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METAPHORIC REVOLUTION

-- in quest of a manifesto for governance through metaphor

A J N Judge

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Union of International Associations
40 rue Washington, B-1050 Brussels, Belgium

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INTRODUCTION

The basic point of this paper is the individual and collective need to respond creatively to the apparently fragmented reality of society, whether within or between cultures. In the light of recent historical trends it is very difficult to sustain the prevailing assumption that people and groups can (or should) all be persuaded -- within the foreseeable future -- to subscribe to any one particular paradigm, belief system or form of sustainable development (or the institutions and policies they engender). Rather than placing all hope in the possibility of finding this one magical "mega-answer", through which all ills are to be finally dispelled, a radical alternative can be usefully explored.

Conventional approaches to social transformation tend to be based on changes to material conditions (as well as to social and attitudinal structures) recommended as necessary and desirable by some group in power in the light of advice by some elite group of experts. Such "mono-perspective" approaches tend to respect the views and needs of the majority in any territory, possibly with compromises to take account of minorities. It is extremely difficult for such changes to be implemented so as fully to meet the perceived needs of all on a socially and culturally diverse planet. This is a major reason for the fragmentation of conceptual and belief systems and their associated institutions. A contrasting approach would be one in which such epistemological divergence was encouraged -- moving with the process of fragmentation rather than attempting vainly to oppose it. This is in accord with a fundamental principle of Eastern martial arts. The integration and consensus so desperately sought is then achieved in a more subtle and elegant manner.

The "epistemological diaspora" advocated here is already a reality of increasing significance -- although it may be said to have commenced with the diversification of man's first reflections on the universe. The use of metaphor as advocated here could however result in a metaphoric revolution which would dramatically encourage such epistemological divergence in the interests of those who engage in it.

Such a revolution would encourage and enable people and groups to select, adapt or design their own conceptual frameworks and manner of perceiving their environment as well as their own way of comprehending and communicating about their action on it. Whilst they might at any one time use frameworks favoured or advocated by others, they would in no way feel obliged to continue to use them.

The emphasis would shift from the present situation of dependence on specialists, experts and political leaders putting forward "ultimate" explanations, models and developmental policy recommendations. The implication that such explanations should be accepted in preference to all previous ones would then become questionable. Earlier explanations, no longer need necessarily be rejected as reflecting various levels of misunderstanding or downright stupidity -- irrespective of any fundamental disagreement amongst the elites responsible for them. Such a shift in emphasis honours the complexity and variety of peoples needs and the increasing difficulty for the average person to even remotely comprehend the justification of such explanations. These they are therefore expected to take on trust -- but which they often simply ignore.

In a condition of continuous metaphoric revolution an explanation loses its character of permanence as the authoritative pattern of reference. Rather people select between alternative explanations according to their circumstances and immediate needs -- shifting to other explanations as the circumstances change. This does not preclude the possibility of staying permanently with one explanation -- but continuously shifting between explanations becomes a meaningful alternative.

Under such circumstances the value of an explanation to the user comes as much from the consciousness of having chosen it -- however temporarily -- as from its intrinsic merits. This is equivalent to the value attached by a climber to the particular branches of a tree or ledges on a mountain -- they are of value as part of the climbing process in providing temporary security and a foundation for further progress. But equally, staying on any one ledge may offer a satisfactory view of the world which reduces any need to continue climbing.

It might be considered strange that in a rapidly changing world, considerable effort should be made to incarcerate comprehension of society in particular explanations. In a context of planned obsolescence, changing priorities and shifting fashions, such explanations do not last long. It would seem to be more appropriate to open up the possibility of shifting explanations, thus freeing people to explore the many dimensions of comprehension and the opportunities to which they give rise.

The major objection to the acceptance of such "epistemological chaos" is the seeming loss of permanence and order which have been the object of so much effort in the past -- and what of the various "bodies of knowledge" so painfully built up? How could society function under such circumstances? Can development be sustained in such a turbulent epistemological context? The argument of this paper is that to a large extent it is already, but by attempting to avoid such seeming chaos, policies and institutions are designed which are inadequate to the real challenge of sustainable development.

This paper explores the relevance of governance through metaphor and some of the questions to which this perspective gives rise. The paper follows on earlier work on metaphors published in the *Encyclopedia of World Problems and Human Potential* (1). The first sections recap some arguments presented in two subsequent papers on *Comprehension of Appropriateness* (2) and on *Governance through Metaphor* (3), both produced through the United Nations University project on Economic Aspects of Human Development. (Extracts from the second paper have recently been circulated in the newsletter of the US Club of Rome (4)).

