowledge carries a grave risk that it will fail or be unnecessarily destructive. Unacceptable consequences or lack of knowledge are best avoided (as far as possible) by good planning and management, so that development activities can be so located and conducted that risk is reduced.*¹⁵

3. As previously mentioned, specialists may avoid making recommendations that conflict with the vested interests of the agency that employs them.
4. A major obstacle to effective communication between generalists and specialists lies in the relatively narrow professional education of most specialists. This does not prepare them for the value conflicts and uncertainties involved in a comprehensive, truly interdisciplinary approach to environmental administration. They may find these problems too difficult to cope with and 'retreat' to the safety of a narrow, strictly 'professional' approach. Unaware that they are in fact operating from a base of three (at least) different conceptual frameworks or value systems, they present their advice to the manager as being purely professional and therefore objective and value-free.
5. Further problems for generalists include: reconciling conflicting and competing demands made by specialists representing different areas of concern e.g. demands for public recreation and wildlife protection; resolving conflicting conclusions and recommendations made by similarly-orientated specialists studying the same problem. (This can arise from differences in the individual and agency conceptual frameworks of the specialists concerned, and the outcome will depend to some extent on the generalist's own conceptual frameworks.)

In the final analysis, generalists have the overall responsibility for synthesising and resolving the views presented by specialists. Problems of relationships between the two groups make the former's job harder and can have adverse effects on the quality of his decision making: where pressure of time puts constraints on decision making, managers may give the views of some specialists more weight for the wrong reasons. Crisis decision making is rarely satisfactory.

Conflict can in fact have positive results if the problem is seen and dealt with when it occurs, through recognising the different perspectives of the personnel involved. Conflict must neither be suppressed in the hope that it will go away if ignored, nor left to someone at the top to resolve. This is no solution since senior officials are unlikely to have adequate information to arbitrate, and the expertise and contribution of those most closely involved is likely to be ignored.

Training programmes can improve relationships and co-operation between generalists and specialists, reducing conflicts by making management more research-oriented and research more management-oriented, as is recommended in the WCS.¹⁶ This can be achieved by the following means:

1. by ensuring the participation of both generalist and specialist personnel in the same training programmes;

-
2. by highlighting the role of environmental and social values in decision making for environmental administration, and the contributions of both specialists and generalists to this;
 3. by promoting integrated decision making based on a holistic and interdisciplinary approach; and
 4. by treating conflicts in a positive way, by discussing them — and the different perspectives that contribute to them — so that generalists and specialists can learn from each other.

CHAPTER III

Values: their role in environmental administration

In this chapter, the role of values and value judgements in decision making and in other aspects of environmental administration is considered. It is argued that values inevitably and rightly play a central role in decision making, whether or not this process is conscious. It is therefore vital that personnel be aware of their own value base and the values underlying the positions held by others. They will then be in a position to evaluate alternative proposals in terms of these values and to make choices in favour of those proposals which accord with the values of the WCS (or other desired goal).

The values of particular concern to conservation and development are identified. Training in three distinct but interrelated areas — value awareness, value change, and value clarification — is discussed. Finally, training is discussed with reference both to decision making and to environmental administration in situations where a number of different agencies or organizations are involved.

Values are an essential part of the governmental process because they strongly influence the objectives that individuals pursue and the means they select for achieving those objectives. Solutions to problems and conflicts require sacrificing some values to others (trade-offs and compromises). It would therefore be neither realistic nor right to ask personnel to act in a value-neutral way. Indeed, some authorities argue that personnel should practice 'positive discrimination' in favour of those values they consider to be under-represented or excluded from consideration. These are most often environmental and social values.¹⁷ However, bearing in mind the background and conventional training of generalists and specialists discussed in Chapter II, it is questionable whether the value base of most environmental administration personnel is sufficiently broad for them to give adequate attention to social, environmental and WCS values in their judgements and decision making.

The acquisition and assimilation of environmental values of course requires previous exposure to such values. At present, the exposure of personnel to environmental and social values is largely informal and somewhat haphazard: they may acquire such values through reading and personal experience, and to some extent through their formal education. But these sources cannot be relied on to have provided adequate exposure to environmental values, and most current in-service training programmes do not rectify this deficiency, because of their limited, agency-oriented objectives (discussed in Chapter I). Thus EAIST must focus on environmental, social, and WCS values, to ensure that personnel are in a position to uphold and actively promote them.

In order to ensure a common basis for discussion of values, a broad measure of agreement as to what values are should first be established. They are difficult to define, analyse and evaluate, but the following gives a brief outline.

Values deal with what is considered important or desirable. They may include judgements as to what is good or bad, and right or wrong. Some may be described as moral values. There are values associated with goals, objectives, and traditions: these may be explicit and obvious, or implicit (implied).

Values produce *behaviour*. They arise from attitudes (a state of mind or feeling) which represent a behavioural disposition (tendency) towards a given object or factor. Attitudes, in turn, are produced by beliefs associated with the object or factor.¹⁸ This process is shown in the diagram below.

Values change over time as beliefs and perceptions change in response to changing situations, experience, etc. Frequently this involves a shift in priorities.

Conservation and development values in environmental administration

There are four areas of values of special concern to environmental administration.

Ecological values

Ecology is the study of all living things (including man), their relationships with each other and with the living and non-living environment. The ecological concepts of interrelationships and interdependence provide a central theme for environmental administration. At any given time and place a complex web of interrelations and interdependencies exists, fundamental to present and future life. For example, water resources cannot be manipulated without affecting associated human, animal and plant life, as well as a host of ecological subsystems. To hold ecological values means to act to maintain the complex ecosystems on which all life depends. Ecological values should therefore play a central role in judgements and decision making by environmental administrators.

The environmental public interest

Personnel and governments generally aim towards meeting the 'public interest' in their decisions. The public interest is an abstract concept which refers to the common interests of the public, evaluated in terms of costs and benefits, on a long-term basis. But interpretation of 'the public interest' may differ from one interest group or sector of the public to another. Value standards applied by public administrators may not be those envisaged by one or more sectors of the public. Further, administrators may have different interpretations of what is 'best' or 'good' for the overall interest of the public, in both the short and long term.

Future generations

Related to the environmental public interest is concern for future generations. Many living resources, for example, are highly sensitive and may suffer irreversible damage, even extinction, if removed or reduced. Hence they would not be available to future generations, thereby removing certain options. At the same time, it is difficult to anticipate the value systems and needs of future generations in current and immediate decision making. However, concern for future generations of human and other life is an essential responsibility of personnel involved in environmental administration.

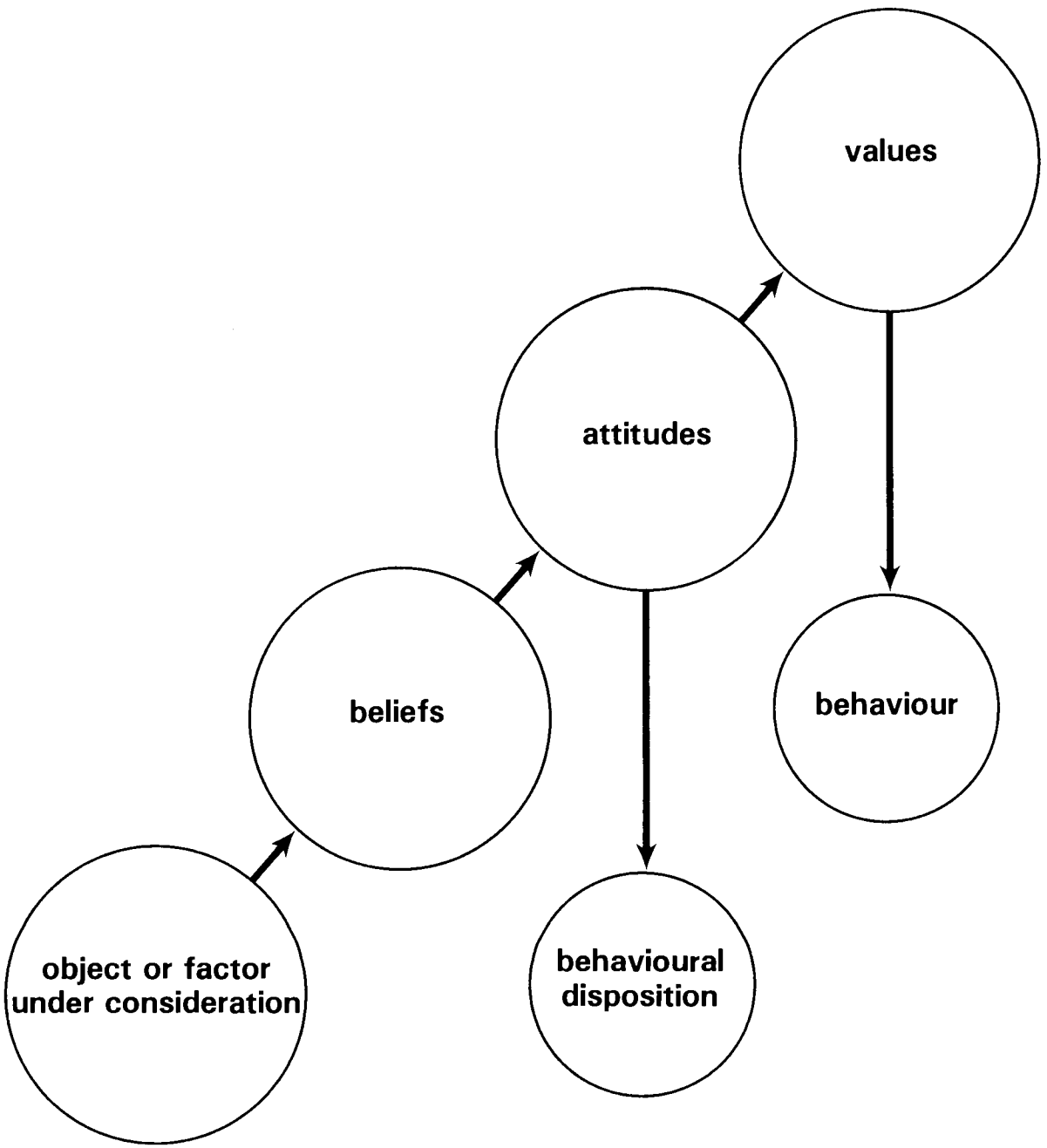


Figure 1

Quality of life

Many values and considerations important in conservation and development pertain to aspects of the environment which are not directly quantifiable and which cannot be assigned monetary values. (Examples are wildlife, amenity, and scenery.) Such qualitative values have psychological and indirect benefits which are associated with aesthetic, scientific, historical, recreational, and other aspects of the natural environment, all of which greatly contribute to the quality of human life. There are real difficulties associated with giving proper weight to these values. But unless it is done by some means or other, values that are more easily described and measured, such as board feet of timber or tons of a given mineral, will be given undue emphasis.

Personnel will vary in their awareness of these values, of course, but it would be wrong to assume that their awareness necessarily increases with increasing experience and responsibilities. One pitfall to be avoided is that of paying only 'lip service' to environmental values; making general statements of the need for conservation and 'harmony between man and nature', and giving the appearance of considering environmental values while in fact paying very little attention to them. This is an easy trap to fall into because in such a complex area there can be no one right answer, and because people have different interpretations of 'environmental values' and give different weight to different aspects. Thus there is no one definitive environmental value to be applied in all situations. The fact that different interpretations *can* be made provides an excuse for environmental values to be pushed aside and given less consideration than is rightful, in the face of pressures from other interests or because of 'special circumstances'.

Both conservation and development involve value judgements and decisions regarding the human use of living resources. Both are for people. Development is oriented towards achieving human goals (values) through use of the biosphere, whereas conservation is oriented towards ensuring that such use can continue. Both conservation and development involve human goals or values and use for present and future generations.

However, these values, and subsequent activities based on them, may often be in conflict. A vital challenge and mandate for personnel is to integrate conservation and development in their judgements and decisions, thereby making possible the attainment of the goal of the WCS — living resource conservation for sustainable development. Unless living resources are conserved, development cannot be sustained and there will be a loss of the living resource base available to and essential for the survival and well-being of future generations. EAIST can contribute significantly towards meeting this challenge and mandate.

Value training

Training should be oriented towards the development and internalisation of a 'core' of values based on these four areas, specifically on conservation as defined in the WCS. This will provide personnel with a basic value framework for integrating conservation with development. The existence of such a 'core' of conservation values should also make it easier for personnel to develop 'anticipatory' environmental policies, i.e. policies which anticipate significant economic, social and ecological events rather than simply react to them.

Value training largely consists of getting personnel to think in terms of values in their day-to-day activities. It involves developing the art of asking and answering the right questions. Value training involves exposure to new or hitherto neglected values. It needs to be in depth, not superficial, if new values are to be properly incorporated into the individual's value system.

Value awareness

Value awareness means an awareness of the existence and role of values. The aims of value awareness training are:

1. to make generalists and specialists more aware of the limits of their technical expertise;
2. to teach them to distinguish between decisions that are largely technical and those that are largely value judgements; and
3. to help them to identify *when* they are making value judgements or decisions that go beyond available technical knowledge or data, i.e. value judgements.

Thus value awareness training can help establish demarcation lines between technical and value judgements, bringing value judgements into a much-needed sharper focus. This has great benefits in, for example, public participation activities (see Chapter V) where the public is no longer presented with values in the guise of facts.

Value change

Training in value change means looking at the actual values held by personnel, and changing or enlarging them as necessary. The aim of training in value change is to broaden the value base of personnel and open it up to values which are more in tune with long-term environmental and social goals as opposed to short-term, parochial ones.

Value change occurs when existing values no longer satisfy or appear realistic to those that hold them. The adoption of new values can result from:

1. exposure to new values;
2. dissatisfaction with old ones which, for example, lack adequate factual basis or logical coherence;
3. finding inconsistency between values currently held; and
4. the emergence of 'latent' values in response to some threat or crisis.

There is often considerable resistance to value change because of entrenched professional and agency conceptual frameworks (see Chapter II). Although many professions and agencies have shown increased receptivity to broader environmental and social values in recent years, traditional orientations and values are still predominant. This is especially true of senior personnel who are in key decision-making positions.

Most value change occurs first at the level of the personal conceptual framework, so training should focus on the individual. Personnel can then influence others, both within and outside their professions, and initiate further value change.

It is helpful to use innovative teaching methods such as self or group analysis to provide the opportunities, experiences and even inspiration necessary for value change. It is also highly desirable for training to be on an interagency basis, as this increases the diversity of participants and thus the range of value inputs, and decreases the tendency to conform to agency or professional values. A more open environment is created, with conditions more favourable to change.

