3. Constraints and Options in Environmental Management for Development

The IDEA Programme has identified a number of generic constraints which inhibit successful, integrated environmental management. These can be thought of as soft organisational problems which are additional obstacles to the resolution of any hard environmental problem. They are often a ‘spanner in the works’ of environmental management even where good science and adequate funding is available. Improvements in environmental management come about from an understanding of the nature of these constraints on integration, and from investment in human resources specifically to address those. A strength of the action research methodology is that each constraint identified becomes part of the focus of the project, and resources are devoted to understanding and overcoming those constraints.

The next sections of this report look at the main constraints on integration, options for overcoming those as suggested by the recent literature of development and public administration, and the experience of IDEA, and then in chapter three, at the approach of the IDEA programme in more detail.

The complexity of environmental problems
Serious environmental problems are invariably part of socio-biophysical systems which are characterised by both complexity, that is many relevant factors in an unclear relationship, and a high level of interaction, that is the relationship is constantly changing. In such a system, organisations and social/producer groups relate in an interactive and dynamic manner with the natural environment. Often small but cumulative impacts are highly significant, and this contributes to problem dynamic.

The water pollution problems in the Densu basin in Ghana, analysed by the Ghana IDEA team, are an example of this kind of complexity (figure 3). The main causes of pollution in the watershed
arise from rapid urbanisation as a result of rural to urban migration, intensification of agriculture stemming in part from structural adjustment, fuelwood gathering along the length of the river, and logging activities in the upper reaches. Problems are compounded because modernisation is resulting in the erosion of traditional, sustainable methods of river management, within the tribal framework, practiced through the control of fetishist priests.
Finally, as noted, road connections between the lower and upper reaches of the river are poor, and this hinders communication and recognition of the integrated nature of the watershed ecosystem.

In this example, many thousands of producer/polluters (businesses, backyard industries, small farmers etc) contribute unwittingly to either water pollution, or to siltation which results in widespread flooding during the rainy season. The environmental management system which might respond is nearly as complex: eleven agencies in central and local government have been identified by the project team as having substantial control over activities in the Densu basin.

This kind of complex environmental management situation precludes straightforward cause-and-effect analysis of the problems, and also precludes simple solutions implemented by any one agency acting alone. Organisational theorists call this situation a ‘turbulent environment’, although they seldom refer to the natural environment in the equation (Trist, 1977, 1980; McCann, 1983; Grey, 1985). In this situation, static, formal environmental management approaches are less useful than responsive approaches which stress continual feedback and iterative adjustment in policy and action. This ‘adaptive’ management often requires:

- the development of an emerging consensus among all vested interests as to the real dimensions of the problem, and often a shift in professional orientation and organisational culture towards more holistic problem definition,
- a partnership approach to implementation among all the relevant agencies from public, private and voluntary sectors, and
- the development of new skills and responses as dictated by the changing nature of the problem, and the need to mediate among differing objectives of various agencies.

In short, the appropriate response to complexity and turbulence must of necessity be inter-sectoral, inter-agency and as adaptive as the problem is dynamic. Skilled, adaptive management can give rise to integration where conflict had been the norm. Investment in human resources and in the development of management skills, such as in the IDEA programme, is the key to improving the management process, both in terms of personal and professional development, and in terms of the development of organisational, institutional and legal structures of support.
The term ‘organisational development’ in IDEA is used to denote new formal and informal linkages within government, and beyond government to the private, voluntary and community sectors. The network approach used by the IDEA teams addresses this constraint by its multi-sectoral, multi-agency make-up, which is fostered by informal communication channels and working methods not always available to line departments and other government agencies.

In Ghana, for example, the project team initiated a programme of awareness creation to alert people of the severity of the problem and of the implications of their actions on water quality. This included visits to agencies, and the use of newspaper articles to raise the level of problem acceptance. In January 1990, the project team organised a seminar on Densu River Basin Development. This was attended by 40 persons, representing 26 agencies and organisations with an interest in the Densu Basin. This seminar was described by the IDEA team leader as: the first ever meeting of agencies involved in diverse developmental projects within a common ecological zone in Ghana.