CONTEMPORARY CRISIS OF GOVERNANCE

Scope of governance

The experience of the past decades in designing and implementing international development-related strategies, and governing the process through which they become possible, is not especially encouraging. Major disaster has been averted but the early hopes are far from being fulfilled. The situation has become worse for many and the risks of major disaster have increased for everyone. Particularly tragic is the recognition that the international system of institutions is defective in its management of the development process, riddled with inefficiencies and lacking in credibility, especially in the eye of public opinion. This situation has recently been officially documented for the first time for the United Nations system by Maurice Bertrand of the Joint Inspection Unit (5). It is within the constraints of this context that the sustainability of development advocated in the Brundland Report (6) needs to be considered.

This paper follows earlier work on the challenges of collective comprehension of appropriateness and the special constraints it imposes on the design and implementation of any development initiative (2). The paper addressed the resulting challenges for "governance". This term has been resuscitated by John Fobes, former Deputy Director-General of UNESCO, in order to promote a reconceptualization of the commonly used terms "governing" and "government". In recent remarks to a Club of Rome conference he states:

"The concept of governance emphasizes that order in society is created and maintained by a spectrum of institutions, only one of which is known as government. By examining that spectrum at all levels of society, we can obtain a broader sense of "governability" as it is exercised in policy-making, in providing services and the application of law. Order is certainly part of governance. But I believe that one should also consider governance, at least at the international level, as a global learning exercise. By so doing, politicians, practitioners, activists and academics may expand their thinking beyond the traditional concepts of government, of international organizations and of the exercise of sovereignty". (7)

Of special value in Fobes' remarks is his creative response to the complexities of the situation. He recognizes that the processes of governance have become increasingly complex and are no longer strictly limited to governments. He points out that the fact that so many individuals and groups, whether NGO's or IGO's, at all levels, want to "get into the act" of learning, if not governing, is both hopeful and chaotic. It is for this reason that he points to the need to re-examine attitudes to different "learning modes". *"Learning, and learning to "govern", or to participate in governance, on the part of citizens and their civic and special interest groups, have become part of the survival skills for nations and for humanity as a whole."* (7)

The dimension of the challenge is indicated, if only within the international community of organizations, by that the latest edition of the *Yearbook of International Organizations* (8). It identifies 29,800 international governmental and nongovernmental bodies, acting in 3,000 subject areas, on some 10,000 perceived "world problems" documented in the *Encyclopedia of World Problems and Human Potential*(1).

The focus in this paper on the use of metaphor in governance is one response to the recognition articulated by Fobes that: *"The stresses from social change that require a broader sense of governance have called into play Ashby's "law of requisite variety" (which may be interpreted as stating that "the regulators or governors of a system must reflect the variety in that system in order to be of service to it").* This applies as much to the government of a country, as of a small group, or even an individual's endeavours to govern his or her own behaviour in a turbulent social environment.

The question explored here is that of the need to provide a sufficiently rich medium for the

communication of complex insights in a world in which the possibilities of governance are constrained by the explanations and proposals that can be made meaningful to public opinion. The complexity of econometric and global models in their present form makes it improbable that they can be of any significance to those who must justify their actions to public opinion and receive their mandates from an informed electorate.

Clusters of dilemmas

This section endeavours to order the principal factors contributing to the contemporary crisis of governance and of bringing about any form of sustainable development. Such factors may be clustered of course in different ways. The number of such clusters it is useful to select is partially determined by constraints explored in earlier papers (9).

In order therefore to maximize the number of explicit factors identified as contributing to the crisis of governance the following eight clusters are proposed:

(a) **Simplicity:** Governance, to be feasible, requires that the number of factors or issues on which a mandate is sought, or for which policies must be developed, should be limited in number and defined simply enough to be meaningful. They should be interesting rather than boring. Failing this the preoccupations of governance lose their focus, and the governing body becomes vulnerable to loss of its mandate in favour of some other coalition whose focus is appropriately simple. Conventional strategies in response to this dilemma include:

- only focussing on those issues which through their identification can conveniently come to be perceived as important as the result of a self-fulfilling process;
- only focussing on a few macro-issues which lend themselves to a multiplicity of simple descriptions, whilst failing to encompass their inherent complexity.

(b) **Complexity:** Governance, to be practical, must necessarily deal with the complexities and crises of the real world, whether or not they lend themselves to any meaningful ordering or pattern of mandates for specialized agencies. Failing this governance is overwhelmed by the many pressures of the moment and becomes vulnerable to loss of its mandate in favour of some other coalition that can deal with them. Conventional strategies in response to complexity and the associated information overload include:

- elaboration of an array of administrative procedures, plus filtering and delaying mechanisms for every conceivable circumstance;
- displacement of new issues and pressures by other issues and pressures for which procedural responses already exist.

