

Determination of the Priorities of 'Actors' in the Framework of Environmental Management

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INTRODUCTION

In the summer of 1974, a large new aluminium plant near Hamburg was forced to reduce its production because of a fear that the fluorine emissions would damage gladioli grown by a near-by horticulturist (Hoffmann, 1974). The cost of this decision to the company concerned is alleged (Anon., 1974) to be DM 4 millions per month. Such a situation was certainly not foreseen by the company in 1969 when it was laying its plans to operate in that location. Yet this case is only one of many showing how environmental questions can introduce large-scale uncertainty into the industrial (and also governmental) investment, planning, and development, processes.

It is essential that decision-makers, in both the governmental or public and private sectors of society, understand the origins of such uncertainty if they are to avoid or at least minimize such wasteful and time-consuming setbacks. In other words, the environmental dimension of the issue under discussion must be recognized in advance and integrated into whatever decision is taken. This need for a new type of decision-making process represents the basis for a fundamental change in our attitude to the relationship between the maker of the decision and those affected by the decision. Traditional decision-making or 'management' is essentially egocentric and anthropocentric. What is emerging in terms of environmental management, however, is an approach to decision-making that is 'exo-centric' and 'eco-centric' (Boddewyn, 1974).

In order to develop the full implications of such a new management style, it will be useful to see why it originated and how it should operate.

DEFINITIONS

In an area where terminology tends to be rather loose, it seems desirable to start with a few definitions. Ten years ago, the U.S. Environmental Pollution Panel defined the term 'environment' as:

'The sum of all social, biological, and physical or chemical, factors which compose the surroundings of Man' (Anon. 1965).

This places emphasis on the broad scope of the environment in terms of practically everything that surrounds Man. This definition is further elucidated by the 'Stockholm Declaration' (U.N., 1972) that:

'Man is both creature and moulder of his environment, which gives him physical sustenance and affords him the opportunity for intellectual, moral, social, and spiritual growth. . . . Both aspects of Man's environment, the natural and the man-made, are essential to his well-being and to the enjoyment of basic human rights—even the right to life itself.'

Thus Man is firmly located as part of the global ecosystem, which depends on him much as he depends on it—even though the viewpoint of the environmental management process is fundamentally that of Man (i.e. the manager), whose decisions determine whether he himself or even the rest of the global ecosystem will survive at all.

Environmental management thus becomes the decision-making process which regulates the impact of Man's activities on his surroundings in such a manner that the ability of these same surroundings to sustain his development will remain unimpaired. The first of the basic interrelations accordingly emerges as being between society (which is the vehicle for human development), human activities (such as industry which helps society to attain its goals), and the natural environment (which is affected by these activities but whose state reciprocally has an impact on society). The special area of concern of environmental management is the area of multiple overlap and interaction between the natural environment, the societal environment, and the environment of human activities (e.g. the industrial environment).

It is a central feature of the conflicts which can arise over environmental issues that many different groups of people are involved. For convenience these groups

—whether they be composed of individuals or constitute actual groups, and regardless of whether they are organized and official or informal—are termed ‘actors’. The actors are those who claim a priority interest in a particular resource, and who will defend that resource in the name of altruistic or scientific concern for the ecosystem, of concern for the future of the human race or other biota, or just out of concern for their own immediate and basic needs (Perl, 1972).

THE MODEL

Another view of the environmental management process outlined above is shown as a simplified model in Fig. 1. Man draws upon components of his natural