Special attention needs to be paid to values in the area of 'quality of life'. Problems of quantification, even of description and definition, put these values at a disadvantage and may lead to their neglect. Creative training and experience in this area is necessary to compensate for previous neglect, and can include field trips and audio-visual material that assists in describing and analysing qualitative values. Because of its subjective and qualitative nature, training in this area is undoubtedly difficult, but it is too important to be neglected any longer.

Value clarification

The aims of training in value clarification are:

1. to make personnel clarify for themselves the values they actually hold with respect to the environment; the content of these values and how they affect decisions; and
2. to develop skills in using values.

Training involves considering alternatives in terms of personnel's values, i.e. their feelings towards each alternative, and the consequences of each alternative, before coming to a decision and acting upon it. This process underlies all problem solving. An important function of the process is to help participants discover whether their stated value positions are in fact consistent with their actions. As Stapp states:

Value clarification is of paramount importance in making rational environmental decisions every day of a person's life, and must be a basic part of every environmental education programme. Value clarification stimulates an individual to examine his behaviour by clarifying for himself his purpose, beliefs, attitudes, and other value indicators. It helps to alleviate and remove the inconsistencies that might exist in an individual's life and encourages the development of a concept of 'self'.¹⁹

It must be recognised that value clarification is not a static state, to be achieved once and for all. It is a dynamic, ongoing process, to be continued as individuals' values and perceptions change. The dynamic nature of value clarification means that it can reveal trends, 'indicators' of value positions that are not (yet) fully developed or strong enough to influence decisions. Through value clarification training, personnel can learn to sort out such feelings and assess their importance, and decide whether a given value indicator *should* influence judgement. Thus, by the identification and encouragement of new values, the process of value *change* can be speeded up.

Personnel will experience some conflicts and difficult choices in value clarification training, just as they do in their work. But the more conflicts they resolve during the training process, the fewer they will have to deal with in their daily activities. It is essential that personnel are clear about what they actually do value, and then act consistently and publicly within that value system as they carry out their professional duties. What personnel value, and how they integrate these values into their professional lives, will greatly influence their concepts of conservation, development, and society. The clearer personnel are as to what they value, the more they will be able to choose and initiate courses of action consistent with what they believe in, and to act confidently and decisively.²⁰

In training for value clarification it is important to provide an atmosphere of openness, honesty, respect and acceptance. If participants feel that information they are asked to share about their values, attitudes and behaviour will be ridiculed or attacked by their peers or by the instructors, they will not share their thoughts and feelings openly and honestly.

It is important that instructors first clarify their own values and that they participate in the valuing exercises and discussions. However, it may be wise for instructors to refrain from discussing their own values until participants have had a chance to state theirs. This should encourage a more open discussion and avoid the tendency of participants to give the 'right' answer or to be inhibited from stating their own views. Instructors must avoid inculcating their own values, even though these may be the 'right' ones in conservation and WCS terms; research has shown that indoctrination is not

very effective in helping individuals to behave in a consistent way or to deal effectively with the conflicts that accompany most issues.²¹ Value clarification should focus on the process of valuing rather than on the transmission of any 'right' set of values.²²

Instructors can make good use of games and simulations, including role-playing, whereby participants in an environmental game assume the roles of planner, developer, conservationist, decision maker, etc. This helps personnel to gain a better perspective of an environmental issue, and to understand the ecological, economic and governmental systems involved. Some sophisticated games use computers to simulate the effects of alternative proposals. Such simulations enable trainees to practise carrying out the valuing process in reasonably realistic situations.

These three aspects of value training — awareness, change, and clarification — are essential to effective judgments and decision making by personnel in environmental administration. Though here presented for clarity as fairly distinct components of training, they are of course interrelated, and in practice are likely to be interwoven in training. What is important is that participants recognise the different elements and can distinguish between them. The benefits of training can be summarised as follows:

1. Values which are often unacknowledged and unexamined are brought to light and discussed openly.
2. The ambiguities and conflicts associated with conservation and development issues are clarified.
3. The understanding, sensitivity, and perspective of participants with respect to these issues is enhanced.
4. The bias of personnel towards their own agency's policies is reduced in favour of values associated with the public interest.

Value training applied to decision making

Values are important throughout the various stages of the decision-making process. They influence the way problems are defined, fact finding, the search for solutions, and the way these are presented. The recognition that a problem exists and requires action is itself a value assertion. The values of those who implement the decision are also relevant, since they can have a significant effect on the shape of the final policy. Thus the values of both generalist and specialist personnel play a part in determining the outcome of an issue.

All three aspects of value training discussed above are involved in decision making, especially in the evaluation of alternatives. Direct choices between values are not usually made, but between options that differ in the extent to which they embody particular values, or in the emphasis placed on some values in relation to others.

The decision-making process can be analysed in terms of values. One model which highlights the role of values consists of the following four stages:

1. values — the identification and analysis of involved values and their conflicts; the examination of the value implications of alternatives and their consequences, as discussed above under value clarification;
 2. human interaction — analysing the values held by the different interest groups involved;
 3. power/authority — the struggle of these groups for influence and dominance in decision making; and
 4. decision or policy making a decision as to which values or interest groups to favour.
-

In practice, however, it is rare for the values under discussion to be clearly stated and examined in this way. Apart from the reasons already discussed, there are a number of pragmatic reasons.

Firstly, decision making is often incremental in nature, i.e. it is a question of adding to existing precedent rather than starting completely from scratch. Conservation and development decisions are often about such things as allowing further development of mineral extraction in an area, adding to the network of national parks or protected areas in a country, or building a hydro-electric power plant based on a new dam. At other times, a decision has to be made about land use in a certain area. In this situation, the decision-making process tends to focus on detailed comparison of whatever proposals are on offer, rather than on a fundamental appraisal of the situation and a decision as to what action is required.

In either case, the fundamental issues are usually not raised, and the need for a comprehensive statement of the values underlying the proposals is avoided. These values are *assumed*, implicit in the present state of affairs, (e.g. the existence of so many mines, national parks, hydro-electric power plants already), and only the 'increment', or the differences between alternative proposals, has to be justified. Thus decision makers are often unable to explain the theories or values behind their decisions.²³

Secondly, decision making in development and conservation is usually an ongoing process with few decisions which are final. More often, a series of decisions is made over time, as a result of new or related problems and consequences. In the process, the underlying values become clouded and lost, and certain value options (= alternatives) may be neglected or excluded from consideration as a result.

Thirdly, much decision making is a group process, where a number of people, often representing disparate interests, have to arrive at a consensus of opinion, or at least a majority decision, as to what to do. This is frequently the situation in the field of conservation and development. Total agreement is rare, and so decision makers must adopt an approach that allows for different views on a problem. This usually involves:

1. searching for an alternative that satisfies each of the decision makers, although no one believes it is the ideal solution;
2. accepting the first proposal to which no one strongly objects;
3. avoiding pressing the search for basic values so far as to threaten cohesion and alliances.²⁴

It implies that personnel may support the same proposal for different reasons (values), so that exposing the ultimate goals (values) of participants is likely to get in the way of reaching agreement.

Clearly, decision making of this kind detracts from the consideration of underlying values. Compromise on 'lowest common denominator' solutions (1 and 2 above) ignores the processes of value awareness, change, and clarification. If the assumptions and views of personnel and of the interested parties are not clearly stated and analysed in value terms, the decision-making process can only deal with values in an indirect and partial way. Value training is thus essential if the approach of decision makers is to be comprehensive.

The importance of value training at all levels

However well trained in value aspects they may be, higher level administrators (generalists) cannot reinstate values and alternatives discarded earlier in the decision-making process, nor can they ask the right questions at the right time because of the

specialised nature of the problems under consideration, (a top policy maker or ministerial level official cannot be expected to know enough about a specific problem of range management, for example).²⁵ Further, the decisions high level administrators in government have to make cover a wide range of complex and important issues. They have to deal with conflict resolution on a scale much larger than that of a single agency. As a result, they are often restricted to and highly dependent on alternatives and recommendations made by their respective agencies. In this way agencies can become a restricting force determining the value priorities of higher officials. It is therefore essential that important values are incorporated in agency programmes from the beginning, and that lower level operations — problem definition, fact finding, narrowing down of alternatives — are carried out with these value considerations in mind.

Unless this happens, a series of minor decisions which neglect WCS and other important conservation values can lead over time to a major change in policy, without there having been a conscious decision to do so, and without consideration of the change in values and value priorities the new policy implies. It is therefore crucial to get all personnel from the start to think in value terms, to ensure that policy changes do not occur by default.

Value training for interagency cooperation and coordination

The WCS strongly recommends interagency consultation and coordination in environmental affairs to bridge gaps and reduce the conflicts between programmes pursued by different agencies. Specifically, it recommends:

The different agencies with responsibilities for living resources should have clear mandates, and such mandates should specifically include conservation;

*There should be a permanent mechanism for joint consultation on and coordination of both the formulation and implementation of policies.*²⁶

However, the different values of different agencies can present problems for developing a unified approach. This is particularly true of interagency relations in conservation and development affairs.

Several factors contribute to problems with interagency coordination. These include the following:

1. costs and differing benefits;
2. time constraints;
3. technological biases (with specialists anxious to uphold their own professions arguing over the best methods/technologies);
4. bureaucratic self-preservation; and
5. leadership and personality factors.²⁷

In view of these factors, efforts at coordination tend to be based largely on papering over the real differences between agencies and on finding solutions based on the 'lowest common denominator'. This effectively defeats the object of interagency cooperation. Interagency decision making is a form of group decision making and has the same shortcomings (discussed above). Meanwhile, problems will continue, since fundamentally the conflicts remain unresolved. A false front of harmony is established behind which each agency continues on its own way.

The same superficial harmony applies to 'clearance' systems whereby reports, evaluations and policy recommendations are vetted by other agencies involved in the same areas before being sent on to higher authorities. Because agencies do not want their reports to be rejected or passed on with dissenting comments, they will usually modify the proposal, or the language of the proposal, to meet the objections of other agencies. The end result may be a compromise which disguises the differences without coming to terms with them.

This practice can have the further effect of discouraging innovation. Personnel may be inhibited from introducing new ideas and values into programmes because they fear that many of the agencies involved in the clearance system will reject them.²⁸ The 'status quo' is thereby perpetuated and there is inbuilt resistance to change.

This is a problem with the WCS to some extent: many of its concepts and values can be considered 'new' to some agencies, and they will not be properly incorporated into decisions and programmes unless they are given sufficient emphasis in interagency relations.

Thus it can be seen that the case for value training for decision making applies equally to the area of interagency cooperation. Values provide a common framework and reference point for all agencies. Agencies must learn to communicate with each other in terms of clearly stated value positions which they understand and act upon consistently. Until values become an integral part of agencies' thinking, there can be no common basis for discussion. 'Agreement' will be arrived at under false pretences and genuine interagency cooperation and coordination will not be achieved.

CHAPTER IV

Interdisciplinary approaches to environmental administration

Although the need for an interdisciplinary approach to environmental administration is now widely recognised, it is still relatively little used, either in training or in practice. This chapter argues the case for interdisciplinary approaches and explains the reasons for the present situation. While the obstacles to achieving a truly interdisciplinary approach are considerable, a number of guidelines can be used in training to foster an interdisciplinary orientation amongst environmental administrators and managers.

The role of the social sciences in interdisciplinary approaches is discussed. For several reasons these disciplines tend to be underrepresented and undervalued in environmental administration. Their relevance and importance is argued and the contributions of various social sciences are examined. These are illustrated by reference to a case study. Finally training in social science aspects is considered.

The interdisciplinary approach

An interdisciplinary approach to the environment can be defined as the combined use and co-ordination of appropriate disciplines from the natural sciences, the social sciences, the applied sciences, and the humanities, in an integrated approach to solving environmental problems. (The term 'multidisciplinary approach' refers to the use of a number of selected disciplines, each of which is assigned a part of a given environmental problem. Their partial recommendations are linked together at the end to form the final solution.²⁹ Multidisciplinary approaches are not as satisfactory because there is no concerted effort at integration, and because one of the chief benefits of interdisciplinary work — the frequent interaction between different disciplines — is lost.)

The value of interdisciplinary approaches to environmental problems is now widely recognised, as it is clear that no single discipline can deal effectively with such complex issues. Although a number of disciplines such as forestry and architecture consider environmental planning and decision making to be within their remit, they each concentrate on only one part of the total system and lack a comprehensive perspective. The use of interdisciplinary approaches to environmental education and training was recommended by the Tbilisi Conference on Environmental Education³⁰, and is Federal Government policy in the USA.³¹

Interdisciplinary approaches provide a means of solving complex problems, and a mechanism for breaking down the traditional barriers between disciplines. Further benefits and advantages of an interdisciplinary approach include:

1. Cross-fertilisation of ideas

Personal interaction among members of various disciplines encourages the synthesis and development of ideas and concepts; this can bring about 'new knowledge', and shed new light on intractable problems.

2. *The synthesis of small-scale and large-scale viewpoints*

Much problem solving depends on understanding the dimensions of a problem. This in turn depends on an understanding and synthesis of the 'micro' and 'macro' aspects of a given problem e.g. the psychologist's concern for the individual combined with the sociologist's concern for the group or community, or the forester's concern for a given stand of timber combined with the ecologist's concern for the ecosystem of which it is part.

3. *Learning*

Interdisciplinary work does not come naturally to most personnel, and so it involves a learning process and requires a different working procedure. This contributes to the individual's professional development and perspective.³²

The present situation; obstacles to achieving interdisciplinary approaches

Although interdisciplinary studies are much talked about and strongly advocated, the reality often falls far short of the ideal, and the hoped for results are not forthcoming.

One reason may be failure to make the scope of the study sufficiently broad and wide-ranging; with the traditional dominance of technoscientific disciplines which focus on physical aspects, there is a tendency to exclude relevant disciplines dealing with social aspects. These may only receive brief consideration, or lip service, in the study. For example, it is common to make use of a number of personnel with technoscientific specialisations, e.g. forestry, hydrology, engineering, with only peripheral involvement of a quantitative sociologist or economist. It is not sufficient, however, just to *include* social science disciplines: it is also essential to *integrate* the various disciplines at both the theoretical and applied levels.

A second reason is that interdisciplinary approaches do not come naturally to most personnel who have had specialised training in a single discipline. Agencies and other organizations have traditions in single disciplines, each of which has its own philosophy, methodology and procedures for problem solving in its own sphere. Thus agencies often do not have the inherent capability or experience necessary to integrate their activities.

It can also be argued that there exists no general scientific theory that encompasses all the science-based disciplines. Each discipline develops a set of theories and approaches which are specific to that discipline. Technoscientific personnel thus develop a conceptual framework which is specific to their own discipline and/or profession, and do not develop a general one.