(c) **Requisite variety:** Governance, in order to be able to exert some long-term degree of control over the dynamics of society, must itself be sufficiently varied in its policy-making capacity to respond to the variety of issues which may emerge. Failing this the governing body is caught off-balance by the dynamics of the society and is vulnerable to loss of its mandate in favour of some appropriately dynamic coalition. Conventional strategies in response to this challenge include:

- emphasis on short-term issues and programmes to disguise any lack of ability to handle long-term trends;
- emphasis on publicizing long-term projects, whilst disguising the degree to which they themselves will aggravate other problems for which no remedy has been envisaged.

(d) **Operational relevance:** Governance, in order to be credible to those mandating it, must be able to formulate its policies in a form which is readily implementable, especially in response to issues which call for immediate action. Failing this the governing body is perceived as irrelevant to the solution of pressing issues and is vulnerable to loss of its mandate in favour of some more practical coalition. Conventional strategies in response to this requirement include:

- emphasis on short-term remedial programmes, irrespective of whether these effectively respond to the problem which evoked their creation;
- focussing attention away from the more obvious solution onto the necessity for some alternative programme of effective remedial action (for which an appropriate mandate may not be obtainable).

(e) **Complementarity:** Governance, in order to attract support from a plurality of unrelated (or even mutually hostile) sectors, must be able to configure those sectors into a pattern such that they appear as complementary to one another. Failure of the governing body to establish such a context, or community of interest, leads to fragmentation and erosion of its support, rendering it vulnerable to any coalition of wider appeal. Conventional strategies in response to this requirement include:

- promotion of superficial consensus in such a way as to disguise irreconcilable differences between sectors;
- cultivation of distinct communications with each sector, concealing any contradictions between the undertakings made.

(f) **Difference:** Governance, in order to respond effectively to disagreement, critical opposition and alternative insights, must develop some means of dealing with incommensurable positions. Failure of the governing body to develop such skills makes any form of co-existence with its opponents unstable and renders it highly vulnerable to attack. Conventional strategies in response to such differences include:

- disparagement, neutralization or suppression of any dissidence (possibly through judicious manipulation of information), implicitly denying any merit in such viewpoints;
- efforts to persuade the dissident group to modify its position or to coopt its members.

(g) **Containment:** Governance, to be able to maintain its domain of influence, must reinforce a certain order within definable boundaries. Failure of the governing body to do so results in an open system vulnerable to the effects of uncontrollable variations in external influences. Conventional strategies in response to this requirement include:

- strengthening of boundaries and gate-keeping functions, justified by the necessity of excluding "undesirable" influences;
- limiting freedom of action in order to facilitate the maintenance of the favoured order.

(h) **Empowerment:** Governance, to be able to encourage the growth and development expected by those who mandate it, must be able to empower people and groups to undertake and sustain new initiatives of their own accord. Failure of the governing body to do so results in stagnation and disaffection rendering it vulnerable to replacement by a coalition encouraging such initiative. Conventional strategies in response to this requirement include:

- mobilization of people and groups in support of some defined programme, irrespective of the initiatives they would otherwise choose to take;
- manipulation, subversion or cooptation of initiatives if they achieve any degree of social significance.

Fourfold principle of uncertainty in governance

As argued elsewhere (10), especially in the light of epistemological problems in the social sciences which suggest that a generalized Heisenberg principle operates in the social sciences (11), the dilemmas of the previous section could well be summarized in a four-fold principle of uncertainty as follows:

(a) A governing mode in which it is easy to say "no" overtly, makes it very difficult to say "yes" except covertly, whereas one in which it is easy to say "yes" overtly makes it very difficult to say "no" except covertly.

(b) A governing mode which encourages overt declarations of consensus has great difficulty in accepting fundamental differences in practice except covertly, whereas one in which differences are realistically accepted has great difficulty in establishing consensus except covertly.

(c) A governing mode of requisite variety for long-term continuity has great difficulty in elaborating appropriate short-term programmes except covertly, whereas one in which operationally relevant short-term programmes are easily elaborated has great difficulty in ensuring any policy of long-term significance except covertly.

(d) A governing mode which can be made meaningful and inspiring has great difficulty in taking into account the full complexity of a practical situation except covertly, whereas one which takes into account that complexity in all its operational detail cannot be meaningful and inspiring except covertly.

Use of the terms "overt" and "covert" could be considered as unnecessarily value-loaded. Alternatives might be "formal" and "informal" or else "public" and "private".