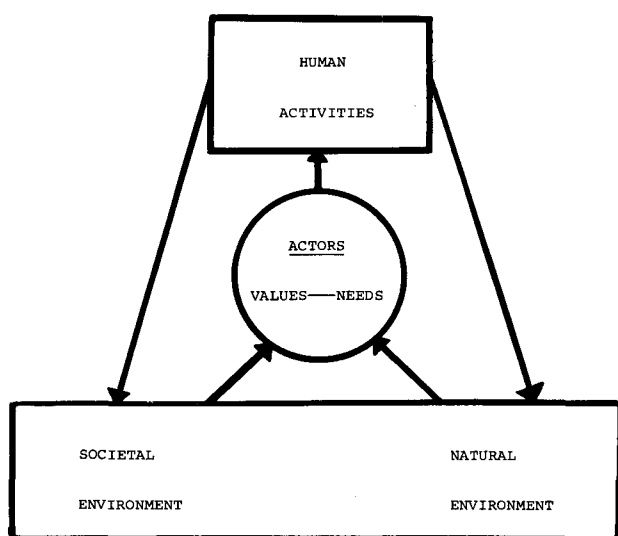


FIG. 1. *The process of environmental management.*

and man-made environment in his various activities, which aim at satisfying his various needs, and these activities in turn have repercussions on those same (or different) components of his environment. One of the aims of environmental management is so to regulate these demands and these repercussions that the system is maintained in a state of dynamic balance in both the short term and the long term.

Some features of this highly simplified model could be stressed, the first being that in this form it mirrors to some extent the concept of overlapping areas of concern of the natural environment, the societal environment, and the human activities or industrial environment. Furthermore, in this form the three ‘environments’ and Man interact freely with one another—with cause-and-effect links in various directions. Despite this, there are certain major pathways—such as Man historically drawing on the natural environment as the basis for activities which are aimed at satisfying his societal needs, with a resultant imbalance developing in the system.

ACTIVITIES

The activities are being treated in detail elsewhere in relation to the assessment of environmental impact (Matthews, 1975; Gladwin & Royston, in press). However, in order to complete the understanding of the scope of environmental management, it should be emphasized that this concept covers all human activities, though in terms of environmental impact the three major ones are industry, agriculture, and individual consumption—particularly by the city dweller.

The extent of the ‘activity’ is, however, extremely wide. Thus for an industrial activity, such as a construction project, a factory, or a particular product, it is necessary to consider the whole chain of activities of which the element mentioned is only a part. Examples of the components are:

- Production of Raw Material/Fuels;
- Transportation of Raw Material/Fuels;
- Construction of Production Facilities;
- Operation of Production Facilities;
- Distribution of Products;
- Use of Products; and
- Disposal of Used Products.

Furthermore, there are a range of induced or second-order activities associated with each main activity. For example, the increase in employment due to building a factory brings about induced activities in building houses, roads, schools, hospitals, shops, etc., while the project itself induces the construction of energy-production units, harbours, and so on.

ENVIRONMENT AS A RESOURCE

As we have seen, the environment can be viewed as a resource which Man draws upon for his ‘physical . . . , intellectual, moral, social, and spiritual growth.’ Environmental conflict is often concerned with the conflict between different groups who want to draw on the same resource, or conflict over the short-term use of a resource compared with its long-term conservation. Viewed from the perspective of resource use, the question of environmental management becomes a question of the proper means of resource conservation or, better still, environmental conservation.

In such a situation the decision-making process can be broken down into the following steps:

- What are the resources which Man needs?
- What are we doing or proposing to do which will affect these resources?
- To what actual degree will our activities affect the resources?
- Who else uses these resources?
- How can we modify our plans to provide for better sharing of these resources?

By developing such an approach to environmental management, we can begin to set up criteria for esta-

blishing priorities in the environmental area in terms of the needs which are satisfied by the various resources (MacNeill, 1971).

ENVIRONMENTAL COMPONENTS

These resources or environmental components can be considered as including both individual items *and* the systems that link these items together. Thus we have:

Physical Components

- Water
- Air
- Land
- Minerals and fossil fuels, etc.

and

- Tidal processes
- Climate
- Chemical and geological processes, etc.

Biological Components or Resources

- Animal wildlife
- Vegetation
- Microflora, etc.

and

- Food-webs
- Specific ecosystems, etc.

Man-made Components

- Towns
- Roads
- Fields, etc.

and

- Urban infrastructure
- Transport and communication systems
- Agricultural economy, etc.