As the UNEP report 'Environmental Training, An Overview' states:

*The content of any aspect of environmental training is derived from a variety of fields and contributions. This multidisciplinary contribution poses problems for organizations and institutions which have developed traditions in single disciplines or sectors. ... The multidisciplinary perspective is adequate so long as no interactions are involved. But in the environmental domain, it is the interactions that are thought to be significant. It is therefore necessary to bring an interdisciplinary perspective to the solution of any environmental problem.*³³ (Editor's italics)

Thus some kind of training or exposure to the concept and approach of interdisciplinary work is necessary. The value of this is confirmed by the Tbilisi Final Report:

... It is considered that a problem-solving approach on an integrated multidisciplinary team basis is an effective method of training, since it develops professionals who, while retaining their original expertise, thus acquire an interdisciplinary training and ability to work as members of multidisciplinary teams. They may be appropriately described as environmental integrators or integrationists as distinct from generalists or specialists.³⁴

A third reason for the lack of truly interdisciplinary work is the lack of any appropriate training in this area. Training programmes to date have generally neglected interdisciplinary approaches. This has been partly due to the lack of a systematic theory on which interdisciplinary work can be based: as UNEP points out, 'Interdisciplinary training models (theories) are few, ill-defined, and not fully developed and tested.'³⁵

At least three obstacles to the development of a useful body of theory can be identified. The first is created by the traditional boundaries and reward systems of single disciplines. The value of work which goes too far outside traditional lines tends not to be recognised. The existence of entrenched positions and vested interests within an agency associated with a certain discipline creates further problems. Interdisciplinary efforts may thus be resisted or paid only token attention.

Second, there is the tendency for personnel within an agency to carve out 'territories' for themselves, which they defend against outsiders. This can lead to unnecessary conflict between a person attempting to develop an integrated approach and one anxious to preserve his 'patch' from interference. This can in turn lead to the neglect of problem areas in order to avoid conflict.

Third, there remains the overriding tendency for technoscientific disciplines to dominate any interdisciplinary initiative. Techniques and quantitative analyses tend to displace other factors in discussion and decision making. This overemphasis on techniques and data can lead to the exclusion of relevant disciplines which are not of a technique orientation, or to unrealistic demands on them, e.g. the production of *quantitative* evidence in support of their submissions. Unfortunately, many current training programmes reinforce rather than counteract this tendency. Personnel must beware of accepting technical feasibility as a governing criterion, and should instead assert the primacy of social and environmental goals.³⁶ A further danger is that a technique ideology is often assumed to ensure value-free objectivity, which as we have seen (Chapter III) is misleading and very far from the truth.

A final reason for the relative failure of attempts at interdisciplinary approaches lies in the nature of relationships between agencies. There may be domination by a numerically, financially, or politically strong agency out of all proportion to its true role in the situation. This will seriously undermine the attainment of a truly interdisciplinary approach.

Training for interdisciplinary approaches

Training for interdisciplinary approaches must recognise the situation discussed above and the very real obstacles to be overcome. Much of the success (or otherwise) of training in this area depends on creating the right atmosphere and appropriate conditions to facilitate open communication of ideas and approaches. This is not easy, and requires sensitive leadership by the instructor. It must be said that there are as yet no tried and tested techniques that can be recommended.

*How to organize such interdisciplinary studies and actions (including training aspects) is still largely unknown... 'Interdisciplinary' requires that people from different backgrounds learn to work together in the solution of specific problems. They must be able to listen so well to others that their contributions will be well-concerted with the contributions from other angles. They should further be able to express their own viewpoints in such a way that others can easily grasp where to connect. This is not an easy task.*³⁷

One technique that can be used is that of examining the approaches of various different disciplines to the same problem, with a view to identifying their particular contributions to an integrated study. This can also help to identify areas of common ground — values and concepts which are common to different disciplines. These can be used as the basis of the framework or core of theory so necessary for interdisciplinary work.

The WCS is of particular value in this regard: many of its principles and objectives can be used in formulating a basic framework for interdisciplinary environmental approaches. This applies particularly to those WCS principles associated with ecology. Ecology provides a central theme and focus for environmental administration. Its concepts and values are essential for integrating conservation with development, and an ecological frame of reference is an appropriate basis for looking at environmental problems. Many personnel, including those with technoscientific backgrounds, lack any exposure to this vital area. Special training sessions in ecology can contribute concepts, values and perspectives for use in interdisciplinary approaches and in everyday work.

Such training would *not* aim to provide a technical course in physical ecology as a branch of biology, or in quantitative aspects of ecosystems as part of environmental assessment. Rather, the sessions should be fairly general, aimed at giving a non-technical overview of ecology, and treating it in an appropriately holistic and interdisciplinary manner. (There are now many books which treat ecology in this way.)

A practically-orientated, problem-solving approach to learning new concepts is far more meaningful than a purely theoretical one, and concepts and principles 'discovered' and learnt through personal involvement are far more likely to be retained and properly incorporated into the individual's body of knowledge. (Facts and details, by contrast, tend to be quickly forgotten.) Therefore full use should be made of problem-solving approaches in training.

Good leadership is important in training for interdisciplinary cooperation, in order to:

1. achieve close personal and professional interactions throughout the training session; and
2. prevent the tendency for participants from similar disciplines to cluster together with little or no involvement outside the clusters, leaving 'gaps' between clusters.

It is also important to ensure that contact between disciplines continues outside the formal training sessions.

Since it is unlikely that representatives from all relevant disciplines will be taking part in any one training session, instructors must be prepared to provide additional inputs, and relevant reading matter such as introductory textbooks should be available.

Through its emphasis on enlarging the perspectives and value base of personnel, EAIST can contribute to the integration of different disciplines and thus to the success of interdisciplinary studies and decision making.

The contribution of the social sciences

The relevance of and need for social science input

The social sciences can make important contributions to interdisciplinary environmental approaches. Although technoscientific disciplines have attained a high level of sophistication in environmental/natural resource areas, there is a need for more involvement of the social sciences in environmental affairs in general, and particularly in interdisciplinary approaches. The contribution of the social sciences to interdisciplinary approaches is in the areas of identification, articulation, and analysis of the values personnel have to deal with in their judgements and decision making. This can contribute to harmonising the values and goals of society with those of a given environmental programme.

Personnel often in fact recognise the limitations of their technoscientific training, acknowledging that the majority of their problems involve values and people and fall more into the realm of the social sciences than into a given technoscientific discipline. Several intensive surveys of environmental personnel from the United States Forest Service, Bureau of Land Management, and Soil Conservation Service revealed difficulties associated with the technoscientific backgrounds of those interviewed.³⁸ Both specialist and generalist personnel indicated that they were dealing mainly with problems to do with people and society and that their past education and training had not really prepared them for many of the jobs they had to do. The vast majority said that their education had only provided the technoscientific qualifications required for their initial appointment to the agency concerned. When asked about courses they would take if they had an opportunity for further university education, most showed a preference for the social sciences, e.g. management of people.

The need for a greater social science input is recognised by the United Nations, Educational, Scientific and Cultural Organization (Unesco). 'Man and his environment', Chapter 7 of Unesco's medium-term plan (1977-82), describes Unesco's action as being directed towards interdisciplinary undertakings for improving the quality of the human environment in general. This calls for "increased and decisive contributions from the social sciences, the humanities, culture, education and communications, as well as for close co-ordination of all these activities".³⁹

Many agencies would do well to establish social science divisions, or sections staffed with social-science trained personnel. Their major functions would be to study and analyse human and social aspects of projects, liaise with other divisions, and have an input into interdisciplinary work at all stages of the study or project. They would also help with training in interdisciplinary approaches and in social sciences in general. Wherever possible, at least one of the social science personnel in each unit should receive some kind of interdisciplinary training themselves. Social science personnel who have a background in more than one discipline, e.g. an anthropologist who has some knowledge of sociology and psychology, would be especially valuable.

The present lack of involvement

The present lack of social science involvement can partly be attributed to the lack of response to environmental problems from social scientists, as well as to their intentional exclusion by technoscientists. As yet there are relatively few social scientists qualified or interested in working on interdisciplinary approaches to environmental affairs. It is not as yet a respectable field of study, although this situation is now changing, fortunately.

Exclusion does occur, of course; as one authority has said, "Decision makers rely more on 'experts' when deciding about bridge-building than when worrying about slums. Construction engineers know how to build bridges, whereas sociologists have not demonstrated much skill in dealing with slums."⁴⁰ This may be a rather extreme view, but it is nevertheless generally true that the skills and expertise social scientists have to offer have far less tangible results. This should not be taken to imply, however, that they are therefore of no importance or practical use.

Further, although many technoscientific disciplines (which are firmly established in the area of environmental affairs) will pay lip service to the idea of involving social sciences, it is frequently said that social sciences are not 'scientific', by which is meant quantitative, statistical and above all, 'objective'. (In fact, of course, many social sciences have a considerable quantitative element.) The same kind of reasoning *within* the social sciences may result in the exclusion of non-quantitative disciplines and approaches that could make very valuable contributions in terms of social and value analysis.

The social sciences may therefore need special encouragement in terms of administrative support and incentives to promote their involvement. One method of gaining acceptance for the social sciences is by pilot projects, including training programmes, to demonstrate their value. These should aim to develop general methods and procedures for the use of social sciences in interdisciplinary approaches which can be adopted in other projects. This will facilitate and promote the genuine involvement of these 'new' disciplines.

The contribution of the different social sciences

The extent to which the various social science disciplines can contribute will differ. In some cases, only selected concepts and considerations will be relevant, whereas other disciplines could be involved to a much greater extent.

The following pages examine the potential contribution of a number of different disciplines, seeing these as tools to increase the scope and depth of value analysis. The theoretical background of each discipline is examined briefly, and a key concept (indicated in parentheses) is identified.

Anthropology (culture)

Although cultural anthropology is often associated with primitive societies, the central concept of culture can be applied to developing and developed societies. Culture is the whole complex (of knowledge, institutions, achievements, technology, traditions, perceptions, values, habits and other capabilities) of society and human-inherited traditions and patterns. Culture influences social, human and environmental values and behaviour. Cultural factors affecting the relationships between society and the environment are relevant to and should be considered in environmental administration. Thus the main contribution of a cultural approach is in seeing environmental and non-environmental values as the products of learnt and institutional influences of a given culture.

Economics (scarcity)

Economics is concerned with how societies allocate scarce resources to the production of different commodities, over time, and how these commodities are distributed for consumption among members of a society, over time. The demand for a supply of natural

resources by present and future generations is related to the scarcity of these resources. The allocation of natural resources (including those for future generations) is influenced and determined by a variety of economic forces and interests.

The scarcity concept implies that when something is scarce it becomes more costly, and this may affect priorities in values (and thus demand). It is particularly relevant to increases in population when the consequent reduction of man:land ratios results in increased pressure on land and associated natural resources. Resources may then become a limiting factor. Many of the difficulties of financing conservation and pollution control measures are related to economic perceptions.

The word economics comes from the Greek word 'oikonomike', which means the management of the household, or 'oikos'. This idea of 'household management' can be likened to the concept of 'Spaceship Earth', which involves seeing the earth as a spaceship with a limited life-support system, whose maintenance requires wise management of limited resources and harmony in human and environmental relationships. The 'new economics' reflects this view of the planet and aims to harmonise and integrate ecological and economic considerations.

Geography (location)

The location of natural resources is of major importance in determining how they will be used. The value and use of a resource will usually vary according to, among other things, its location in relation to human population centres.

Many environmental problems transcend local and national boundaries and can only be dealt with satisfactorily on a regional or even global basis. That political or legal boundaries often do not coincide with environmental use is illustrated by problems such as acid rain. Many resources are also 'international'. The WCS considers 'shared resources' to be ecosystems and species that are shared by two or more states, including species that move between one national jurisdiction and another. Examples include international river basins, fisheries, and migratory species.⁴¹ Thus geography, and the location concept in particular, can contribute to interdisciplinary approaches to environmental administration and planning.

History (time)

Societies and values change over time in response to changing technologies, populations and other factors, and therefore so do patterns of use of the environment. However, values from different time periods are often present and in conflict in current conservation and development affairs. Some government agencies may be operating on the basis of value priorities which were prevalent at the time of their establishment many years previously. A forestry agency, for example, may continue operating on the basis of values associated with maximising timber production at a time when other important values, such as ecological or recreational considerations, have emerged. In the same way, personnel, particularly senior personnel, may be more 'in tune' with values and assumptions associated with earlier time periods, when they were trained.

Modern value theory indicates that value changes may occur over relatively short periods of time (three to ten years), in contrast to the classic 'generation gap' of approximately 25 years. Historical analysis can help personnel discover value conflicts resulting from a time lag in value considerations. This is not to say that 'new' values are necessarily better than 'old' ones. But a time analysis can place values in their proper perspective for deciding value priorities best suited to the successful integration of conservation and development.

A historical analysis can also be used to compare past use of an area with current and potential future uses, e.g. analysis of an area presently considered to be underdeveloped might reveal a history of overdevelopment in terms of past use and indicate the need to view with caution any proposals for intensive development.

Politics (power)

Politics provides a central focus for the decision-making process. It represents all efforts by the different interests involved to resolve issues by getting government to impose decisions or solutions; it is the basic activity by which an issue or problem is aired and finally settled. All decisions on natural resources involve power considerations and conflicts over competing values and interests. Environmental administration recognises that politics and administration are interwoven and that all decisions involve some degree of politics.

Political analysis involves analysis of relevant aspects of governmental and social interaction in such forms as bargaining, 'trade-offs', and compromises.

Psychology (individual)

An individual personality, committed to a particular value system, can have a strong influence on environmental decision making. To take one example, it can be argued that the most significant factor in the early American conservation movement was the leadership of certain individuals. An analysis of key individuals involved in decision making in an environmental issue can identify important values and other influences underlying the decision-making process. This approach can contribute to better understanding of the realities of decision making; all governmental decisions are ultimately made by individuals whose orientations are influenced to a greater or lesser extent by their individual value systems — their personal conceptual frameworks.

Sociology (group)

The concept of the group provides a means of understanding much of the human interaction that occurs during the debate and resolution of environmental issues. Many of the opportunities for and obstacles to the consideration of values depend on their acceptance or otherwise by groups. Groups develop their own sets of collective values and interests, and a great deal of decision making involves groups and group processes. (Group decision making is discussed in Chapter III)

A feature of groups is that, like individuals, they can adopt the 'professionalism' and image of value-free objectivity associated with a particular discipline, and thus assume a role which is very different from their actual role. A group of foresters, for example, may push certain ideas in the name of the forestry profession that lie outside their legitimate interests as foresters. An awareness of the dynamics of the group is also important; it may be that one individual is dominating the group and determining its identity, such that an individual's decision appears to be a group decision.