The merit of using "covert" is that it emphasizes the potential for procedural abuse and manipulative processes in certain situations, namely insidious corruption. These points are perhaps well illustrated by the difference between the overt processes in international organizations and those occurring behind the scenes (and covered by security clauses in employment contracts).

Whilst there is much overt discussion of the efficiencies in the overt processes (as in the recent reviews of the United Nations and UNESCO), the dysfunctional features of the covert processes are only discussed in corridor gossip and newsworthy exposés. There has never been any overt study by an international body of corruption in governance at all levels, and especially of corruption in such international bodies. Yet "corruption" is frequently cited in informal reports as a cause of inefficiencies in the implementation of programmes.

This paper is not about corruption but about the inability to fully encompass conceptually the processes of governance in an adequate model or set of models. This results in grey areas in which dysfunctional processes proliferate, however carefully the overt processes are defined. These are the shadow side of governance. Any attempt to envisage new approaches to governance that neglects this dimension, or fails to come to terms with it, must necessarily fall victim to the ways in which it undermines effectiveness.

Sustaining development: the epistemological challenge of governance

Sustainable development is usually conceived as a problem of instrumentality - namely deploying the available organizational and conceptual resources to achieve what seems appropriate. An earlier paper (2) argues that this approach fails completely to recognize the inherent difficulties in comprehending the instrumental design which is appropriate - and of communicating that comprehension, with all its nuances through the processes of governance.

The following hidden assumptions were listed to illustrate this failure:

1. That the mode is inherently better in some absolute sense in that,
 - conversely, the old mode must necessarily be permanently abandoned as historically outmoded;
 - the defects in the new mode will not eventually prove to be as significant as those under the old mode.
2. That the new mode is equally appropriate to all societies and to all sub-cultures within those societies, especially if adapted to local contexts and requirements.
3. That, if it can be comprehended, represented and discussed within one frame of reference, the mode can nevertheless be of sufficient complexity to respond to the concerns perceived by constituencies preferring other frames of reference.

4. That an appropriate new mode can be readily articulated in its entirety, rather than necessarily provoking a set of partial comprehensions which people, of whatever level of competence, experience considerable difficulty in integrating/reconciling, even if they are motivated to do so.

5. That an appropriate mode can be readily implemented by a consistent pattern of actions, rather than requiring set of seemingly inconsistent and incompatible actions, each favoured or condemned by some different configuration of constituencies.

6. That the coherence and integrity of an appropriate mode derives from a hierarchical relationship between its components, as opposed to other possibilities with characteristics such as:

- configurations of incommensurable conceptual or organizational groupings in which the hierarchical dimension, if any, is secondary or implicit;
- cyclic phases of emphasis over time;
- alternation between seemingly opposed or contradictory policy modes.

7. That credible articulations of a seemingly attractive approach do not effectively obscure hard realities to which the advocating group may be insensitive (or anxious to avoid discussing in order to further some hidden agenda).

8. That any readily devised approach will not necessarily provoke counter-strategies or strategies which exploit the situation created by the implementation of the new approach, undermining it and eventually rendering it ineffective.

9. That, during the implementation of the appropriate new mode, it is possible for any given constituency to avoid being trapped into recognizing any necessary practical strategy in either a "positive" or a "negative" light, and consequently to be entrained to further or oppose that partial strategy, without consideration of whether such effort is excessive in the light of the contextual mode to which it contributes.

10. That the essence of being human, and of human development, involves processes free from ambiguity, paradox and counter-intuitive phases, permitting an appropriate new mode to be articulated in a manner free of such non-rational characteristics.

The remainder of that paper considered the probability that the appropriate global socio-economic mode of organization is necessarily more complex than can be recognized or comprehended within any particular frame of reference - whether conceptual or organizational. The question here is how to describe and handle this epistemological challenge for governance.

The question has been helpfully highlighted by the recent study prepared by Development Alternatives (New Delhi) on "A transcultural view of sustainable development; the landscape of design" as a contribution to the final deliberations of the World Commission on Environment and Development (12). The study outlines "transform grammar of design" based on a "phase space" model using a n-dimensional space to show the evolution of a system (where n is the number of degrees of freedom, or independent variables, needed to describe the system at the level of recursion or aggregation of the model under study). The work draws on recent theoretical advances, including those of Shannon (1962), Ashby (1956), Beer (1979), Prigogine (1985), Zadeh (1965) and de Laet (1985).

It is apparently necessary to "freeze" any such "epistemological landscape" into a well-defined model in order to navigate over the landscape. And within the short time scales (and electoral periods) characteristic of the majority of the problems of governance (and the budgetary periods of international organizations) such a landscape may legitimately be considered to be unchanging. Governance can then endeavour to move the social system over the landscape.