Out of this seminar arose a series of recommendations, the foremost of which are the establishment of a river basin authority, a renewed public awareness programme, agency actions to reduce environmental degradation, and the institutionalisation of EIA procedures. In addition their work has been taken up by Government and they have been invited to formulate a model or guidelines for replication of Densu Basin watershed management activities in other watersheds in Ghana, as a preliminary step to a possible national watershed management programme.

Compartmentalisation and failures of policy integration
The next two constraints are related. One begins with the organisation of science into unrelating disciplines, and our professional socialisation into those. This is results in inadequate environmental problem definition based on single discipline perceptions and solutions: an agricultural problem, an economics problem, a sociological problem and so on. It is not that discipline-based science is not important to the process of understanding, but that another, higher order of analysis is also necessary to enable self-critique of the inevitable limitations of our perceptions, and to integrate scientific knowledge with the many sources of social, economic and cultural knowledge relevant to complex development tasks.
This failure of perception is compounded by the compartmentalisation of government and international support agencies into non-communicating departments or sectors pursuing rational, but divergent and often competing, objectives. It is common that government departments do not interrelate policy or action, indeed there is seldom reward for doing so. Together these give rise to failures of horizontal and vertical integration in policy decisions and implementation (figure 4). The IDEA projects attempt to address these failures of integration simultaneously.

The failure of horizontal integration is results in what has been called by Baker (1989a) as ‘the administrative trap’ or the sectoral
approach to ecological problems (figure 5). This describes the
dysfunction between the nature of environmental problems and the
problem solving structures in the public sector. Baker describes the
situation:

The administrative structures of the LDCs were generally inherited
intact from former colonial powers, and are typically organised
vertically into sectoral, or functional, ministries and departments
(Agriculture, Education, Health, etc. This works reasonably well until
the system encounters a problem of a very broad and highly integrated
nature – such as desertification. Then it tackles on the parts which are
identifiable to each ministry and then each ministry tackles the
symptom as a problem in, and of, itself.

Figure 5
Government departments caught in the trap singlemindedly tackle complex ecological problems by way of their vertically integrated, single sector systems (farmer – Extension Service – Ministry of Agriculture – FAO). This results in consistent, expensive failure to resolve problems which, by their very nature, require multi-sectoral responses. Virtually the first step of every IDEA project therefore, is to invite representatives of a range of relevant government departments and agencies to join an advisory group intended to address a specific, visible environmental problem. This provides an organisational base from which to begin a process of horizontal integration.

Poor vertical integration, on the other hand, is the result of the common failure of understanding and information flows between the policy levels of government and small scale production units or individual resource users, who may generate substantial, cumulative environmental impacts. IDEA projects, for example, are concerned with trying to manage the environmental impacts of more than 50 ‘backyard’ metal plating industries in Malaysia, most with less than 20 employees, five thousand independent gold miners in Guyana, and hundreds of harvesters of lagoonal coral sand from small pirogues in Mauritius. All of these people make a national economic contribution, as well as making ends meet for their, often extended, families. The real challenge of sustainable development is to maintain this contribution within acceptable environmental standards, but the sheer number of producers and their traditional independence of government control systems challenges management.

Often the motivations and constraints under which such small producers operate are little understood at the policy making levels of government. For example, Montgomery (1990, p171) notes that:

> Millions of small-scale household-level actors produce most of the environmental degradation in the unindustrialised countries. But environmental policy planners are almost entirely unaware of details about whether and how current practices that are encouraged by government destroy or conserve natural resources.

This ignorance results in policies which appear reasonable but often prove difficult if not impossible to implement. Failures of vertical integration can be compounded by the large economic and cultural gap between the policy making level and the reality of life at farm or village level, a reality which is often characterised by the drive
for basic survival. The fine distinctions of policy and law are not applicable and government control structures are weak or non-existent.

A gulf between the public and the private sectors, indicated by different organisational cultures and fundamentally different objectives, can also heighten this constraint. The IDEA project in Malaysia, for example, is having to overcome this cultural gap between the public sector and the very differing perceptions of Malaysia’s numerous, fiercely entrepreneurial, backyard businessmen. A culture of collaboration is having to be nurtured into being, with difficulties on both sides.

