A PRESCRIPTION FOR DEVELOPING EFFECTIVE IREM

Past experience demonstrates that ample attention must be directed at developing the necessary context under which integrated management approaches are to be applied. Our examination of common barriers to ecosystem management in the previous lesson provided insights into institutional and management characteristics that support and foster integrated resource and environmental management (IREM). Core characteristics are:

- Existence of a legitimate commitment to an ecosystem approach
- A management structure that is inclusive and coordinated
- Development of mutual policy
- Existence of mechanisms to foster effective communication and address conflicts.

Subcomponent measures for each of these conditions are summarized in Table 1 and discussed in further detail in the following sections.

LEGITIMACY

Gaining legitimacy among interested parties is likely the most critical factor for successfully implementing integrated management strategies and policies. Legitimacy simply refers to the acceptance of an environmental management direction by all segments of society. Sufficient commitment to the ecosystem approach must permeate through management agencies, stakeholders and the general public. Legitimacy also requires political support.

Although difficult to measure directly, political and management commitment can be assessed through a number of indicators. Strength of leadership is one important measure. Improving environmental quality and pursuing social and economic development, as defined by today's culture, are often conflicting objectives in both developed and developing countries. The recognition of real ecological limits and the acceptance of responsibility for making difficult choices are requirements of effective leadership. Thus, political representatives and governing agencies must do more than merely state the importance of attaining environmental and social development objectives. Strong leadership from government (i.e., both political and managerial) explicitly acknowledges the reality of having to make difficult trade-offs. An open admission of unavoidable environmental impacts to certain resources is often part of these difficult trade-offs.

The degree to which management expectations agree with the concepts of ecosystem management is a second measure of commitment. Traditional pressure to constantly validate environmental policies solely on the basis of visible and near-term results is incompatible with many of the defining features of IREM.

Table 1 Institutional prescriptions and evaluative measures for IREM

PRESCRIPTIONS	MEASURES
LEGITIMACY	Political and management commitment Public support
INCLUSIVE PARTICIPATION	Inter-governmental
EFFECTIVE COORDINATION	Intra-governmental Interdisciplinary Community participation
FORMULATION OF MUTUAL POLICIES	Development of shared problem definition Development of shared goals Pursuit of 'good' ecosystem management
EFFECTIVE COMMUNICATION	Effective information generation and dissemination Mechanisms for conflict resolution

Most obvious is the neglect of both ecological requirements and needs of future generations. Conventional expectations also fail to place sufficient value on intangible accomplishments, such as coordination and communication advancements that make holistic ecosystem management possible. The allocation of sufficient funding and personnel serves as an additional indicator of political and management commitment, especially during periods of financial uncertainty.

Legitimacy also requires public commitment. Traditional styles of management have generally assumed that apparent scientific validity was sufficient grounds on which to base a management program. However, because management targets are often socially derived and involve difficult trade-offs, progressive resource management requires adequate community support. This is true regardless of the underlying guiding management philosophy.

In traditional environmental management, public consultation often occurs during later stages of planning following the formulation of specific action strategies. A more holistic management approach would solicit public input at all stages of resource management decision making. It is futile to continue attempts at determining the most appropriate management plan if disagreement exists regarding the common management ethic. As such, it is important for environmental managers to move back a step and ensure that an intended management approach is supported by the local community.

INCLUSIVE PARTICIPATION/ EFFECTIVE COORDINATION

The involvement of all concerned parties is a second important condition for implementing integrated management. The adoption of a holistic, ecosystem-based perspective requires the integration of interdisciplinary teams from environmental management agencies. In particular, it is important that involvement be expanded beyond conventionally defined management agencies that are dominated by a

natural science perspective. Rather, socially oriented agencies (e.g., human health) should also be represented in order to convey perspectives in important areas such as community planning, social equity, social culture and heritage and business development. Such depth of inclusiveness requires communication among management agencies. However, linkages must extend beyond government offices. The integration of research, planning and management implies interagency coordination but also coordination with external researchers and resource practitioners.

Inclusive participation also means community and stakeholder involvement. As discussed previously, community endorsement is essential to legitimize the integrated management approach and ensure that proposed strategies reflect local values and priorities. Managers should elicit sufficient public input to enable adoption of proactive approaches that appreciate and address the social consequences of their technical prescriptions. Community involvement is also important since it reveals a wider array of viewpoints and values, thereby helping to ensure that the list of critical issues is comprehensive. Input from local communities also expands the amount and variety of information available for decision making. This, in turn, helps to better address problem complexity and to develop more effective solutions.

Formulation of Mutual Policies

A third essential condition of integrated management is the establishment of a common basis for decision making. Emphasis must be placed on establishing a problem definition shared by all parties involved.

This shared definition can be used to develop collective management objectives and formulate common policy to address ecosystem requirements. Particular attention must be directed at addressing problem uncertainty, making sure to include scientific, economic and social knowledge gaps.

The absence of a precise definition of integrated management that is shared by all parties should not preclude its use in management practice. Fuzzy concepts such as health, justice and education guide many other professions. What is needed is for environmental managers to explicitly acknowledge varying definitions among themselves and the greater public, and to work together to develop an understanding of terms suitable for their specific region and focus. Rather than persisting with definitional debates, managers should direct their efforts toward agreement on 'good' ecosystem management principles. Environmental managers would have to openly discuss the reasons behind their decisions and demonstrate how proposed actions reflect good ecosystem management. Proposed management strategies do not have to include all elements of integrated management. However, each element should be considered and a procedure developed for publicly documenting decisions. This approach substantially increases management accountability.

Effective Communication

Effective communication is the fourth identified element required for implementing integrated management.

The interchange of ideas and information is critical to fostering effective management. However, there is often a failure to establish open channels of communication. Good communication is essential to ensure adequate and timely information transfer among government agencies and other relevant parties. Thus, agencies should establish mechanisms that enhance informal communication and encourage the free exchange of information.

Conflict can also be a major barrier to integrated management. Conflict often arises as a result of misperceptions due to insufficient information or inconsistencies in the policies and objectives of different management agencies and programs. In order to resolve differences, environmental managers and policy makers need to invoke useful dialogue and, at times, incorporate formalized conflict resolution processes.

In order to harmonize their efforts, management agencies must also develop a shared understanding of how to address scientific uncertainty. Many debates revolve around whether certain environmental hazards actually exist. Current positions are often supported on the grounds that insufficient scientific evidence exists to warrant policy changes. However, an apparent lack of scientific evidence does not mean that a hazard does not exist. In some cases research may be very limited or even non-existent, making environmental managers resistant to change. It is imperative that caution and concern not be used as excuses for inaction, and that management programs evolve as conditions change and knowledge increases. As such, it is essential for managers to acknowledge uncertainty as a root cause of disagreements. At the same time, managers must share the burden of proof and place adequate emphasis on addressing information requirements.