The epistemological problem lies in the fact that different constituencies are sensitive to different dimensions of the "n-dimensional phase space" out of which the model is extracted or abstracted. Consequently the epistemological landscape perceived by one group may be very different from that which is meaningful to another - such that each may be the basis for the strategies and programmes of a different intergovernmental agency. This has the further consequence between agencies of reinforcing incompatibilities, contradictions, competition for resources and even the undermining of one strategy by another - as has been noted on many occasions, and most recently by Maurice Bertrand (5).

It is therefore less fruitful to focus initially on any particular way of viewing the n-dimensional phase space. Rather it would seem more appropriate to consider the epistemological challenge of how to open up any "window of comprehension" onto such complexity - and how to perceive the relationship between such windows, whether used simultaneously (by different groups) or consecutively.

Before taking the argument further it is necessary to avoid the trap of using the phase space notion itself as a fundamental window. It is a powerful tool but not necessarily convenient for all. "Complexity" has itself recently attracted attention in its own right (13). "Chaos" is now a key descriptor for some interesting breakthroughs in mathematics (14). Although it would be incompatible with the theme of this paper to favour any one such description, it is important to recognize the range of attempts to indicate the epistemological attributes at this level of abstraction.

It is somewhat ironic that the earlier Greek philosophers made use of the Greek term "hyle" (matter) and viewed such matter as fundamentally alive, either in itself or by its participation in the operation of a world soul or some similar principle. Characteristically they did not distinguish between kinds of matter, forces and qualities nor between physical and emotional qualities, making any such distinction with an important degree of ambiguity.

The contemporary epistemological challenge remains one of dealing with a form of "conceptual hyle" or "mindstuff" within which the variety of possible models and concepts is implicit and from which they may be explicated, as described by David Bohm (15). This is not to suggest that the "hyle" is purely conceptual. As contemporary studies of this intimate relationship between consciousness and fundamental understanding in physics are clarifying, there is a matter-consciousness continuum of perhaps greater significance than the space-time continuum. Relevant insights from Eastern philosophies are also increasingly (16,17) noted. The comprehension of features explicated from the "hyle" is as much constrained by the realities dear to materialists as it is by individual (or collective) ability to formulate appropriate models of requisite variety and to communicate them.

The challenge of governance is to enable society to navigate through the "hyle", avoiding catastrophic disasters in a manner such as to sustain a process of "development" over the long-term - whatever "development" is understood to mean in the short-term under different circumstances, within different cultures and at different stages of that process. But since governance is above all constrained by daily practicalities, there is a dramatic problem of ensuring some kind of meaningful epistemological bridge between the multi-dimensional fluidity or ambiguity of the "hyle" - with all the innovative potential that implies - and the concrete socio-political realities to which it must respond effectively or be called into question.

METAPHOR AND ITS RELEVANCE

Conventional applications

Metaphor is a classic device through which a complex set of elements and relationships can be rendered comprehensible - when any attempt to explain them otherwise could easily be meaningless. It is the peculiar strength of metaphor that it can convey the essential without excessive oversimplification, preserving its complexity by perceiving it through a familiar pattern of equivalent complexity.

A metaphor according to Nelson Goodman, "typically involves a change not merely of range but also of realm. A label along with others constituting a schema is in effect detached from the home realm of that schema and applied for the sorting and organizing of an alien realm. Partly by thus carrying with it a reorientation of a whole network of labels does a metaphor give clues for its own development and elaboration... A whole set of alternative labels, a whole apparatus of organization takes over a new territory... and the organization they effect in the alien realm is guided by their habitual use in the home realm. A schema may be transported almost anywhere. The choice of territory for invasion is arbitrary; but the operation within that territory is almost never completely so... which elements in the chosen realm are warem, or are warmer than others, is then very largely determinate. Even where a schema is imposed upon a most likely and uncongenial relam, anticedent practice channels the application of the labels." (18, p. 72-74)

There is a very extensive literature on metaphor (19). Interest in the subject outside the literary world has markedly increased in recent years. Of special interest to many authors in the social and natural sciences is the degree to which concept formation is guided by metaphor or may even be totally based on metaphor. There appears to be increasing recognition of the power of metaphor to facilitate communication in situations where groups are fragmented by disciplinary, language or educational barriers.