Societal Components or Resources

- Social groups
- Political groups
- Cultural groups

and

- Social structure
- Political structure
- Legal structure, etc.

Each of these broad headings, such as 'water', obviously has to be broken down into all the different types of 'water' which are, or could be, associated with a particular project—e.g. sea water, tidal water, lagoons, freshwater lakes, rivers of various kinds, reservoirs, underground waters, rain-water, etc. Each component can then be examined to see to what extent it is affected by each activity of a given project.

ENVIRONMENTAL PRIORITIES

It is easy to see how the different components of a particular environment may be affected by the various activities which are associated with a given plan, decision, or action. This impact may or may not be important for the initiator of the action, and it may or may not be important for society as a whole (as represented by government and its special agencies); but it is likely to be very important to a few people who draw on that resource, or who use the environmental component to fulfil a need.

The uses of each of the many environmental components are manifold. Thus in the case of river water, it could be used for:

- Drinking water;
- Fishing grounds—commercial and/or private;
- Swimming;
- Boating and/or transportation;
- Cooling for industrial processes;
- Effluent transport and dispersion;
- Irrigation; or
- Cultural and historical amenities related to national heritage.

In practice, of course, the use of certain resources takes priority over others (cf. Kaynor & Howards, 1973).

The reason for this situation of varying precedence is that the cultural pattern of a particular society translates the basic needs of Man—such as the needs for health, relationships, knowledge, sense of purpose, etc.—into an idealized environmental 'mix'. Consequently the particular individual concerned—and indeed the whole of society—will compare the actual state of the environment with the 'idealized' environment (as represented by his value-system), and will then set his priorities or concerns according to the degree of shortfall or adequacy of the various components. The setting of environmental priorities is thus a process involving the comparison of two principal variables. The first of these is the environment itself, which is constantly changing—both due to, and in spite of, the activities of Man. The second is human value-systems, which change as a result of the current perception of the degree of fulfilment of Man's basic needs. The deeper understanding of the dynamics of the interactions of these two processes is one of the greatest challenges which we face in environmental management.

The lack of understanding of these interactions means that the identification of environmental priorities can only be achieved in a totally empirical way by looking at this system as a whole and working backwards from the 'actors' at the same time as working forwards from the environmental components (as in Fig. 2).

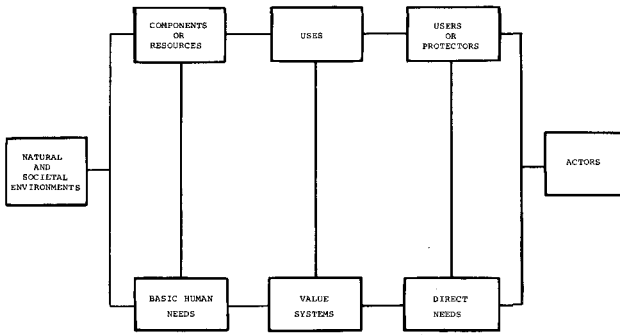


FIG. 2. Values and needs in the determination of environmental priorities.

While we cannot predict for certain what the particular environmental priorities will be in any given situation—e.g. one use rather than another, clean water rather than clean air, or natural components rather than societal ones—we can be certain that the priorities will change from place to place and from time to time. As Kotler (1972) says, ‘A starving man is not likely to be interested in the latest doings in the art world, nor even whether he is breathing clean air [as is] demonstrated by the complaints of the poor blacks that the clean-environment issue is less important than their need for food and better housing.’

While such a simple view of human nature and human needs should not be overemphasized, it is clear that priorities differ from one case to another, and that the ‘environmental manager’ should be very careful about the imposition of his own value-system on the people and groups that are or will be directly affected by the proposed activities. The only valid source of information on these value-systems and on the environmental priorities which result, is the people themselves. The implication, then, is that the environmental management process should be an ‘open’ management process—involving people who are traditionally outside the orbit of the decision makers of both the private and the public sectors of society.