Though they are not usually described as social sciences, some aspects of animal behaviour and of ecology are very relevant to the concerns of the social sciences. When man seeks to study and understand man through the social sciences, certain important factors may be overlooked. For man's understanding of himself requires that an objective view of 'man the animal' be incorporated into the social sciences, particularly in dealing with man/environment relationships. In this regard, the concepts of *territory* and *interrelationships* are of especial relevance.

Territory

An important concept in animal behaviour is that of territory. A territory is an area over which an animal or group of animals establishes jurisdiction. It generally involves an animal claiming and actively defending an area against other animals, frequently against those of its own kind.

In modern man, the territory concept may have psychological, economic, political and other symbolic elements in addition to spatial boundaries. The point is that territorial behaviour is a human characteristic. Applying the concept of territory to environmental affairs, various individuals, groups and organizations make diverse and often competing territorial claims — actual and symbolic — on land and other resources. These claims may not be compatible, however, with conservation considerations, and may be obstacles to comprehensive and effective management.

Lack of co-ordination and co-operation among and even within agencies is often related to the territory concept, i.e. it results from conflict between agencies or between personnel within an agency who are defending their 'territories'. Thus the territorial dimension is relevant to many aspects of environmental affairs.

Interrelationships

Ecology is concerned with relationships and interactions among and between living things and their non-living environment. The relevance of ecological concepts and values to environmental administration in general has been discussed elsewhere (Chapter III, pages 24-26). One application of the central concept of interrelationships is as a theme for analysing and synthesising the various elements of environmental administration, in particular the interactions of the various agencies and their programmes. By focusing on interrelationships, problems can be seen as a whole rather than as unrelated parts. Understanding of interrelationships is essential to environmental administration in general, and to developing truly interdisciplinary approaches to problem solving in particular.

Case study

The following case study illustrates the application of the social sciences discussed above to an environmental problem. The case study is of wildlife management policy in Rocky Mountain National Park, Colorado, USA.⁴² The problem centred on how to reduce the overpopulations of elk and deer in the park that had developed between 1930 and 1964. The winter range available to the animals had been reduced over the years and because large numbers of elk and deer remained in the park all year, severe overgrazing and deterioration of the limited winter range available inside the park occurred, and overpopulation developed.

The major alternatives available were:

1. direct reduction, i.e. having the park rangers shoot the surplus animals;
2. allowing private citizens to hunt the surplus animals inside the park, i.e. public hunting. (Outside hunting seasons were not correlated with migrations and were not effective.); and
3. having park rangers trap the surplus animals for distribution outside the park.

Anthropology (*culture*) indicated that most people in the surrounding agricultural, ranching and tourist areas had a strong inclination either towards frontier-exploitative values with resistance to governmental control, or wildlife preservation with opposition

to reduction in animal numbers. There was an obvious conflict between these two basic viewpoints held by different sectors of the population. Public hunting was highly valued by some while others objected to any reduction in animal numbers, under protection values.

Economics (*scarcity*) led to a high market value for adjoining land and to increased use and development. This resulted in severe limitation of the winter range outside the park which had formerly absorbed a considerable number of the elk and deer during their sporadic seasonal migrations. A Bureau of Reclamation water and irrigation project further reduced the winter range and made it a limiting factor. Consequently, the animals were forced to remain in the park, leading to overpopulation and habitat degradation. Those that did migrate outside the park were blamed for property damage to agricultural and ranching interests.

Geography (*location*) indicated that the central problem was that of location of the winter range, with conflicting uses of the area leading to a variety of governmental and private claims to 'territory' based on political and private property boundaries. Previously, there had been relatively little use, restrictive ownership patterns, or development of much of the area outside the park which had largely been open to the animals during their migrations.

History (*time*) also indicated that values from earlier time periods could affect wildlife management. Thus, early wildlife protection values aiming for large numbers in the park conflicted with later wildlife management values based on habitat. This time-value lag caused a policy conflict within the National Park Service as well as in public opinion.

Politics (*power*) also indicated a value conflict between values associated with wildlife protection and values associated with public hunting (or harvesting). A power struggle emerged between agencies and groups seeking government decisions in favour of their value positions. A large degree of this power struggle over public hunting occurred at the national as well as the local level.

The local power struggle involved strong efforts by the Colorado Game and Fish Department and by local sportsmen's groups to promote public hunting inside the park. Psychology (the individual concept) suggests that the personality of the Director of the Colorado Game and Fish Department enabled him to develop and maintain strong pressure from some segments in Colorado for public hunting in the park. Through in-depth interviews, it was learned that the value systems of key individuals were important in determining the sources of conflict as well as for providing solutions to the controversy.

Sociology (*group*) revealed various positions of pressure groups and agencies for and against public hunting in the park and interactions between the groups. An analysis of roles indicated that considerable conflict also existed in terms of professional wildlife management roles; individuals from different agencies claimed that their individual and agency opinions were 'professional' ones, regardless of the alternatives or values they supported. Socio-economic surveys of park visitors indicated increasing support for modern wildlife management, i.e. habitat-based management, among the higher income and educational brackets.

Animal behaviour (*territory*) indicated that territorial conflicts existed between agencies, groups, and individuals. Both the NPS and the Colorado Game and Fish Department claimed that they owned the wildlife in the park and had the legal right to manage it. In support of the Game and Fish Department, many Colorado hunters claimed the right to hunt in the park rather than have the park rangers 'slaughter' the animals. Many local residents felt that they had special claims by virtue of their close proximity to the park.

Ecology (*interrelationships*) provided a conceptual framework for considering the complex relationships, interactions and conflicts between agencies and groups. With six governmental agencies as well as numerous groups and individuals involved in the controversy, the concept of interrelationships provided a framework for analysing the interactions between their various values and activities. Although the various disciplines contributed relevant approaches, there still remained a need for generalisations and conclusions arrived at on an interdisciplinary basis. This could have been achieved by taking an 'ecological' overview of the insights of the individual disciplines/concepts.

Ecology also indicated a need for a comprehensive regional environmental framework of the analysis and management of this resource. This was to include the identification of objectives for ensuring the quality of wildlife/habitat and for public interest on a regional basis and pointed towards the need for improved mechanisms and arrangements for ensuring interagency cooperation.

Finally, after a great deal of controversy over public hunting, a combination of alternatives (1) and (3) was selected; the values associated with the combined alternatives of having park rangers kill and trap the surplus animals were dominant (*power*) over values associated with public hunting.

Training aspects

It is clear that more attention must be paid to the social sciences in training for environmental administration. This can be achieved by special overview sessions devoted to the social sciences, to improve awareness and understanding of key concepts and of human and social values. It would be preferable to concentrate on the non-quantitative social sciences, and to make more use of social scientists from these areas. Unless this is done, there is a danger that trainees will continue to give higher priority to social sciences that have a quantitative orientation than to those that are descriptive, qualitative, and value-based.

Ideally, a range of social sciences will be taught to varying levels. However, time and availability of appropriate instructors will in practice limit the range of disciplines that can be taught. It should be recognised that only in a minority of cases will representatives of each discipline be available to give training. But it would be preferable, wherever possible, to have one or more social scientists involved throughout the entire training process. Ideally, these individuals should have a background in two or more disciplines. However, the general orientation should be to draw upon and use a variety of workable concepts from the whole range of the social sciences, to ensure the maximum contribution to interdisciplinary approaches.

CHAPTER V

Public participation in environmental administration

It is increasingly recognised that effective public participation (PP) is essential to good environmental administration. The success of environmental programmes depends in large measure on adequate public support, and this in turn depends on education, information, and, preferably, involvement through PP. The leading role of environmental administrators in organising and carrying out PP programmes means that they should receive training in this area.

This chapter examines PP in some detail — what effective PP means and what it involves, what it can be expected to achieve, and the techniques available for carrying it out. The requirements for successful PP are identified. The principal ones are: 1) a sufficient level of environmental education among the public; 2) a commitment on the part of the agencies involved not only to carry out PP activities but to act on the results; 3) appropriate training for environmental administration personnel involved in PP.

The training required by environmental administrators is then discussed. It involves first a thorough understanding of PP; secondly, training in effective communication (with both the public and with policy makers); thirdly, training in evaluation of the results of PP exercises; and fourthly, some training in environmental education. The importance of identifying the values underlying statements made to and by the public is emphasised.

Participation in environmental administration

Public participation in environmental assessments, planning and decision making has become increasingly important in recent years, and personnel responsible for judgements and decision making in conservation and development at all levels are likely to be involved in some kind of PP. Training programmes in environmental administration therefore need to include training aimed at making the best use of PP.

PP can be defined as the part of the decision-making process that provides an opportunity and encouragement for the public to express their views, and enables due consideration to be given to public concerns, values and preferences when decisions are made.⁴³ It consists of informing, consulting and involving the general public in planning, decision making, and the management of environmental affairs. Inputs from the public in PP processes include suggestions, information, questions, critiques, and opinions expressed by individuals or groups. These may be solicited or unsolicited, and representations by sectors of the public may be formal or informal.

A major purpose of PP activities is to establish what action is in the public interest. The public interest is often subject to different value interpretations. It is the responsibility of environmental administration personnel, however, to determine the overall interest of the general public through PP activities, and to take this into proper consideration in their judgements and decision making.

Why PP?

In view of the time, expertise, and manpower required to carry out effective PP exercises, it is legitimate to ask why it should be done. Quite apart from the moral arguments for proper consultation with those who will be affected by environmental administration decisions, there are some fundamental pragmatic reasons:

1. For environmental management programmes to be successful, public support is vital. PP is a means of gaining, affirming, and consolidating that support. For support to be forthcoming, the programme must be seen to be in the public interest as perceived by the great majority of those affected. As the USAID Report on Environmental and Natural Resource Management in Developing Countries notes:

*This is particularly true of initiatives which affect the rural and urban poor. The importance of programmes for forest protection, sanitation, family planning, pesticide management, and the like must be understood by citizens if long-term success is to be realised.*⁴⁴

2. PP results in better decisions. To take one example, referring to PP in the management of National Parks, Winge comments:

*Public involvement can be expensive and time-consuming, making new demands on the time and energy of the superintendent and his staff. It is not a panacea, nor does it absolve the Park Service of responsibility for making decisions, but public involvement does offer long range benefits, the most pragmatic of which is that it results in better decisions. Park Service Managers have discovered through experience that when they are willing to modify their professional judgements by considering the ideas and opinions of concerned citizens, the final decision that results is not only more acceptable to the public, it is also more satisfying to the Service.*⁴⁵

When is PP best used?

Public participation is generally most useful in dealing with strategic matters, i.e. deciding *what kinds of things* should be done. Strategic issues involve basic value considerations such as goal setting and policy making. PP is less useful in tactical decision making, i.e. deciding *how* to do something, where too great a dependence on public input can lead to unacceptable delays and problems in decision making. It can be argued, therefore, that the public should be constantly *informed* and should be actively *involved* when strategic decisions are necessary.⁴⁶ However, it is often difficult to separate strategic and tactical categories, since both the 'ends' and the 'means' involve value considerations.

Aims of PP

The three main purposes of public participation are to:

1. obtain guidance from the public and from client groups as to objectives (goal setting). The initiative for this kind of input may come from the agency, or it may come directly from the public or its representatives;
2. test plans, policies and objectives for adequacy and viability. This entails review and comment on draft proposals by the public; and
3. gain public acceptance and support for a proposed course of action by education and feedback — as discussed above.

More detailed objectives include the following:

1. to promote the public's understanding and involvement in planning and implementing programmes, with emphasis on the non-technical aspects;
2. to keep the public informed about significant issues, problems, and changes in programmes;
3. to foster public involvement in identifying problems, setting out the alternative solutions and a preferred alternative;
4. to make sure that government and personnel fully understand public concerns and values and are responsive to them;
5. to demonstrate that agencies, formally and informally, consult with interested sectors of the public and take public views and values into consideration when decisions are made; and
6. to foster a spirit of mutual trust, support and openness between government personnel and the public, through a variety of informal and formal contacts.

N.B. PP is particularly important in rural development, for without the active involvement of the people — including identification by them of the problems that most need tackling and how to deal with them — little can be achieved.⁴⁷ The judgement of the people affected by a development programme is essential to the evaluation of the programme.

Benefits of PP to agencies and government

Some of the benefits of public participation are implicit in the objectives listed above. The principal ones are:

1. it provides a safeguard against poorly considered decisions;
2. it builds public confidence and improves the public's understanding of management objectives;
3. it provides additional data for planners and policy makers. (Effective planning and implementation often require specific information that only local people can provide efficiently.);
4. support for government or other authority will be greater where the projects financed or undertaken by the government or authority are considered to be important and valuable by the people affected; and
5. people usually co-operate more willingly with decisions in which they have participated.⁴⁸

Thus it can be seen that public participation is a two-way process, of benefit both to policy and decision makers and to the public.

However, as the WCS notes, "Public participation in conservation/development decisions is seldom adequate. Consequently, the decisions may not reflect sufficiently the experience and wishes of the people affected, and the benefits of the programme or project may be fewer than expected."⁴⁹ There is thus an urgent need to upgrade the quality of public participation if environmental management programmes are to achieve their aims.

PP in practice

It should first be stressed that PP is not the same as public relations. The latter is a propaganda exercise by agencies to sell their policies and programmes. PP, on the other hand, entails a genuine dialogue between the agency and the public. As the WCS says:

*The extent of public involvement in the development planning process depends on both the attitude of the government and the interest of the community. Ideally, however, public participation should be at all stages of the development process from policy making to project formulation and review. At whatever stage it is involved, the public should be given time and information sufficient for it to influence decisions.*⁵⁰ (*Editor's italics*)

A model of PP processes is shown in Figure 2.

PP can be divided into five stages: identification, outreach, dialogue, assimilation, and feedback.⁵¹

Identification

It is first necessary to identify those groups or members of the public who may be interested in or affected by a forthcoming action. This can be done by developing mailing lists, requesting additional names from those already contacted, using questionnaires and surveys to discover levels of awareness, and establishing contacts by other means. Specific contact lists can be developed for particular projects.

Outreach

The public can contribute effectively only if they are provided with accurate, readily understood information at the appropriate time. This information should be kept fairly general and non-technical, and should be value oriented. Information which is too technical, detailed or specific will usually discourage public participation. The material may comprise background information, a timetable of proposed actions, summaries of lengthy documents or technical material where relevant, a clear outline of the issues, and specific encouragement to stimulate active participation by the public. Wherever possible, the social, economic and environmental consequences of the project, and of alternative proposals, should be clearly stated. The agency must make sure that this information reaches the public in good time through mailings, public service announcements in the press and on radio and television, media ads, personal communications, and other means.