Touched on earlier, an important facet of the IDEA approach is that teams attempt to overcome compartmentalisation by initiating action only on a specific, highly visible environmental tasks, and by attempting to develop new levels of both horizontal and vertical integration around those tasks. This is usually an environmental problem over which there is considerable agreement that ‘something must be done’, such as obvious and damaging water pollution in the Kafue River in Zambia. The specificity of the task gives a measure of credibility to the effort of integration, while confining the initial effort to the stated task can disarm potential critics who may be threatened by the idea of a parallel organisation to the traditional bureaucracy. The advisory groups become a kind of a low-key, non-threatening task force with a specific environmental objective.

**The failure of the command and control management style**

For example, a recent article ‘The Organisation of the ’90s’ in the business management journal *The McKinsey Quarterly* notes that C&C organisations are now competitively disadvantaged due to slow response, lack of creativity and initiative and excessive cost (Dichter, 1991). The author argues that:

> successfully developing a high performing organisation requires that senior managers overcome commonly-held misconceptions and lead a change process that blends top-down with bottoms-up initiatives.

Traditional C&C bureaucracies are characteristically well suited to dealing with ‘planned’ change, but not usually with the rapid ‘unplanned’ change which is becoming more typical of environmental problems. A number of development analysts now propose alternative, looser, task-oriented management structures, called
variously, ‘small scale administrative cadres’ (Coulson, 1990), ‘multi-disciplinary project teams’ (Tampoe, 1990), ‘interorganisational approaches... to natural resource management’ (Honadle and Cooper, 1989) and ‘parallel structures to bureaucracies’ (Knowles and Saxberg, 1988).

For example, Haas (1991) argues that an important consideration in institutional design is the rapidity with which institutions recognise and respond to new environmental threats, which result in unplanned change. Knowles and Saxberg propose that unplanned change requires the development of informal organisations and temporary groups, to work in parallel with existing bureaucracies. The advisory groups within each IDEA project are a version of such an informal, task-oriented group.

This type of informal organisation:

must be differentiated from the formal structure and relationships in dealing with change. The networks of interactions in the informal organisation can reward, discipline and punish their members... They can and do absorb and accommodate changes which management cannot anticipate in the design of policies, systems, tasks and procedures. The informal organisation represents a dynamic aspect of the formal organisation. Though managers have regarded these networks with suspicion, many have recognized them as flexible adjuncts to all levels of the formal work organisation (Knowles and Saxberg, 1988).

The potential for the IDEA approach to move beyond environmental control issues to long range development planning issues is suggested by the development literature. For example, here is Sagasti’s (1988) proposal for an ‘unconventional’ evolving institutional framework for national development planning:

The institutional design required for a new approach to development planning is that of an evolving network that should be flexible, open and capable of restructuring itself over time. The planning units that compose the network would not conform to a hierarchical organisation and each would relate to the structure of political authority and power in a variety of ways that are also likely to change over time.

Sagasti proposes some of the elements of such a network: a social intelligence unit, a planning unit, temporary issue-oriented task forces, coordination committees to link planning units with all types of non-governmental organisations, social science research centres and
an international support network. The IDEA methodology put forward in the next chapter offers one option for developing such a planning framework.

**Lack of reward in bureaucracies**
A related constraint, which reinforces others, is the lack of a reward in bureaucracies for goal-oriented, inter-sectoral approaches. At its most basic level, there is often simple not enough money available to pay an adequate wage to civil servants.

For example, the Nigerian IDEA team is quite straightforward on the difficulties of environmental enforcement:

> Most of the enforcers are pretty poor and are more interested in making extra money in order to make ends meet, rather than do what they are paid to do.

But the reward problem is hardly unique to developing countries. In many countries, an enthusiasm for an inter-sectoral approach can jeopardise a career, and within most governments, there is little impetus to liaise with departments competing for influence and limited resources. Brandl (1988), considering public administration in the USA, comments:

> the sorry condition of the public policy domain...lies in the fact that the great bulk of the government’s policies are implemented through bureaucracies – that is, through organisations in which workers are managed by being subject to directives, but rarely rewarded, penalised or inspired.

Although hardly a panacea, the experience of IDEA is that the informal network, through its system of regular, inter-disciplinary peer reviews, can provide a measure of systematic support or non-pecuniary reward, and is therefore a useful adjunct to the bureaucratic structure.