THE CONCEPT OF THE ACTOR/ROLE

Having thus identified the extent to which the use of a particular environmental resource may be impaired, and how this impairment might lead to uncertainty being introduced into our plans by concerned external actors who feel a priority concern for the affected resources, we still do not have a clear view of how to identify these actors, and how to work with them when once they have been identified. As a first step to bringing these actors into clearer focus, it must be remembered that each ‘component’ relates to various basic human needs in the manner shown above. Thus:

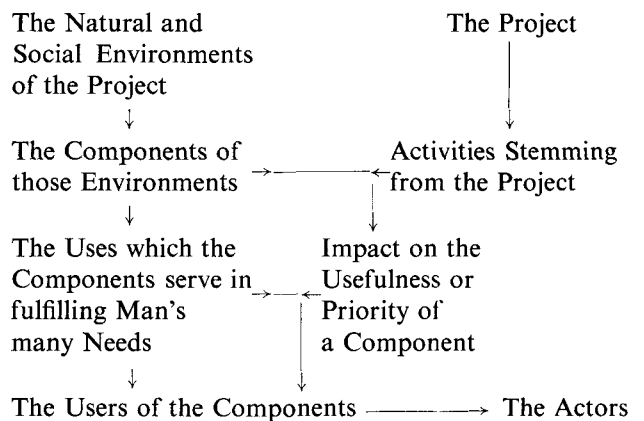
- It can be considered as a resource to be exploited to fulfil the basic physical needs of Man;
- It can be considered as a fellow member of the global ecosystem with which Man establishes a relationship that improves his state of emotional well-being;
- It can be considered as a part of the global knowledge-base which contributes to Man’s intellectual well-being (Brooks, 1964); or
- It can be considered as a part of the enigma which surrounds Man concerning his role in the world, and the striving for a solution of which provides the basis for a sense of purpose in life.

Hence, in relation to each environmental component, there are at least four major roles which people can assume:

- Exploiter or developer and hence egocentric user/protector/manager;
- Neighbour and appreciator, hence exocentric user/protector/manager;
- Scientist or other observer; or
- Student or follower.

The concept of ‘actor’ is therefore essentially that of the actor-in-his-role, and the specific management step of surveying potential actors is to examine the users of the components (e.g. the fisherman in the ‘fishing ground’ component of the ‘river water’ resource) and determine to what extent the priority use of a particular component is endangered by the proposed project or action.

Thus the logic of the identification of ‘actors’ follows closely the logic of Environmental Impact Assessment:



These actors might include, according to Wilson (1971):

- Governmental, judiciary, legislative, or executive, departments at an international, national, regional, or local municipal, level—e.g. U.N., E.E.C.,

- Ministry of Environment of a particular country (Cohen, 1972);
- Governmental specialized agencies at international, national, regional, or local, level—e.g. O.E.C.D., Danube Commission, Rhône River Basin Authority, Rijnmond Commission, Boston Metropolitan Development Commission;
- Non-governmental groups representing industry, unions, 'common cause' groups, political parties, academics, professionals, scientific societies, movements, clubs, mass media, etc.; and
- Individuals.

Each actor adopts the role that he will play in the ensuing debate relating to the project as a function of his own value-system, or priorities, which define the type of environment that he wants, and condition his perception of the impact of the proposed action on his idealized environment, or on the resource on which his environment is based (Craik, 1970).

It is important to note once again that the assignment of values is thus directly derived from the perceptions of the actors, and is removed from any bias of the professional environmental analyst. This has implications for the validity of the methodologies of environmental impact assessment in terms of the imposition of value judgements by the analysts, and also for the 'process' of environmental management which must now ensure that the actor's value-systems are built into the assessment. The above consideration implies a major shift from a 'remote analytical approach' to a 'pragmatic participatory approach' in the decision-making process.