Cognitive functions

It is now recognized that metaphors permeate use of both everyday language and the jargons of many disciplines including physics (20,21). As George Lakoff and Mark Johnson note: "*Metaphor is for most people a device of the poetic imagination and the rhetorical flourish - a matter of extraordinary rather than ordinary language...most people think they can get along perfectly well without metaphor. We have found, on the contrary, that metaphor is pervasive in everyday life, not just in language but in thought and action. Our ordinary conceptual system, in terms of which we both think and act, is fundamentally metaphorical in nature.*" (22, p.3)

Lakoff and Johnson demonstrate this with many examples which are confirmed in Roger Jones study of *Physics as Metaphor* (21). The authors conclude that "*If we are right in suggesting that our conceptual system is largely metaphorical, then the way we think, what we experience, and what we do every day is very much a matter of metaphor.*" (22, p.3) They started their work from a concern that the understanding of meaning as explored by Western philosophy and linguistics had very little to do with what people found meaningful in their lives and quickly discovered that the assumptions of those disciplines precluded them from even raising the kinds of issue they wished to address. "*The problem was not one of extending or patching up some existing theory of meaning but of revising central assumptions in the Western philosophical tradition. In particular, this meant rejecting the possibility of any objective or absolute truth... It also meant supplying an alternative account in which human experience and understanding, rather than objective truth, played the central role.*" (22, p.x)

The authors show how metaphor reveals the limitations of objectivism, namely the assumption that the world is made of distinct objects with inherent properties and fixed relations between them. In a subsequent paper Lakoff takes the investigation a step further with an extensive exploration of classical assumptions about categories and cognitive models. He concludes: "*Changing our ideas about categories will require changing our ideas about rational thought, the nature of the mind and its relation to the body, and, in the process, changing our conception of man. Rationality, rather than being disembodied, purely mental, asocial, unfeeling and mechanical, is something which essentially involves the body, the senses, the emotions, social structure, interactions with other people, the imagination, and the capacity for idealization and for understanding based on the totality of experience. And the use of many partial models, some of which are inconsistent with each other, to comprehend experience is not irrational, but rather fits the paradigm of human rationality.*" (23)

This does not necessarily imply that objectivist categories and models should be abandoned. It does suggest, as argued elsewhere (24), that these constitute only one form of language and that there are others on whose resources society can draw at this critical time.

It is interesting that the current explorations of the function of metaphor are clarifying its traditional use in conveying subtleties which are denatured by conventional categorization, namely the kind of altered modes of awareness, whether associated with religious experience (25) or other forms of peak experience characteristic of certain approaches to human development (26). J P van Noppen points out that "while it is becoming clear that metaphor is not a panacea providing the final answer to all questions raised by human attempts at framing a transcendent mode of being in man-centred language, the present evolution traces paths of thought and investigation which deserve to be pursued and which are...being trodden with a great deal of enthusiasm." (27, p.4) This has been stimulated by explorations of the mechanism whereby man's words could be "stretched" beyond the usual limits of this worldly reference. He stresses however that exponents of metaphor have not been blinded to the limitations of the medium. The contributors to the reader edited by van Noppen repeatedly emphasize that the metaphor "should not be taken beyond its point, i.e. should remain subordinate to the insight it was coined to express, and perhaps even be adapted when the actual insight is blurred or swamped by secondary associations." (27, p.4)

Distinguishing extended metaphor

It is neither possible nor appropriate to review here the literature on the many dimensions of metaphor relevant to the topic of this paper. In particular it is not possible here to review the distinctions made (or blurred) between metaphor, model, analogy, symbol, paradigm, etc.(3). In this paper these are viewed as a continuum. Figure 1 is however designed to clarify different areas of discussion in relation to the concerns of this paper.