**Over-reliance on institutional reform**
Although institutional reform is often part of a quality management approach, there is a tendency in some developing countries to assume that if only the ‘right’ institutional arrangements can be brought into being, that adequate environmental management will result. This is not only fallacious, but risks diverting attention away from the need to meet environmental challenges by attention to the broad range of
national needs in terms of legislation, human resources, and finance as well as institutional structure.

Of particular concern in many countries is the question of whether an environmental agency or a ministry will deliver the best results. There is, of course, no correct answer. Baker (1989b) notes that this is a red herring, which can perpetuate the administrative trap for a host of reasons which he describes. In terms of the IDEA programme, the sharing of experiences within the network has resulted in a better perspective on this vexatious issue, with reference both to the literature on the topic, and to the actual experiences of team members associated with ministries (eg. Malaysia) and agencies (eg. Guyana, Nigeria). The value of the network in providing an informal, international forum on such issues cannot be measured, but this is clearly a useful outcome.

**Failure to learn from experience**

Within the traditional bureaucracy there is often little motivation to learn from past experience and even less to admit, analyse and learn from past mistakes. Raking over past failures is generally considered poor form, and seldom brings any career benefit. But such learning is essential for the type of adaptive environmental management argued here for it provides the rationale for active monitoring to generate feedback for making the necessary incremental adjustments to policy and implementation.

Here the action research approach adopted by the IDEA Programme can assist this learning process. The rationale is set out by Hulme(1989,p14):

> If...project evaluation is to contribute effectively to the process of 'learning from experience’ then a new focus is required. It will be necessary to move on from the cosy ground of formal structures, techniques and procedures to the more ambiguous and less clearly defined task of analysing learning processes within and between agencies involved in development initiatives. It will recognise that the lessons of experience are not neutral data, but a strategic resource.

In the next chapter, the contribution of the action research approach to incorporating experiential learning is described in more detail. Here we would only note that within IDEA vigourous but constructive peer review by the members of the network encourages participants to analyse failures of policy and implementation with an eye to future improvement.
Contextual constraints
A final important group of constraints on integration are contextual. These arise from the specific nature of national political systems, religious and tribal factors, and other cultural factors. They are part of a grey area of environmental management, for example, the influence of corruption, which can hardly be discussed but which must be addressed, if only obliquely and diplomatically. Once again the Nigerian IDEA team is forthcoming on their problems of environmental enforcement in the face of what they call ‘bigmanism’:

The enforcers are very much affected by this concept; they would rather not enforce anything against somebody occupying a position of power or influence.

This type of constraint is hardly unique to developing countries. The IDEA teams make a particular effort to understand these in formulating objectives and actions, and frank discussions at the regular review meetings are a helpful means of considering issues which may not normally be discussed or committed to paper. This substantiates the value of the IDEA Network as a means of support for difficult areas in management.

The erosion of historical skills and patterns
One other point, which is more or less outside the scope of IDEA but should be mentioned, is that in many countries the importation of western industrial processes and technology have tended to eclipse historical, indigenous environmental management skills, and cultural and legal support structures, which can have developed over many generations. This is not surprising, for technologies are not culture-free.

For example, the IDEA team leader in Ghana reports that his country has a long history of small scale, agro-forestry. Historically, a large tree was felled only after careful communal deliberation with the tribal chief and fetishist priest and a lengthy ceremony of reparation. With the importation of industrialised forestry, both the environmental knowledge and spiritual concern represented by this is disappearing. Similarly, past agricultural practices in Ghana based on shifting cultivation and sustainable agroforestry have been replaced by intensive, industrialised farming of monocrops which rely heavily on inputs of chemical fertilisers and pesticides. The IDEA project in Ghana finds that the soil erosion, eutrophication and chemical
pollution which are the by-products of such processes are rapidly and seriously degrading water supplies in the country.

In future, the successful integration of indigenous skills and knowledge with new technology will become even more important as other technologies, such as biotechnology, holds out promise of increasing the volume of food production as well as improving food quality in countries like Ghana. Although not particularly the focus of IDEA projects in past, the linkage between technology, environment and development is an area the IDEA/CCGTM network is well suited to consider, and an example of how a network can grow and learn within its own momentum. This point is taken up in chapter four.