Again it should be emphasized that the early identification of actors is essential if potential conflicts are to be avoided, as the most common cause of conflict is in varying perceptions by different actors of the potential use of the same environmental resource or component.

MODES OF ACTION BY 'ACTOR GROUPS'

So far we have only dealt with single potential actors. In practice, however, not all of these actors are mobilized, and even those that are in action are likely to form groupings to strengthen their common point of view. As the environmental management process is an 'open' process, strongly dependent on an input from the concerned actors, it is important to understand how such groups arise (Bryan, 1974).

The actual appearance, and the timing of the appearance, of an actor, and the subsequent groupings of actors to protect, or enhance, the quality of that part of the environment with which they are particularly concerned, will depend on:

- The nature and intensity of their concern;

- The political and institutional openings which exist, and through which they can express their concern; and
- The economic/political strength which they can bring to bear to further their concern.

The degree of perceived concern has already been covered above—as a function of the value placed on a particular resource, and the threat to that particular resource. Given to actors the desire to influence the decision or action which threatens their environment, the first factor, which defines the nature of the intervention, is the nature of the political institutions available to each actor.

If it is assumed that the concern will be expressed in some definite form either sooner or later, it is clearly better that it should surface sooner, through an 'official' channel, rather than later, by a violent eruption of frustrated emotion (Odum, 1974). In a well-organized social system, each actor has an appropriate 'channel'—whether it be writing to the local newspaper, carrying out a study, enforcing the law, testifying at a public hearing, joining the decision-making team, or voting at an election. Such openings include:

- Legal injunction or regulation;
- Sponsorship of concern through lobbying of elected representatives;
- Sponsorship of concern through mass media, letters, or advertisement;
- Right of petition or referendum;
- Use of political/electoral machinery;
- Publication of viewpoint, or of results of relevant studies;
- Testifying in committee, or in a public enquiry;
- Proposal, and implementation, of special legislation; and
- Participation in planning and/or decision-making.

Any of these openings will be used by governments, non-governmental organizations, or individuals, either to support a proposed action or, alternatively, to attack it. Table I shows how some channels are more appropriate than others to certain types of conflict situation.

In the absence of such openings, other means may well be used—e.g. strike action, boycott, or, ultimately, violence. In any event, frustration at this stage will often lead to a re-grouping of actors and a strengthening of their cause. In general it should not be supposed, that the lack of a suitable channel for intervention is due to a lack of goodwill on the part of the proponent, or of society in general: in most cases it is purely a matter of the state of evolution of social and political institutions, which are only developed by the crystalli-

zation of specific conflict issues. Hence, in a very real sense, the institutional environment is a major factor to be taken into account in group formations, and it is for this reason that institutions, and law, are considered, at least from this point of view, as an environmental resource.

The level of the economic or political strength of a protest group is obviously another factor of major importance in determining tactics. If a proponent or opponent group is very strong, in economic or political terms, it might seek to neutralize those who would oppose it merely because of its power, by sponsoring studies or reports from an 'independent' source. If the proponent or opponent body is weak politically or economically, there is an even greater tendency to form an alliance of individuals, or groups, which has sufficient common ground to remain a coherent force during any ensuing debates.

TABLE I

Channels Open for Registering Opposition.

ACTION PROPOSED BY: ACTION OPPOSED BY:	GOVERNMENT	INDUSTRY
GOVERNMENT	— INTERNAL COMMITTEE	— CONSULTATION GOVERNMENT/INDUSTRY — LEGAL ENFORCEMENT
INDUSTRY	— CONSULTATIONS GOVERNMENT/INDUSTRY — LOBBYING	— CONSULTATION INDUSTRY/INDUSTRY
Public	— Protest Meetings — Public Hearing	— Protest Meetings — Lobbying — Mass Media — Injunction — Public Hearing

The resulting combination of the type of actor, the availability of a platform, and the strength of this alliance, is likely to lead to various sets of tactics, as shown in Table II. These tactics should only be taken as indicative. Many different types of action could be envisaged, depending on the local situation; but, whether one is in the position of proponent or opponent, it is important to set out as clearly as possible the tactics which it is planned to use oneself, and those which are likely to be adopted by others (Like, 1971).