Dialogue

There should be dialogue between personnel responsible for the forthcoming action or decision and the interested and affected members of the public. This involves an exchange of views and open-ended exploration of issues, alternatives and consequences; this process would be greatly enhanced by a focus on values, and the value implications of choices. Dialogue may take several forms such as public hearings, meetings, workshops, personal contacts, or correspondence, and may include the establishment of special groups such as advisory committees.

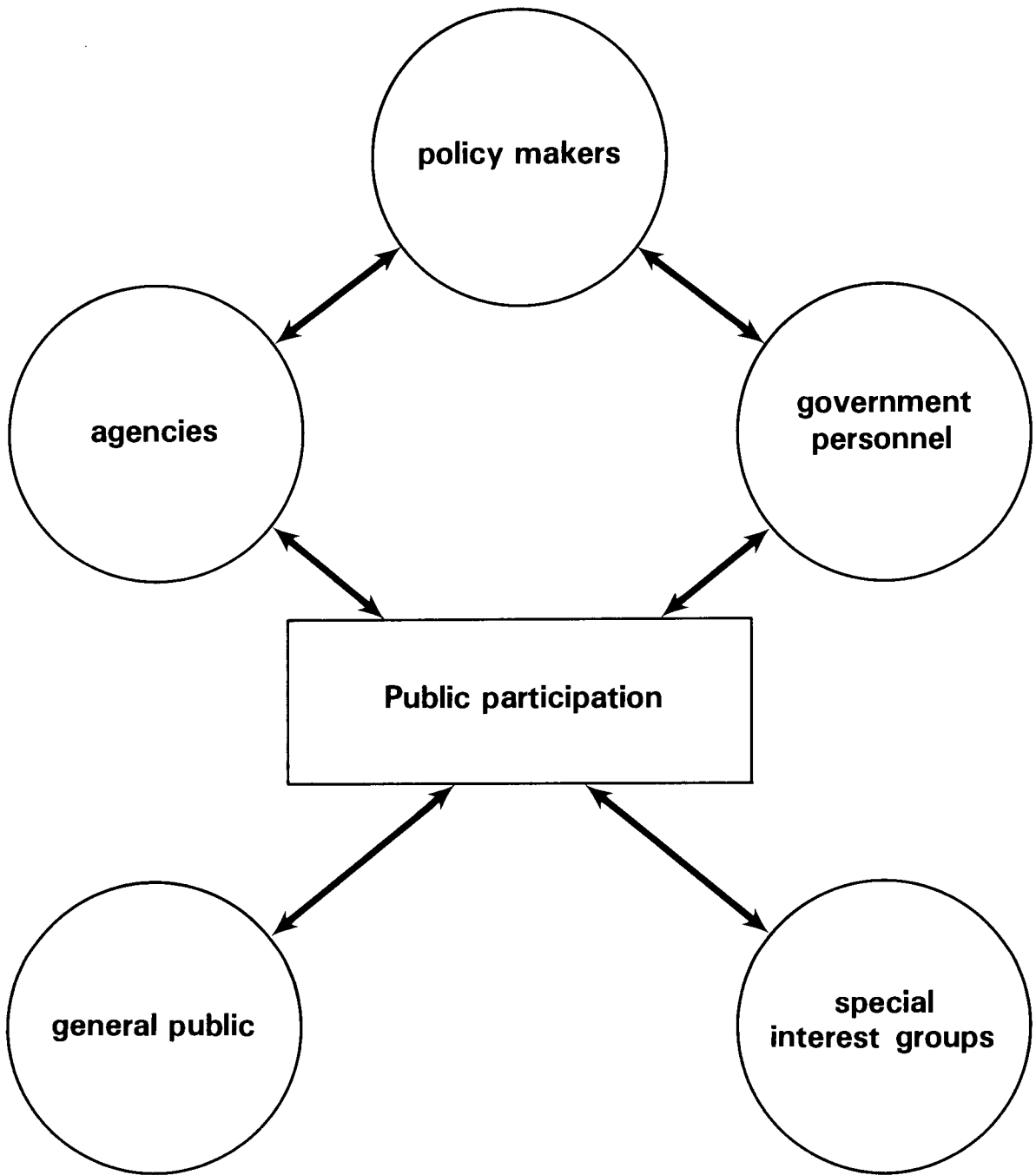


Figure 2

Assimilation

Assimilation involves putting together and evaluating the results of the 'outreach' and 'dialogue' stages, i.e. coming to conclusions as to the public's views and preferences. In its decisions and actions the agency should demonstrate that it has understood and fully considered public concerns. Assimilation should include brief and clear written documentation of the public's views, through *content summaries*, for example. A content summary describes the PP activity undertaken, who participated, and the matters on which the public was consulted. It summarises the public's views, stating important comments, criticisms, and suggestions, and should set forth the agency's response.

Evaluation of PP should contain both quantitative and qualitative aspects and should be directed at the basic values, issues and alternatives involved.

Feedback

The agency should provide feedback to participants and interested parties concerning the outcome of the public's involvement. When numbers are small this can take the form of personal letters or contacts. With a large number of participants, the agency can send a copy of the content summary to those on the mailing list, or may publish it. The feedback should include a statement of the action that was taken following public consultation, and indicate the effect the public's views had on it.

The objective of a PP programme is consensus, not consent. In most cases it is unrealistic to expect to achieve general agreement. Wise decisions often involve disagreement, debate and compromise. Personnel should be content to arrive at a set of policies and decisions that seem good and proper and that appear to be acceptable to the majority of the public.

It must also be borne in mind that 'the public' is not uniform, but comprises many different groups. Most PP programmes will provide links with diverse individuals, groups and organizations, but these may be by no means equal in terms of knowledge, power or numbers. It is helpful to acknowledge that the values of the majority of the 'general public', for whatever reasons, usually appear to be oriented towards their own immediate self-interest.

The public involved in PP programmes is generally made up of individuals who, while interested in learning and in participating, possess only limited information and expertise, and who will be unwilling or unable to spend long periods of time reading up about the issue or attending meetings. Thus they are predominantly concerned with the value aspects of a given issue. Personnel are therefore likely to find the public receptive to information presented in value terms.

A value orientation towards environmental and development issues also assists in early identification of those aspects which are most likely to be of interest and concern to the public. It is thus possible to obtain the early involvement of the public and the longest possible time for the public to consider the issues and come up with alternative solutions to those proposed. A long timescale for PP also increases mutual trust and confidence — in the agency's concern for the public interest, and in the agency's trust in the public's judgement.

Techniques for PP

A wide range of public participation techniques is available for use in obtaining public inputs to decision making, for imparting information, and for developing understanding. Each has certain advantages and disadvantages. Personnel must select those techniques which are appropriate for the problem in hand and ensure:

- a) quality of decision making,
- b) adequate public involvement,
- c) expeditious handling of management activities;
- d) public acceptance and support.

In selecting techniques, personnel should ask themselves the following questions:

1. When should public involvement occur?
2. What types of public input are wanted?
3. How is the public input to be used? and
4. Who are the 'public(s)' from whom the input is required?

Brief details of a number of methods are given below, with some guidelines as to their suitability. They have been adapted from publications of the US Forest and NPS.^{52, 53}

Public hearings

These are formal meetings with formal procedures and have official hearing records which provide a record of all information presented by individuals, groups, and organizations. However, they involve high costs for recording, slow down the decision-making process, and often intimidate the general public. Public hearings are often held only because of official requirements that they be held.

Public meetings

Open public meetings permit participation by a wide selection of interested people. They can involve panel discussions or public forums.

The purpose of panel discussions is to provide expert information to the public on complicated issues in a number of specialist areas. A panel of experts provides the public with the full array of views and information pertinent to a given plan or decision. Panels are primarily intended to supply information, although questions and answers are often a part of the format. They can be formal or informal. The panel may be composed of professionals with different viewpoints in order to represent the different possible interpretations of the same information.

Public forums enable the formal presentation of public viewpoints in cases where these are based on values and interests different from those represented by the government perspective. A public forum is organized so that members of the public have an opportunity to present their viewpoints to other people and to the agency itself. It provides the public with an opportunity to present their values, views and proposals. The scene should be set with a brief presentation of facts. Then representatives of the public may introduce their proposals — with or without their 'pros' and 'cons'. Clear guidelines and time limits should be given to those making presentations. All participants should be free to ask questions and make their views known.

Guided workshops

Guided workshops provide an opportunity for public discussion and clarification of issues, proposed actions, and their consequences. Public opinion is seldom consistent over time. The aim of a guided workshop is to help clarify and crystallise public opinion so that it becomes more consistent and presents a clear message to decision makers.

A guided workshop is characterised by two activities: facilitation of commentary and recording of ideas. These are carried out by the personnel who guide the workshop. Facilitation is a method of verbal clarification of views through restatement. It serves to check the accuracy of what is being heard. Recording is the creation of a written record of the points which are being made. This is usually done in full view of the people in attendance. The aim of facilitation and recording is to keep the discussion focused on the topic or issue in hand and to prevent ambiguity.

Advantages of guided workshops are that they:

1. can be used with large audiences;
2. establish an informal atmosphere that is conducive to openness;
3. increase participants' awareness of the variety of interests and opinions with which the plan must deal;
4. place recorded public input on display so that misinterpretation of public comment can be identified and corrected; and
5. enable personnel to hear input first-hand and give them the opportunity to clarify ideas or comments for their own understanding.

NB Guided workshops do require personnel to have public speaking skills, particularly for facilitation of commentary.

Informal small group meetings

These are meetings to which concerned and interested individuals or groups are invited. They are particularly useful if held early in the decision-making process, when personnel are gathering information and developing alternatives. They enable people who want to participate to have an input at a time when informed points of view are most helpful. A series of meetings may be necessary to cover the variety of groups and to keep the numbers small enough for informality and thorough discussion.

Advisory committees

An advisory committee, board, or commission, is a standing body formally established for the purpose of advising or making recommendations. It is made up of representatives of a wide range of groups and interests whose background knowledge and understanding of policies and programmes enable them to provide sound advice. Advisory committees can be very effective as sounding boards for proposals and as indicators of public attitudes and interests. However, the selection of members can introduce bias, so that the membership may not be representative of a balanced range of public interests. Regular meetings of advisory committees provide a continuing forum for disseminating information, clarifying issues, obtaining advice and gaining support.

Ad hoc committees

An *ad hoc* committee is a temporary committee that addresses a specific issue and recommends solutions. When the issue is resolved or the recommendations completed, the committee is dissolved. Committee recommendations can be by majority, consensus, or be the expression of individual points of view. The selection of membership should aim for representation of a variety of sources and views so as to reflect general public opinion.

Advisory and *ad hoc* committees can undertake study in greater detail than would be of interest (or feasible) to the general public. They can also provide a preliminary review of ideas and proposals.

Working groups

A working group consists of a manageable number (usually under twelve) of motivated members of the general public who are committed to involvement with the management and planning of a given agency on a long-term basis. The group is autonomous and has no formal relationship with the agency. Ideally, the working group will have a spectrum of views reflecting the diversity of its membership. It is usually serviced by a person from the agency concerned whose main role is to supply information. The agency assigns the working group tasks on the understanding that their recommendations will be seriously considered in decision making. After studying and discussing the issues and working out compromises within the group, the working group arrives at a consensus of opinion and presents its recommendations, in written form.⁵⁴

Key contacts

Contact with key individuals in tune with the attitude of the public and knowledgeable about the issues involved can be worthwhile. Key contacts are opinion leaders within the local community or region, and may include elected officials, media representatives, active members of organized groups, businessmen, and respected citizens. Care should be taken to avoid developing too close a relationship with a few selected individuals or overemphasis on this source, to the exclusion of finding out the views of the public as a whole. The aim is to gather their opinions about issues, ideas, etc., not to ask them to endorse or support any particular position.

Strengths of key contacts are:

1. valuable insights can be obtained from informed, influential people, who can often indicate important aspects of public opinion;
2. key people can inform others about issues and stimulate input;
3. the involvement of key people can contribute to public understanding and acceptance of decisions;
4. input can be obtained personally, in depth and in detail; and
5. key people can provide informal sounding boards for ideas and proposals before they are finalised.

Letter requests for comments

This approach can be very effective when the individuals contacted have the knowledge or familiarity with the issues necessary to give sound advice. Supplementary information can be supplied in the letter, but it is not a good idea to rely on this method to provide all the information needed, as there is no way of checking on understanding. Letters should be addressed to a broad representation of interests and need not be limited to the local area. One benefit of this technique is that it may encourage members of the public who would not otherwise become involved in PP to do so. It can thus widen the scope of public involvement.

'Show me' trips

Field trips can be a very effective way of involving the public and assuring understanding of the issues before recommendations are made. A series of 'show me' trips can set the stage for meaningful participation. First-hand experience, e.g. seeing the site or

examples of developments similar to those planned, together with discussions among participants, helps to clarify the issues and identify possible consequences. Such visits require detailed preparation for optimum benefit. Active participation by the group during the visit should be encouraged, avoiding a guided lecture situation.

Personnel contacts with the public

Personnel at all levels have an outstanding opportunity to reach and involve the general public in daily contact with people while carrying out their everyday work, and through conversations and activities in their own communities. It can be a good source of information on the current attitudes and interests of local and regional people. For this source to be used effectively, personnel must be well informed so that they can provide information and answer questions satisfactorily.

Standard information techniques

Standard information techniques primarily provide information, but they can also be designed to encourage feedback. Press releases, for example, can invite comments so that anyone who wishes to can provide input. Standard techniques include visual aids, posters, pamphlets, and articles in the press and magazines. The selection of technique to be used depends on: the type of audience to be reached; the length of time available to prepare materials; the amount of detail to be covered; and the size and distribution of the target audience. The multiplying factor of newspapers, TV, radio and magazines will greatly expand the scope and impact of any particular message.

To encourage public involvement, the material can include a statement to the effect that additional information can be obtained by writing to the newspaper, radio, or direct to the agency, as the case may be. Responses to requests for comments provide opportunities for follow-up.

To obtain the maximum benefit from PP follow-up is essential in all cases. It ensures that the public is given the fullest opportunity to contribute, provides feedback, and promotes a feeling of involvement among the public. This has a positive effect on the quality of the inputs and has a favourable effect on the public's view of the agency undertaking the PP programme.

There is clearly no one best strategy or technique for PP. What works well in one situation may be entirely inappropriate in another. Each situation is unique and involves a different set of institutions, issues, and environmental considerations.

Requirements for successful PP

Certain basic requirements need to be met if PP is to be effective and of benefit both to the public and to policy makers.