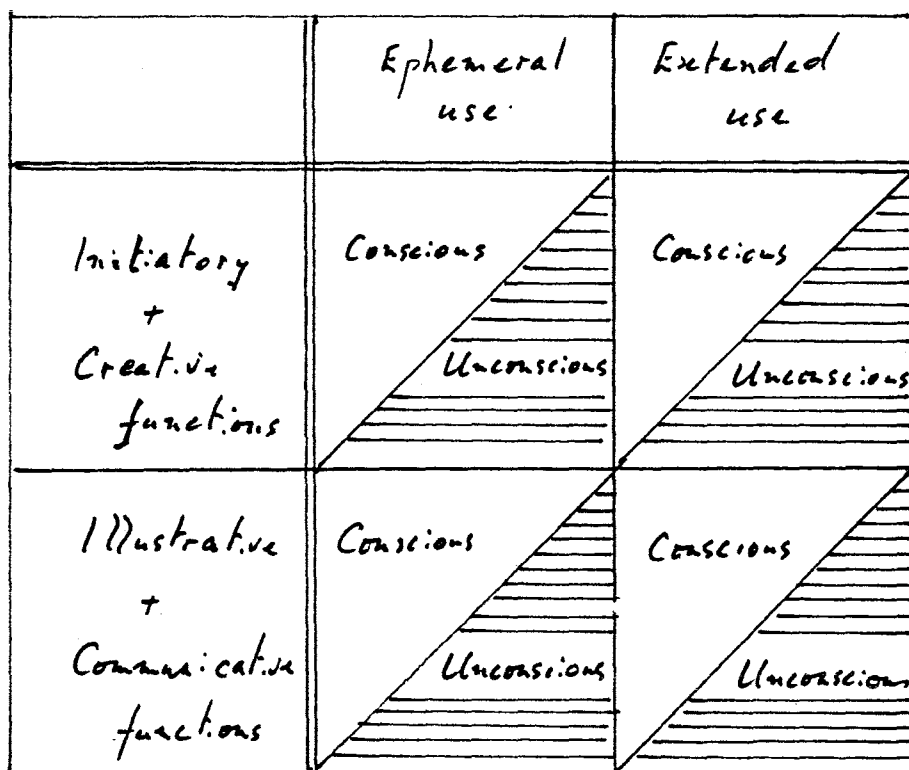


FIGURE 1: Clarification of the range of ways in which metaphors may be used

It is useful to distinguish two basic functions of metaphor, as represented by the rows in **Figure 1**:

(a) **Initiatory/Creative function:** The importance of metaphor in relationship to creativity, whether in the arts or the sciences, has been frequently noted. Through exploration of "lateral thinking", for example, this has been extended to management (28). In such cases metaphor is the vehicle of insight and provides the first ordering of a previously inchoate set of possibilities and constraints. It is thus a vital tool for concept design. Through a metaphor the earlier confusion is seen in a new way. Once this is possible, other tools may build on this foundation. In the case of governance, this may mean the formulation of a strategy, a slogan, a model, etc. Any such formulation may well make no reference to the triggering metaphor. It can be argued that exposure to the rigours of team sport and military training (or combat) ensures an unconscious formative influence on the categories people use to act and to comprehend social dynamics.

(c) **Communicative/Illustrative function:** Once a concept has been formulated, it usually has to be communicated to people and groups who are unfamiliar with the specialized jargon in which it is embodied -- and are quite possibly completely disinclined to learn it (even if they have the background to do so). In such a situation, metaphor can be called upon to convey the essentials of the concept. In the case of governance, this may mean the presentation of a model or a strategy. Such presentation may, or may not, use the same metaphor as that through which such a strategy was conceived.

Despite such extensive use in creativity and communication, ironically metaphor has a very "bad press". The fact that metaphor may be used with great elegance in literature in no way compensates for the fact that in the "real world" of technocratic governance, technology and social problems, metaphors are usually perceived as a nuisance and a sign of sloppy thinking. A goal in computerized information is to ensure metaphor-free communication to avoid ambiguity and confusion. But at the same time, those concerned with such real world issues find themselves obliged to make use of metaphors to explain their concerns in seeking resources for them. They therefore tend to associate such use with methods of public relations which may be necessary but cannot be taken seriously. The best examples of this are the extensive use of metaphors by politicians, whether speaking to their constituencies or in parliamentary debate. But no policy document would be taken seriously if its language was based on metaphor.

This paper aims to distinguish two approaches to metaphor as indicated by the columns of **Figure 1**:

(d) **Ephemeral use:** Metaphor is most frequently used as a literary device to illustrate some ideas for rhetorical purposes. The charm and beauty of much literature is based on this effect. For communication and education purposes, metaphors may be briefly used to help people to understand an idea. The aim being that people should discard the metaphor once they have got the idea. The cognitive value of the metaphor is as a temporary piece of conceptual scaffolding. Similarly in any creative endeavour, insight may come through use of metaphor to help give form to an idea. The metaphor may then be discarded -- many ideas in fundamental physics are reported to arise in this way, for example.

(e) **Extended use:** A metaphoric framework may be used over an extended period of time as a vehicle for communication in practical situations. The clearest examples of this are in business management where military metaphor is extensively used when describing the dynamics of relations with the competition and the markets "targeted", and sporting metaphors are used to describe the dynamics of teamwork within the corporation. It can be argued that the metaphor here performs an important cognitive function in giving form to the complex action oriented dynamics in a manner which is useful to the pursuit of business and is significant in maintaining a viable pattern of communications within a group (often of very diverse backgrounds).

To give focus to the concerns of this paper, a further distinction can be usefully made based on the **diagonals in Figure 1:**

(f) **Unconscious use:** Despite all that may be taught about metaphor in any literary education, people tend not to be conscious of using such devices or of their cognitive implications -- just as people tend not to be conscious of using particular jargons or grammatical constructions. The use of military and sporting metaphor in management tends to be unconscious and its cognitive consequences are implicit, as in the use of any language.