With the identification of the environmental components and their uses, of the roles adopted by the

users, of the needs and values of the affected society, of the potential actors and their political/economic strength (and hence a tentative identification of the groups which could evolve and the tactics that they might adopt), most of the preliminary components are available for inclusion in the environmental management process.

Essentially this means that the decision is taken in accordance with the interests of those who are affected by the consequences of the decision. Hence the foregoing analysis has, as one of its primary objectives, the setting up of the consultative or advisory process which can provide the correctly balanced input of needs and values to the actual decision-making process.

Once again the threefold nature of the area is seen—the concern of some groups being with the possible curtailment of their activities, that of other groups being with the quality of the natural environment, and that of yet other groups being with economic and social development.

It is interesting at this point to note that this consultative concept is based not so much on a sense of interdependence between the different members as on their interdependence. In other words, it is important for the manager to emphasize that mutual consultation should be seen by each actor as a way to contribute to a decision which is more satisfying to all concerned than one that might be taken and enforced unilaterally if other views were not made known.

INTERDEPENDENCE OF ACTORS AND DECISION-MAKERS

An illustration of this process is found in environmental legislation, which can be considered as a three-sided relationship involving emission control, immission standards, and planning. If the law confines itself to emission-control standards, industry may comply and will then be extremely surprised by any introduction of a new and tighter standard. The reason for this change—this uncertainty introduced into the industrial planning process—could well be that more factories have been built in the area, and hence the background level of pollution (the immission level) has become unacceptably high. Equally, if the emphasis were shifted from controlling the industrial environment to controlling the quality of the natural environment, i.e. immission levels, the first factories in a clean area would be allowed to emit freely until the acceptable immission level was reached, after which no subsequent emissions could be allowed—the situation being controlled either by zero discharge or by not permitting any more industrialization.

Immission levels also change with new epidemiological and ecological knowledge, and with changing priorities of economic success versus ecological quality. In these cases the planned level of economic

TABLE II
 Typical Tactics Adopted by Various Groups.

	GOVERNMENT-INITIATED PROJECT	INDUSTRY-INITIATED PROJECT
GOVERNMENT TACTICS	<ul style="list-style-type: none"> — Internal commission — Interdepartmental management committee — ATTACK BUDGET, TAXATION, GRANT, MANDATE BASE 	<ul style="list-style-type: none"> — Threat to curtail — Enforce prevailing planning and other legislation — Conduct detailed on-site investigation — DEMAND IMPACT ASSESSMENT
INDUSTRY TACTICS	<ul style="list-style-type: none"> — Lobby government directly and <i>via</i> shareholders — Request consultation — Get support of other government agencies — Get 'independent' report and support 'industry' advertising — Seek off-setting proposals, compensation — Get support of unions — DEMAND IMPACT ASSESSMENT 	<ul style="list-style-type: none"> — Seek consultation — Arrange trade-off deal — Call in arbitration — Lobby industry association — SEEK INJUNCTION/DAMAGES
PUBLIC TACTICS	<ul style="list-style-type: none"> — Exploit mass media, letters, tv, advertisements — Form alliance even with government departments — Lobby governments — Search for weaknesses in proposal and exploit — Protest meeting — Exploit elections — Seek legal recourse / injunction — Obtain professional 'champion' and finance studies — Demand public hearing and testify — Petition for referendum — DEMAND IMPACT ASSESSMENT 	<ul style="list-style-type: none"> — Exploit mass media, letters, tv, advertisements — Form alliance with workers — Lobby government and the industry — Search for weaknesses in proposal and exploit — Direct action, protest meeting, boycott — Exploit elections demanding government intervention — Seek injunction/sue for damages or law enforcement — Obtain professional or governmental 'champion' to finance studies — Demand for government to call public hearings and testify — Conduct opinion poll — DEMAND IMPACT ASSESSMENT

development would not be achieved. Clearly then, emission control plus imission standards are required and must be compatible with comprehensive and detailed planning for the development of the region in terms of how many of what sizes and types of plants should go where.