1. Environmental education for the public

Only an informed and knowledgeable public can have a meaningful input into decision making. Any PP programme must include an effective system for informing and educating the public. Many developing countries include environmental education in school curricula and use mass media (radio, television, newspapers) to generate popular support for environmental management programmes. In many situations, however, appropriate environmental education will be lacking unless environmental administration personnel undertake it. Thus personnel have a special responsibility to be involved in environmental education programmes and activities.

On the need for environmental education, the WCS notes:

Lack of awareness of the benefits of conservation and of its relevance to everyday concerns prevents policy makers, development practitioners and the general public from seeing the urgent need to achieve conservation objectives. Ultimately, ecosystems and species are destroyed because people do not see that it is in their interest not to destroy them.

The need for environmental education is continuous because each new generation needs to learn for itself the importance of conservation... Ultimately the behaviour of entire societies towards the biosphere must be transformed if the achievement of conservation objectives is to be assured.⁵⁵

And on the need for environmental education in PP, the Tbilisi Final Report states:

Considering the need for environmental education programmes which introduce awareness among the general public of its own environment and the dangers to which it may be exposed,

Realising the importance of active participation of the general public in solving the environmental problems of contemporary society,

Invites the Director-General of Unesco to work out model programmes of environmental education for the general public with a view to providing citizens with adequate background of knowledge and information, enabling them to take part in decisions concerning their environment, and

Recommends to Member States that environmental education strategies in their countries include the preparation of programmes which provide information on present or planned activities with major potential impact on the environment. Such programmes should stress the importance of participation by the general public and non-governmental organizations in the relevant decision-making process. The programmes should present possible solutions to the problems in question and aim at developing a responsible attitude in participants.⁵⁶

2. Effective public participation requires the availability of adequate non-technical information

The preparation of suitable press releases, handouts, leaflets and so on must be a high priority. Attention must be paid to style and tone of presentation as well as content. Issues should be presented as straightforwardly as possible, in value terms, and should not be complicated unnecessarily by facts and figures. Agencies also have a responsibility not to 'fudge' or evade issues of public concern (such as pollution, for example).

3. Commitment on the part of agency personnel to genuine public participation

This is essential, without over-reliance on the public to do the agency's decision making.

An agency or firm must both inform and listen to the public. It must be open in the conduct of business and honestly receptive to input from the outside. But it cannot abdicate its responsibility, defer unnecessarily to outside opinion, or use public ambivalence as an excuse for inaction.

...Effectively to involve the public an agency must be open, dynamic, and progressive; and for an agency to display these characteristics, its individual employees must possess them.⁵⁷

Thus, attributes such as service to the public, participation in community affairs, the production of brief and readable reports, innovation and judicious risk-taking should be encouraged and rewarded in personnel.

Training for public participation

Public participation requires clear information and understanding by all parties on the value judgements involved. The aim of training in public participation is threefold:

1. improved provision of information to the public,
2. improved interpretation of information gained from the public,
3. improved utilisation of the information gained from the public.

To achieve this aim, a good understanding of public participation processes and training in the areas of communication, evaluation, and environmental education are required.

Communication

For public participation to be effective it is clearly essential that there is good communication between personnel responsible for the public participation programme and the public, and between personnel and policy makers at higher levels. Personnel must be in a position both to explain issues and proposals and their implications to the public, and to communicate the results of public participation exercises to senior officials. Communication skills are also useful in helping to resolve the conflicts that arise between different interest groups during public participation exercises.

The importance of the role of personnel as intermediaries between the public on the one hand and policy makers on the other must not be underestimated. Since policy makers are often under great pressure of time, and do not have the time or expertise to make detailed technical studies of an issue, it is important for personnel to reach them early on with information obtained from PP processes. This must be clearly and effectively presented in the form of *executive summaries*, with due regard to timing and to overall policy matters, i.e. an awareness of the context of the issue with respect to others. An essential skill is the ability to translate technical information into non-technical language, with value implications clearly spelt out. Ideally, policy makers who are involved in public participation should have received some value training. A value orientation would provide a common basis for communication between these policy makers and environmental administration personnel.

Evaluation

Personnel must be able to evaluate the results of public participation, i.e. interpret the views of the public. Further, if they are to take account of the public's views in their activities and decisions, they must be able to relate the values or particular concerns of the public to the choices available.

When evaluating and using public input information, crucial questions need to be asked about what is really wanted from the data, and what can be inferred from what is usually descriptive data. A value orientation provides a central theme and focus for interpreting public inputs and incorporating them into decision making.

Once information from the public has been gathered, the first stage is to sort and classify all the responses, oral and written. Categories can be developed along the lines of the following questions:

1. Who is replying?

Is it the general public, development organizations, conservation organizations, key individuals, or others?

2. What are they saying?

Do they agree or disagree with the proposal under discussion, or do their opinions (values) have important qualifications? The responses should be classified; skimming through letters and other written responses is helpful in determining the number of classes that may be needed.

3. Why are they saying what they are?

Understanding the motivation that underlies a person's stance can be useful. It may provide an insight as to the gaps in public knowledge and understanding of management goals. It may thus also suggest directions for public environmental education programmes.

4. Where are the responses coming from?

The geographical location of the letter writer can demonstrate the spatial extent of public concern. This in turn may provide personnel with some idea of how local versus non-local residents perceive the problem under consideration. Analysing responses in this way also indicates where positive and adverse responses are coming from. For example, the majority of support for an industrial development proposal may come from the area where most of the potential employees live.⁵⁸

Generally speaking, the evaluation, interpretation, and use of public input is an art rather than a science. It can be quantified and analysed objectively only in part. Although a quantitative approach can be used to *classify* information, the actual *evaluation* of the material requires a qualitative approach. The decision maker must evaluate it subjectively in terms of values to determine the overall public interest. It is this value interpretation which determines the influence of public participation on the final decision. Thus it can be seen that value training is essential to good evaluation.

Environmental education

Until people understand *why* they should safeguard species and ecosystems they will not usually do so. Thus it is also essential for personnel to have some training in environmental education. This type of training aims to assist personnel to show how conservation can contribute to the achievement of the values which most concern their target audience, whether it be young people, village communities, development groups, policy makers, or whatever. Environmental education itself depends on effective communication.

EAIST provides ample opportunities for public participation training, directly and indirectly, in these three areas — communication, evaluation, and environmental education. Its emphasis on values is helpful because it enables personnel to identify the values underlying a complex issue. They can then present the issue to the public in a non-technical and meaningful way, i.e. in terms of value choices. (Public participation can become a farce when the value position of an agency is obscured by technical data and 'expert' opinion.) Similarly, values provide a basis for interpretation of the views of the public, i.e. the preferences of the public can be interpreted in terms of values, and thus related to the value options available. Finally, the holistic, interdisciplinary and broad-based nature of EAIST means that it provides a good background for promoting environmental education among the public.

More specific training is necessary for teaching the public participation techniques described in pages 51-54. Lectures, demonstrations, the use of case studies and audio-visual materials, and role playing can be used to illustrate and teach these techniques. However, the value emphasis of EAIST provides a basic orientation and theme for this area of training also.

CHAPTER VI

The role of case studies in environmental administration in-service training

This chapter examines the use of environmental case studies in training. Case studies are defined and described and their value in training is discussed. It is argued that they are useful for several reasons.

Firstly, because their study and analysis require the use of the interdisciplinary, holistic and value-based approach advocated in EAIST. They therefore serve as a useful tool for reinforcing and developing this approach.

Secondly, they provide a means by which personnel can develop the ability to make generalisations and predictions about probable consequences, actions, or behaviour in certain situations.

Thirdly, experience gained from case studies fosters the ability to suspend judgement until analysis is quite advanced, and the development of problem-solving skills essential to good decision making.

Fourthly, they provide opportunities for personnel to learn to think in World Conservation Strategy (WCS) terms.

Last but not least, they provide a form of 'practical' experience of great value to those relatively new to environmental administration, and a means of testing skills in realistic but 'safe' situations.

Various aspects of teaching case studies are discussed: the teaching situation; the role of the instructor; likely problems; and suggested procedures. Finally, the writing-up of case studies is considered. This is not only a valuable training technique, but can make a significant contribution to the amount of case material available for study and analysis in developing countries.

Case studies

A case study is a detailed study of a real problem or situation that was (or is being) dealt with by one or more public bodies. Case studies involve decisions that have been (or have to be) made. Although case studies can be documented by films and slides as well as by written forms of communication, this chapter concentrates on cases in written form.

Environmental case studies are case histories of problems and situations in which various factors — ecological, resource, technical, social, economic and political — are examined in order to determine the critical values and variables considered in decision making.⁵⁹ They can be divided into four categories: general, ecosystem, species, and multiple-use.

In essence all forms of case study are teaching and training devices: they provide opportunities to learn from the experience of others and form a bridge between theory and practice. As Dr David Munro (past Director General of IUCN) has said, case studies can provide excellent training for environmental decision making. The case study method can contribute objectives, goals, methodologies, and strategies for ensuring that environmental implications are considered by middle and senior administrators.⁶⁰

A detailed description of a case study is given below:

A public administration case may be defined as a narrative of the events that lead to a decision (or group of related decisions) by a public administrator (or group of public administrators). Some account is given of the numerous personal, legal, institutional, political, economic and other factors that surrounded the process of decision, but there is no attempt to assert causal relationships... The studies contain much detail and an effort is made to give the reader a feeling of actual participation in the action. While background and aftermath may be briefly summarised, the main detailed account is confined to a restricted time period. The emphasis throughout is on decision making, whether as an act or a process, and rejected and hypothetical alternatives are explored. The decision problems selected for treatment involve policy (values) rather than technical issues.⁶¹ (Editor's italics)

The relevance and value of case studies in training for environmental administration

Case studies provide a useful tool in guiding training for environmental administration along the desired lines, i.e. the holistic, interdisciplinary and value-based approach advocated for EAIST. Taking these three aspects one by one, case studies demand a holistic approach, i.e. one which considers the complete range of factors involved, if participants are to see things as a whole and understand the relationships of the various parts. Good case study training will therefore reinforce and encourage a holistic attitude in personnel and will promote thinking in ways based on the ecological concepts of interrelationships, interdependence, and balance. It will help to put their administrative activities into true perspective, as one part of a complex whole, and will lead to a better understanding of the role of public administration in managing the environment.

The complexity of case studies also illustrates the need for an interdisciplinary approach. Case study training can expose personnel to the way in which the combination and integration of a number of different disciplines can contribute to the analysis and solution of intractable environmental problems. It also demonstrates the need for a diversity of disciplines to be used, and the value of non-technical disciplines in environmental administration. Familiarity with the concept and practice of the interdisciplinary approach will prepare trainees to use it in their work. Training is always more meaningful and useful when applied to real or realistic situations, and case studies provide practical experience of interdisciplinary work.

The study of case histories by a group of trainees tends to emphasise the examination of attitudes and values among the group. Mutual comparison of values is bound to lead to clashes of values, and can in turn lead to value change. It provides opportunities for personnel to discuss and decide their value preferences, and to translate these into concrete alternatives. In this way, case study training can lead to knowledge of the means (actions) required to carry out one's ends (values).⁶² Thus case studies provide an excellent teaching device for value training as discussed in Chapter III. The processes of value awareness, value change, and value clarification can be identified and illustrated with reference to the case under discussion, and personnel can obtain first-hand experience of the usefulness of thinking in value terms in their activities.

Some authorities argue that decision makers have an obligation to analyse the values at stake in terms of ethics, i.e. moral judgements as to right and wrong. This is especially true of decisions aimed at promoting the public interest, which it can be argued is basically an ethical matter.

Many ethical or moral values have a religious origin, e.g. a sense of responsibility for future generations and awe and humility before God's creation.⁶³ In this connection IUCN is currently studying the ethical implications of various religions in terms of conservation. This includes a special project on conservation writings of the Koran to bring out the spiritual and ethical dimensions for decision makers in (appropriate) developing countries.

Discussion of case studies in training often proves extremely valuable in bringing to the fore such ethical questions as:

“Is my loyalty to my superior, or to his superior or to the organization?”

“Ought I make this decision in favour of a specific group, or of an undifferentiated general public?”

“Do I, in making this decision in the interests of my employer, commit a personally immoral act?”

Case studies pay particular attention to *alternatives*, i.e. alternative policies and proposals. This emphasis is particularly useful in conservation and development cases where the different alternatives can be analysed in terms of their underlying values. This experience can help personnel to select in their work alternatives (values) which will contribute to the integration of conservation and development.

Aims and objectives

The value of case study training lies not so much in the transmission of new knowledge as in the integration and application of existing knowledge and in the development of certain skills. The detailed facts of the case are not important in themselves, but matter only in so far as they can suggest generalisations. A major aim of case study training is to develop in personnel the ability to generalise from the specific cases studied. Personnel must learn to observe, to make inferences from their observations, and to make predictions on the basis of past experience. A knowledge of the behaviour associated with certain attitudes and values in case studies can lead to the ability to predict behaviour in real-life situations. Personnel come to recognise what kinds of conditions induce what types of behaviour. Subsequent cases will either reinforce previous judgements as regards cause and effect relationships, or require them to be modified in the light of new knowledge.

A second aim of training, allied to the first, is for personnel to develop the ability to suspend judgement until their analysis of the situation is quite advanced. Such skills in analysis do away with the need for a trial-and-error approach to problem solving.

Thirdly, case studies of conservation and development issues provide opportunities for personnel to learn to think in terms of WCS objectives, and of conservation, ecological, social and other environmental values. Conservation and development cases should include development projects that have failed to take environmental values into account, and conservation projects that have taken too narrow a view of conservation and have excluded pertinent social and development values. Case studies of ‘failures’ can illustrate the consequences of not taking important values and considerations into account in the decision-making process. (For useful sources of material, see reference 25.) Analysis of both types can help personnel develop appropriate attitudes and approaches for more effective decision making and problem solving in environmental affairs. It also provides a good basis for personnel to develop skills in anticipatory policy making. The repetition of past conservation and development failures can thus be prevented, and successful integration of conservation and development should become the rule rather than the exception.

Benefits

Case studies provide a form of practical experience for personnel relatively new to environmental administration, and a means of testing skills in realistic but safe situations. Case studies are useful because they:

1. convey vicarious experience of the pressures, complexity, and other aspects of governmental operations;
2. permit the identification and analysis of problems in realistic situations;
3. show the difficulties of applying a textbook principle in real-life situations;
4. use real-life situations to enhance understanding of existing theory (including the WCS);
5. develop an understanding of the interaction in real life of factors which are usually studied as separate subjects in universities (interdisciplinary aspects);
6. develop the ability to make decisions on the basis of limited knowledge and to maintain sound judgement when analysing complex situations;
7. convey substantive knowledge.⁶⁴

Their advantages in terms of teaching include:

1. the reduction of resistance to learning, and increased involvement of participants; (Learning by analysis of case studies rather than from straight theory is easier, more interesting, and enjoyable for the student.)
2. the exposure of personnel in discussion to different values, approaches, interpretations, personalities, and the expansion of personnel's perspectives;
3. effective learning through empathy as personnel identify with persons in the case, or place themselves in different roles and situations;
4. active participation in the learning process as trainees relate their individual values to value choices in the case study;
5. the demonstration of the relevance of involving and integrating the social sciences.⁶⁵

The main characteristics of the case study approach to training are summed up in the following extract:

In general, a case seeks to stimulate the development of insight, the testing of knowledge, and the enrichment of analytical skills. ... The learners using the case approach should increase their ability to isolate problems and to develop solutions for them. ... Simply, the case method is a way of piggybacking on the experience of others, of adding to a learner's experiential memory bank in a convenient and economical way.⁶⁶

Teaching case studies

As with some other aspects of EAIST (e.g. interdisciplinary aspects), teaching case studies is not so much a question of imparting information as of creating the right atmosphere and conditions for acquiring values, knowledge and understanding. Thus case studies training focuses on the learner and his or her active participation in training.

The role of the instructor

The role of the instructor is actively to guide the discussion of a case — putting it in the context of a relevant theory or pointing out the theoretical implications, bringing out important concepts, asking penetrating questions, stimulating discussion, etc. Values, principles and concepts pertaining to the WCS and other conservation measures can thus be drawn out from the cases discussed.

The instructor should encourage the search for general principles transcending individual cases. This requires the instructor himself to be able to extract and integrate theory and principles from specific cases.⁶⁷

In group discussions the instructor plays a discreet but very important role. He must co-ordinate and facilitate discussion, but in such a way as to encourage *self-initiated learning* among the participants. Self-initiated learning is very conducive to bringing out underlying value considerations in the learner and in the case under study. The instructor can thus provide opportunities for the value training discussed in Chapter III.

The following principles of self-initiated, self-reliant learning are of particular relevance to case study and value training:

1. Human beings have a natural potential for learning.
2. Significant learning takes place when the subject matter is perceived by the student as being relevant for his own purposes.
3. Learning which involves a change in self-perception (the perception of oneself and one's values) is threatening and tends to be resisted. Such learning is more easily perceived and assimilated when external threats are at a minimum.
4. Much significant learning is acquired through *doing*, such as participation in case study discussions.
5. Self-initiated learning which involves the whole person — feelings (values) as well as intellect — is the most lasting and pervasive.
6. Learning is maximised when the student participates responsibly in the learning process; when he chooses his own directions, helps to discover his own learning resources, formulates his own problems, decides his own course of action, lives with the consequences of these choices.
7. Independence, creativity, and self-reliance are all facilitated when self-criticism and self-evaluation are foremost and evaluation by others is of secondary importance.
8. The most socially useful learning in the modern world is 'the learning of the process of learning', a continuing openness to experience and to incorporation into oneself of the process of change.⁶⁸

From these principles a number of guidelines can be derived for instructors leading group discussions in case study and value training:

1. The instructor will influence the initial mood of the group. If his own basic philosophy is one of trust in the group and in the individuals who compose the group, this will be communicated in many subtle ways.
2. The instructor helps to elicit and clarify the expectations and objectives of the individuals in the class as well as those of the group as a whole. Such objectives provide the motivating force for significant learning.
3. The instructor should try to provide the widest possible range of resources for learning.

-
4. The instructor should regard himself as a resource to be used by the group.
 5. In responding to statements made by individuals, the instructor should recognise both the content of the statement and the emotions and feelings behind it.
 6. The instructor should remain alert to expressions indicative of deep or strong feelings.
 7. As an 'accepting' climate becomes established, the instructor is increasingly able to become a member of the group, expressing his views as those of one individual only.
 8. In his role as a facilitator of learning, the instructor should endeavour to recognise and accept his own limitations.⁶⁹

The role of the instructor requires more skill than knowledge. Although case study training is in some ways more difficult than conventional teaching, the skills required can be learned, and the case study method is in itself an appropriate way of training instructors.

How to use case studies

To obtain the greatest benefit from studying and analysing case studies, they should be approached in an orderly and systematic way. A standardised approach has two main advantages:

1. It saves the student time and energy by systematising his work.
2. It facilitates comparisons between cases and situations which superficially may appear very different. Thus it assists in formulating and testing ideas and hypotheses.

One suitable procedure for description and analysis is outlined below:

1. **Scene setting:** the physical, social, historical, ecological, economic and political context of the case study.
2. **Persons and organizations involved:** the various interested parties, emphasising values and value positions.
3. **Problems and issues:** identify and describe these. ('Issues' will include conflict between two or more groups over procedural or substantive matters relating to resource distribution.)
4. **Alternatives:** the courses of action available, with an attempt to identify underlying values.
5. **Solutions:** including means and methods.
6. **Reasons for the solution selected:** analysis of the values, human interactions, and power aspects of the decision.
7. **Outcome:** analysis of the final outcome, including consequences, implications, advantages and disadvantages.
8. **Generalisations:** general lessons for environmental administration — concepts, hypotheses, broad principles, empirical regularities, guidelines, etc.⁷⁰

It is helpful to read a case through once, then re-read it, analysing it according to this framework. Of course not every case will fit the above scheme; stages will be missing, or require adaptation.

Written case studies normally include a statement of the outcome, with or without discussion of the subsequent consequences. These are called informational case studies. For training purposes, however, it is often valuable to stop the reading of the case at Stage 4 of the above framework, and to ask personnel to complete it, i.e. to decide on a solution, justify it, and predict the results (including any undesirable side effects). This is called an instructional case study. For instructional case studies the following more general framework may be more useful. It poses a number of questions, as follows:

1. What are the facts available in the case?
2. What are the assumptions made in the case?
3. What conclusions do you draw from these facts and assumptions?
4. What theory, common prescriptions, or legal doctrines are relevant to this case?
5. What experiences have you had which come to mind when reading this case, and what have you learnt from these experiences that will help you here?
6. What recommendations do you make, for whom, and why?⁷¹

The use of instructional cases encourages active participation and self-initiated learning. They help personnel learn to understand and analyse complex issues and situations and to make decisions about real problems on the basis of limited data. (The instructor should act as neutral chairman in this process.)

Informational case studies — which give the full story — provide opportunities for training in other aspects: It is useful to be able to look back and analyse a decision and its consequences from a historical perspective. Informational case studies require a lower level of participation and involvement from trainees and are thus more suitable for use with groups who need some exposure to the case study approach but who are not receiving in-depth training. It should be noted, however, that in practice informational case studies instruct, and *vice versa*.

Approaches and techniques

Case studies vary widely in their applicability and value in training, depending on the composition of the group, the particular objectives of the training session, and the type of case. The instructor must assess the suitability of cases for EAIST. For example, some may pose only certain types of problem or deal with only certain subjects. Some may not lend themselves to particular approaches such as role playing or simulation. They can be used in ways other than group discussion — as straightforward supplementary reading, for instance, or to illustrate particular teaching points. While most case studies are presented in written form, case study training can make use of films, slides, audio-visual and oral presentations, simulation games, and field trips. The instructor must decide what is most appropriate to the situation in hand.

A number of techniques can be used to increase understanding and promote active participation in case study work.

1. Role playing often enhances the interest and identification of personnel with characters or interest groups in the case study. Insights can be gained if personnel are asked to argue the case of individuals whose value system is very different from their own.

2. The trainees can be split into small groups, each of which illustrates a different approach towards the problem under study. For example, one group can analyse a case study from a WCS perspective, while another adopts a more traditional approach to development. Comparisons of this kind provide practical illustrations of the way in which WCS principles could have been used in the past to integrate conservation and development, and of how they can be applied in real situations in the future.

3. A local case study in the form of a natural resource or development problem that has been (or still is) an issue will usually be within reach of most training locations. The use of such local examples provides excellent opportunities for learning through first-hand experiences. Local officials and others who actually participated in the case can be invited to make presentations or to answer questions. In some instances, it may be possible to arrange for a panel of local people to make presentations covering a range of aspects of or views on the issue. Field trips to the actual site to see the results can be made.

4. An Environmental Impact Assessment (EIA) approach to case studies can be adopted, i.e. the thinking and procedures of EIA can be applied to the case in hand.

This would involve the following procedures:

- a) project description;
- b) description of the natural and human environment;
- c) study of the anticipated impact of the project on the environment, including the human community;
- d) discussion of courses of action to mitigate the impact;
- e) discussion of possible alternatives to the proposed project which would attain the same or similar objectives;
- f) recommendations as to whether or not to proceed with the project (or which alternative could have been selected to reduce or remove the negative consequences of the project).

The EIA approach involves the prediction, interpretation and communication of information about the effects of an action or project to ensure that ecological and social considerations and values are included in judgements and decision making. By comparing the case with the EIA, personnel are able to identify whether such considerations and values were incorporated — they can see for themselves the consequences of omission and the importance of inclusion.

Analysis of decision making

A case study can be good for training purposes, not because it illustrates a good or bad decision, but because it portrays how people react or make decisions when information is limited or incomplete. At the time, people usually think that the decisions they make in problem situations are the right ones, or at least preferable to the alternatives available. The case study gives a 'close-up view' of the way personnel actually cope with the situation. In training, special attention needs to be given to the following:

- a) how personnel made an estimate of the situation;
- b) the various alternative solutions they considered or ignored;
- c) the interactions among personnel and the agencies or units to which they belonged;
- d) the confrontations and arguments that went on and the compromises arrived at in decision making.

The aim is to picture and analyse as clearly and fully as possible the dynamics that precede and follow the making of a decision.⁷²

Problems

Hazards in the use of case studies include:

1. getting distracted by minor issues;
2. becoming overconcerned with the detail of a particular case study rather than with the general principles and concepts to be learned from it;
3. permitting the drama and interest inherent in some cases to overcome the need for serious analysis.

Instructors must try to avoid these pitfalls and focus on the common elements and generalisations to be found in a variety of cases.

A common feature of case study training is the anxiety of students to have more facts about a case. They tend to think that if only they had more facts they could resolve the dilemma over value choices. Alternatively,

... students often try to make the ethical (value) dilemma go away by 'patching up' the case suitably. Part of the instructor's task should be to indicate that more facts need not make the case easier to resolve; they may make it even more complex, therefore harder. It is also useful for instructors to insist that the facts of the case be left as stated, thereby forcing students to come to grips with the hard problems that they will face as practising professionals.⁷³

Another common problem is that of students in a class side-stepping the issue when the time comes to offer a solution to an ethical problem. One way round this is to split the class into groups and ask each group to come up with a solution. Each group later presents its decision and the reasoning behind it. This demonstrates to students that even after ample time for discussion and reflection, reasonable people may disagree about what is the right thing to do.⁷⁴

Writing case studies

Although some published case studies do deal with conservation and development, directly or indirectly, those available may not be relevant to the training situation in hand. This is particularly true in developing countries where there is often a shortage of documented case studies. There is therefore a need to encourage the writing up of cases to increase the amount of relevant material available for study. This can be done by commissioning universities, public administration agencies, institutes, consultants or other trained personnel to research and write a particular case study. In addition, it can be valuable to include the written preparation of case studies in training programmes for environmental administration. This section deals with the writing up of cases as a training exercise.

An advantage of writing case studies is that it gives trainees opportunities to observe and appreciate in depth the complexity and ramifications of the administrative process, together with some experience of research aimed at getting to the root of a problem. 'Failures' as well as 'successes' in terms of conservation and development should be written up; as we have seen, both are useful in training.

Approaches and techniques

Environmental case studies can examine problems on different scales — local, regional and national. For training purposes, the problems selected for case study writing should, as far as possible, be fairly general and universal rather than unique and transient, or they will be of limited relevance and value afterwards.

In choosing the subject for a case study, the following should be borne in mind:

1. the situation should pose a complex problem with no easy answers;
2. the problem should be one that is common or recurring;
3. the situation should relate clearly to training objectives;
4. the agencies and individuals who participated should be willing to supply candid information to the writer.

NB A good case preparation requires the collaboration of individuals who were involved in the original situation. The principal participants should be briefed on the purpose and methods of the case study. Needs for information and documentation, including any restrictions, should be discussed and authorisation obtained. It may be helpful to designate a formal liaison person from each organization involved.⁷⁵

Cases should of course always represent real situations and actual events. The studies should be presented as objectively as possible, with a conscious effort by the writer to exclude his own opinions and value judgements. The basic task of the writer is to organize and present the subject of the case study in such a way that the reader will be able to understand the problem and the reasons behind the chosen solution. This means the following elements must be present:

1. a detailed, factual account of the actual event or situation;
2. attribution of actions and decisions to the individuals and groups who performed them;
3. adequate background information so that the reader can understand not only *what* occurred, but *why*, *how*, and *by whom* actions and decisions were made.⁷⁶

Case writing demands an interdisciplinary approach. A fairly broad familiarity with several fields is usually required and a simple briefing on unfamiliar areas or disciplines may greatly increase understanding of the case.

Collecting sufficient background information is an important aspect. Unless the writer is personally acquainted with the case in question, it is useful to spend a little extra time on background research, even though the case itself will probably contain a summarised account only.

The basis of a case study is the information collected during interviews and from documents and files. The first round of data collection should prepare the writer to write a synopsis of events and to assemble a detailed list of remaining questions. Follow-up interviews with selected persons should complete data collection requirements for a first draft.⁷⁷

While the writer should try to remain objective in his account of the case, case studies are inevitably not entirely theory or value-free. It is a *structured* account, not merely a chronology of events, and the structure imposed by the writer will reflect his own view of the case to some extent. The final narrative represents his conception of how the events are related, causally or otherwise. Case study writing *requires* such a conception, together with a sensitivity to the crucial elements of the case, for the essential facts to be recognised and extracted from the mountain of data.⁷⁸

The writing of the case study must be clear and systematic, and can be structured in the following way:

CASE STUDY FORMAT

Preliminaries

Title

Give a proper title to convey the subject of the paper and something about the approach used by the writer.

Introduction

Explain what the case study is about and how it is organized. Describe the purpose of the case study. Identify the writer and major contributors.

Body of case study

Statement of the problem

A case study documents the attempt to resolve a problem or issue and attempts to solve it. There should first be a clear statement of the problem and of why it is important and/or complex. The scope of the problem should be clearly defined, and the values involved stated explicitly. Any discussion of the problem should be based on its universal and on its unique aspects. It should be placed in perspective by showing its relationship to other natural resource and environmental issues.