Thus a procedure which minimizes the uncertainty involved in industrial decisions involves also the simultaneous and compatible application of emission control, imission standards, and planning procedures. This recognition of the interdependency of (1) the private sector which creates the emissions, of (2) the health and conservation groups concerned with environmental quality, and of (3) the public sector concerned with social and economic development, serves as a good example for the wider consideration of decision-making procedures in environmental management (Gregory, 1974).

In addition to this, all these last three groups must recognize their interdependency with the 'users' of the environment, who are not only directly affected by the decision, but who also have a changing set of priorities with regard to the type of environment they wish to live in (Ven *et al.*, 1974). The establishment, by many companies, of the central function of environ-

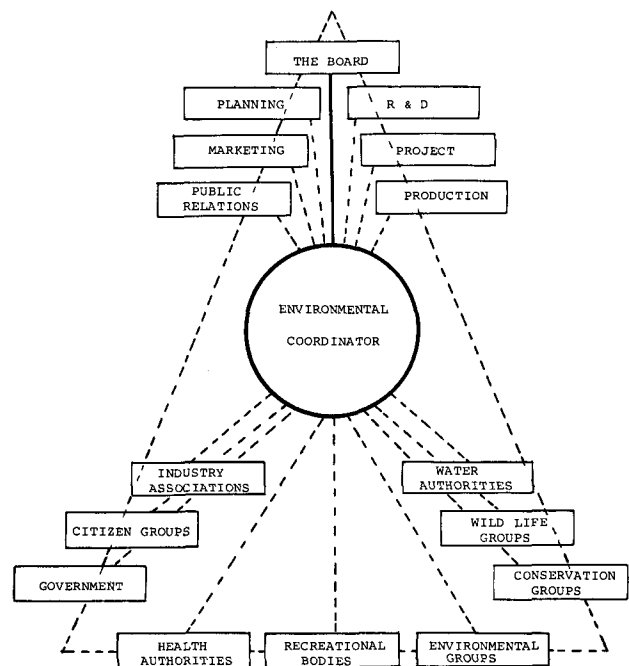


FIG. 3. The interactions of government, non-governmental, and industrial, groups and the central role of the environmental coordinator.

mental coordination,* indicates the first recognition of this need. Fig. 3 shows the relationship of the environmental coordinator to the organizational structure of his company and to the external groups of actors.

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SUMMARY AND CONCLUSIONS

One major source of uncertainty in industrial planning is due to the conflicting uses of environmental components by the proponent of an action and the various 'actors' who share the proponent's environment. These actors may be government agencies, health authorities, conservancy organizations, or individual citizens. As they all share the environment with the proponent of the action, there should also be a sharing of the decision-making process.

Difficulties of identifying potential actors at the non-governmental level can be reduced by undertaking a rigorous analysis of the environmental components, of the uses which they serve, of the way in which the uses may be impaired by proposed activities, and hence of which users are most likely to be concerned.

The result of such an approach, which constitutes a new style of management 'from the outside-in' rather than 'from the inside-out', is that industry must involve itself in a broader-based and more imaginative planning process than hitherto. Failure by industry to do this will result in either a progressive erosion of the freedom of decision-making (by increased government interference) or in progressive blocking of industry's plans and consequently a reduction in its ability to achieve its corporate objectives of profit-growth-security in the face of conflict over its operations, its siting proposals, and its products.

Suitable realization by managements of the interdependence of their actions with those of others should lead to the addition of a truly environmental dimension to their traditional function—even without the governmental intervention and pressure-group counter-activity which have become increasingly evident with the growth of the environmental movement in recent years.

* A referee comments: 'The trouble is that most companies have not set up any kind of environmental coordination, central or otherwise'.—Ed.

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