Setting/background

(This section establishes and describes the context of the subsequent intervention and/or development.)

Define and describe the study or problem area. Describe the ecosystem and/or natural resources, including their status, distribution, abundance, and interrelationships. Summarise the history of the area, including human use and modification, and its results. This should also include a description of past changes and current trends in natural resource characteristics, and their social and cultural aspects.

Constraints

(Limitations and restrictions on decision making for integrating conservation and development.) Examine the available for reliability and completeness; identify 'gaps'. Describe natural resource conflicts in relation to the political and governmental framework, to social and economic conditions, to values, and to cultural and religious characteristics. Describe institutions and interest groups, including their values, organization, and membership. Discuss limitations related to political and public support, cost, shortages of qualified personnel, etc.

Intervention

(This section is used to describe the programme or development that is designed to address the problem or issue.)

Describe previous efforts to address this issue, including their results and effects. Explain the origin and justification of the current programme or development. Describe how the problem was analysed, who participated, what decisions were made by whom, and what actions were taken.

Describe the programme, including its values, objectives, and evaluation criteria. Discuss how human and financial resources were allocated and how conflicts and interactions with internal and external groups and programmes were handled.

Results

(This section describes the outcome and consequences of the programme or development.)

Evaluate the results according to the prescribed criteria. What and how much changed due to the programme or development? What interrelated changes occurred in the social, ecological, political, and economic areas as a result of the programme or project? Was there disagreement and value conflict about the results?

References

(This can be a list of references and suggested readings in addition to the works cited in the text of the case study.)

Optional sections

Epilogue or Postscript

This section may be used to include last-minute details or new events and to present additional results or new findings.

Appendices

An appendix should be used sparingly for material that is essential to the case study, but too long to include in the text without unduly interrupting the flow. (The case study should be able to stand alone.)

For case studies written as part of training programmes, it is valuable if the writer ends with a section of conclusions (this will obviously be a personal interpretation of the situation, and should be understood as such).

Conclusions

(This section should summarise the points and highlights of the problem or issue and of the intervention.)

Discuss and analyse the major principles that were demonstrated.

State any generalisations that can be made, and their wider applicability.

Are there unique or universal conditions in this case?

Are there plans either to continue or to end the programme or development, or parts of it?

Are there new approaches, programmes and developments under way or being considered?

What successful or unsuccessful approaches can be recommended or avoided in future?

What was learned?⁷⁹

It can be argued that the heart of the case study is the exploration of the alternative courses of action open to the decision makers. Case study writing can highlight these, particularly alternatives that were rejected or even unnoticed at the time. It thus provides the information from which the decision-making process can be analysed after the event.

It should be clear, however, that there is a difference between making a decision under pressure in what may be a confused situation, and analysing it afterwards with all the information to hand and with the benefit of hindsight. Lessons can be learnt from the analysis of decision making, but it is not for the case study writer to be critical of a decision maker in his writing up.⁸⁰ Rather, he should enable the reader to judge for himself whether, under the circumstances, the decision was a reasonable one.

There are other approaches to case study writing, and these can also be used as the basis of exercises in training. For example, the case study can be written from the point of view of a specific person, even if that person does not appear directly in the case.⁸¹ Alternatively, the focus can be shifted from one person or group to another during the case. In this way the reader is informed about the controversy from the viewpoints of the various interacting groups. The value of this approach for training purposes lies in the fact that the writer develops a thorough understanding of and insight into the attitudes of the different participants. This will, it is to be hoped, make him more perceptive about and sympathetic to the concerns of such groups in the future. There are two problems with this approach, however:

1. 'Multiple focus presentation', as it is called, depends on the availability of sufficient data from a number of groups, rather than from just one.
2. The shifting of focus may cause the reader to concentrate too much on certain parts of the case. To help the reader keep a broad perspective, it is possible to give an occasional presentation of the overall point of view.⁸²

Thus it can be seen that the writing up of case studies has a variety of applications in training and can be a valuable extension of case study training for environmental administrators.

NOTES

- ¹ International Union for Conservation of Nature and Natural Resources (IUCN). *World Conservation Strategy*. IUCN, 1196 Gland, Switzerland, 1980.
 - ² *Ibid.*, Section 1.
 - ³ International Union for Conservation of Nature and Natural Resources (IUCN). *World Conservation Strategy*, IUCN Gland.
 - ^{3a} A holistic approach to the environment is one that views it as a whole rather than simply as the sum of its constituent parts. It also implies an awareness of the interrelationships of the various parts.
 - ⁴ IUCN. *Op. cit.*, Section 1.
 - ⁵ Unesco. *Intergovernmental Conference on Environmental Education: Final Report*, Tbilisi, USSR (October 14-26, 1977), Unesco, Paris, 1978, p 12.
 - ⁶ *Ibid.*, pp. 31-32.
 - ⁷ US Agency for International Development (USAID). *Environmental and Natural Resource Management in Developing Countries*, Vol. 1, US AID, Washington D.C., 1979, p. 24.
 - ⁸ Unesco. *Op. cit.*, p. 22.
 - ⁹ Vitteritti, Joseph P. 'Implementing change through training: a case study', *Public Administration Review*, Sept/Oct 1978, pp. 474-475.
 - ¹⁰ International Union for Conservation of Nature and Natural Resources (IUCN). *World Conservation Strategy*, IUCN, 1196 Gland, Switzerland, 1980, Section 12.
 - ¹¹ Levine, Arthur J. 'The role of the technoscience administrator in managing national science policy', *Public Administration Review*, 2 March/April 1979, p. 124.
 - ¹² Henning, Daniel H. *National Park Wildlife Policy: A field administration and political study at Rocky Mountain National Park*. Unpublished doctoral dissertation, Syracuse University, New York, 1965, pp. 139-230.
 - ¹³ Woodward, Harold. 'Common and conflicting responsibilities of natural resource biologists'. Paper delivered to the Second American Institute of Biological Sciences Meeting, University of Wyoming, June 1970.
 - ¹⁴ IUCN. *Op. cit.*, Section 12.
 - ¹⁵ IUCN. *Op. cit.*, Section 12.
 - ¹⁶ IUCN. *Op. cit.*, Section 12.
 - ¹⁷ Nigro, Felix A. and Nigro, Lloyd G. *Modern Public Administration*, Harper and Row, New York, 1980, pp. 67-76.
 - ¹⁸ Unesco. *Glossary of Environmental Education Terms*, Unesco, Paris, (in prep.).
 - ¹⁹ Stapp, William B. 'An instructional program approach to environmental education (K-12) based on an action model', in James A. Swan and William B. Stapp (eds.), *Environmental Education*, Wiley & Sons, NY, 1974, pp. 70-71.
 - ²⁰ Simon, S. 'Values clarification vs. indoctrination', *Social Education* (December 1981), pp. 8-18.
 - ²¹ Stapp, William B. *Op. cit.*, p. 71.
 - ²² *Ibid.*, p. 71.
 - ²³ Coletta, Suzanne S. 'Values clarification in nursing: application to practice' *American Journal of Nursing*, (December 1978), p. 2062.
 - ²⁴ Lindblom, Charles E. 'The science of muddling through', *Public Administration Review*, (Spring, 1950), pp. 79-88.
 - ²⁵ Wolfinger, Raymond E., Shapiro, Martin, and Greenstein, Fred I., *The Dynamics of American Politics*, Prentice-Hall, New Jersey, 1980, p. 518.
 - ²⁶ *Ibid.*, pp. 462-463.
-

-
- 27 IUCN. Op. cit., Section 11.
- 28 Wengert, Norman, 'Perennial problems of federal coordination', in Lynton K. Caldwell (ed.), *Political Dynamics of Environmental Control*, Indiana University Institute of Public Administration, Bloomington, Indiana, 1967, p. 42
- 29 Unesco. *Glossary of Environmental Education Terms*, Unesco, Paris, (in prep.).
- 30 Unesco. *Intergovernmental Conference on Environmental Education: Final Report*, Tbilisi, USSR (October 14-26 1977), Unesco, Paris, 1978, p. 26.
- 31 Council on Environmental Quality. *Environmental Quality, 1970*, US Government Printing Office, Washington D.C., 1970, pp. 3-5.
- 32 Hopeman, R.J. and Wilemon, D.L., *A project management approach to interdisciplinary research in universities*, Syracuse University/NASA Project, Occasional Paper No. 2, New York, June 1962, pp. 1-4.
- 33 UNEP. *Environmental Training: An Overview*, UNEP, NAIROBI, 1980, p. 141.
- 34 Ibid.
- 35 Caldwell, Lynton K. *Environment: A Challenge to Society*, The Natural History Press, New York, 1970.
- 36 Mosterman, L.J. 'The environment and engineering education' in Unesco, *Meeting of Experts on Environmental Aspects of Engineering Education and Training*, Unesco, Paris, 1974.
- 37 Redding, L., Reynold, M.G., Marston, D., Meeder, D., Peltzer, H., and Sears, R. Unpublished interviews with Federal environmental personnel in conjunction with Public Administration Seminar, Eastern Montana College, December 1975.
- 38 UNEP. *Survey of Activities in the Area of Environmental Education and Training* UNEP, Nairobi, 1978, p. 17. E.
- 39 Wolfinger, Raymond E., Shapiro, Martin, and Greenstein, Fred I. *Dynamics of American Politics*, Prentice-Hall, New Jersey, 1980, p. 546.
- 40 Ibid.
- 41 IUCN. *World Conservation Strategy*, IUCN, 1196 Gland, Switzerland, 1980, Section 19.
- 42 Henning, Daniel H. *National Park Wildlife Manaconference on Environmental Education: Final Report*, Tbilisi, USSR (October 14-26 1977). Unesco; Paris, 1978, p. 31.
- 43 Environmental Protection Agency. 'Proposed policy on public participation' *Federal Register*, Vol. 45, No. 85 (April 30 1980), p. 28916.
- 44 US Agency for International Development. *Environmental and Natural Resource Management in Developing Countries*, Volume 1: Report, US aid, Washington D.C., 1979, p. 25.
- 45 Winge, Edwin N. 'Involving the public in park planning: USA; *Parks*, Vol. 3 No. 1, April/May 1978, p. 2.
- 46 Wambach, Robert F. 'Public involvement — a State perspective', in Spencer H. Smith and Albert H. Rosenthal (eds.), *People and Wildlife: Public Involvement in Fish and Wildlife Administration*, US Fish and Wildlife Service, Washington D.C., 1979, pp. 23-25.
- 47 International Union for Conservation of Nature and Natural Resources (IUCN). *World Conservation Strategy*, IUCN, 1196 Gland, Switzerland, 1980, Section 13.
- 48 Ibid., Section 13.
- 49 Ibid., Section 13.
- 50 Ibid., Section 13.
- 51 Environmental Protection Agency. Op. cit., pp. 28916-28918. The text on pp. 62-64 was adapted from the above.
- 52 Forest Service. *A Guide to Public Involvement in Planning*, US Department of Agriculture, Washington D.C., 1971, pp. 8-15.
- 53 National Park Service. *Public Involvement in Planning*, US Department of the Interior, Washington, D.C., 1978, pp. 13-35.
- 54 Brewer, James E. 'Working groups — a public involvement techniques', paper presented at the American Society for Public Administration national conference, Phoenix, Arizona, April 1978, (unpublished manuscript).
- 55 IUCN. Op. cit. Section 13.
- 56 Unesco. *Intergovernmental Conference on Environmental Education: Final Report*, Tbilisi, USSR (October 14-26 1977), Unesco, Paris, 1978, p. 31.
- 57 Wambach, Robert F. Op. cit. p. 28.
- 58 Forest Service. Op. cit., pp. 13-14.
- 59 Unesco. *Glossary of Environmental Education Terms*, Unesco, Paris (in prep.).
- 60 Interview with Dr David A. Munro, past Director General, International Union for Conservation of Nature and Natural Resources, 1196 Gland, Switzerland, August 1979.
- 61 Stein, Harold. 'On Public Administration and Public Administration Cases', in Bock, Edwin A. *Essays on the Case Method in Public Administration*, The Inter-University Case Program, Syracuse, New York, 1962, p. 26.
- 62 Golembiewski, Robert T., and White, Michael. *Cases in Public Management*, Rand McNally College Publishing Co., Chicago, 1980, p. 4.
-

-
- 63 Fleishman, Joel L. and Payne, Bruce L. *Ethical Dilemmas and the Education of Policy Makers*, The Hastings Center, New York, 1980, pp. 48-49.
- 64 Bock, Edwin A. 'Case studies about government: Achieving realism and significance', in Edwin A. Bock (ed.) *Essays on the Case Study Method in Public Administration*, The Inter-University Case Program, Syracuse, New York, 1962, p. 95.
- 65 Golembiewski et al. Op. cit., p. 10.
- 66 Ibid. p. 8.
- 67 Ibid. p. 7.
- 68 Rogers, Carl. *Freedom to learn*, Merrill, Columbus, Ohio, 1969, Chapter 7.
- 69 Ibid. Chapter 7.
- 70 Martin. Op. cit.
- 71 Golembiewski et al. Op. cit., p. 21.
- 72 Wong, Jeremiah. 'Pointers in the preparation of case studies', (unpublished manuscript, Chinese University of Hong Kong, 1975).
- 73 The Hastings Center. *The Teaching of Ethics in Higher Education*, New York, 1980, p. 70.
- 74 Ibid. p. 70.
- 75 Shores, John and McNeely, Jeffrey. 'Designing case history formats: draft report', (unpublished report for the Commission on National Parks and Protected Areas, IUCN, 1981).
- 76 Shores and McNeely. Op. cit. (letter of instruction).
- 77 Ibid. (letter of instruction).
- 78 Fesler, James W. 'The case method in political science', in Edwin A. Bock (ed.) *Essays on the Case Study Method in Public Administration*, The Inter-University Case Study Program, Syracuse, New York, 1962, pp. 103-104
- 79 Adapted from Shores and McNeely, op. cit.
- 80 Wong, Jeremiah, op. cit.
- 81 Golembiewski et al., op. cit., p. 22.
- 82 Wong, Jeremiah, op. cit.
- M.T. Farvar and John Milton (eds.) *The Careless Technology: Ecology and International Development*, (Natural History Press, New York, 1972), present published case study/conference papers on the impacts and problems associated with technological developments in third world countries.
- Gabriel U. Inglesias (ed.) *Implementation, the problem of achieving results: a casebook on Asian experiences*, (Eastern Regional Organisation for Public Administration, Manila, Philippines, 1976) presents case studies which had disappointing results for the implementation of development programmes and projects in developing countries in Asia.