(g) **Conscious use:** Metaphors may of course be deliberately and consciously selected in order to present phenomena in a particular light. An author or poet may do so quite intentionally, as may a politician, an educator, a psychotherapist, a salesman -- or any skilled negotiator.

This paper is primarily concerned with the use of metaphor in an extended manner, whether for creative or communication purposes, but especially by design, when used consciously. The focus is thus on the use of metaphor for "reframing" understanding of the social environment as a conceptually sustainable basis for sustainable development in the future.

The use of metaphors for communicative purposes clearly has an important integrative function in relating the governors and the governed. But it is the initiatory function which is of prime importance to the internal processes of governance. In a sense metaphor here has a "keystone" function as the ordering pattern or matrix through which strategies, models and programmes take form. It provides the implicit bridge between the disparate tools of governance.

Governance, especially when faced with the complex challenge of sustaining development, makes use of metaphor (whether explicitly or implicitly) in ordering its priorities and strategies. It is such fundamental metaphors imposed upon the "hyle", which give form and stability to a "landscape" on which the hazards and opportunities of governance are mapped. A major attribute of governance is the skill required to traverse such a terrain, possibly whilst under attack from hostile or destabilizing forces. But of equal importance, especially in the long-term, is the ability to switch to a new metaphor through which the epistemological domain is ordered. For, given the inherent complexity of the "hyle", no one metaphor can adequately encompass the dimensions to which governance must respond.

To fulfill its functions governance must be able to orient itself in terms of a succession of more appropriate "landscapes". It is possible for a single root metaphor to last the duration of a period of government (and electoral period) and engender a variety of needed strategies. But in a highly turbulent socio-political context, such a single metaphor is more than likely to prove inadequate. Governance then requires the skill to move between a set of metaphors each capable of rendering comprehensible certain sets of dimensions of the hyle. For this skill to become communicable it must itself be embodied in a metaphor.

GOVERNANCE THROUGH METAPHOR

Schizophrenic practices

As noted above, extensive use of metaphor is made by politicians and statesmen in endeavouring to communicate policy options and positions. It is a characteristic of political discourse. However, metaphor is seldom if ever consciously used in policy documents and in the documents of experts legitimating such policies. Such documents are characterized by bureaucratic jargon and the supposedly metaphor-free language of experts appropriate to the objective discussion of scenarios and theoretical models.

It is not the purpose here to query these two modes of discourse. Rather it is to question the epistemological nature of the "conceptual bridge" which integrates them. What in fact is the current link between these two functions? In practice, if the policy model emerges first, then public relations consultants are engaged to discover means of "packaging" it for communication to wider constituencies. If the concept emerges as a politician's insight from the cut-and-thrust of the political arena, then experts are called upon to dust off some model which can give theoretical credibility to it. Those associated with each mode of discourse have little respect for the contributions of the other. No scholar has any appreciation of the constraints of public relations, just as no media consultant has any respect for the niceties of scholarly methods. Policy-makers navigate in an essentially schizophrenic domain of discourse.

In a very real sense governance essentially takes place in an epistemological "war zone" where the battle between metaphoric and modelling modes takes place.

The challenge is to move beyond the limitations of a discussion in which either (a) metaphors are claimed to be purely figurative and of no cognitive significance, or (b) models are claimed to be fundamentally metaphoric in nature. There is presumably some truth and some exaggeration to both claims. The question is how this epistemological battle affects the problem of governance in any effort to pursue future policies of "sustainable development".

Metaphor/model hybrids: an epistemological quest

It is important to stress that the focus on the metaphoric dimensions does not in any way deny the importance of the modelling function when conceived non-metaphorically as a purely conceptual device (e.g. as in econometrics, global modelling, etc.) The point is rather that in order to present and explain such models successfully to those preoccupied with the many dimensions of governance, they must anyway be imbued with metaphoric dimensions - however distasteful this may be to modelling purists. But for those concerned with governance, it is precisely through imbuing the models with metaphoric dimensions that they become meaningful and can be related, through the political insight and experience of the governors to concrete realities which models, as abstractions, do not fully take into account. It is the ability of the governors to project themselves into the metaphor which enables them to find ways of fitting the model to the decision-making realities of the world they are dealing with and to the mindsets of the governed. Both model and metaphor are epistemological crutches - one facilitating left-hemisphere information processing and the other right-hemisphere processing. As Jeremy Cambell says: *"Another kind of context supplied by the right brain comes from its superior grasp of metaphor"* (47)

Expressed in these terms, it becomes clearer that many of the inadequacies of modelling for governance are precisely due to the lack of attention to the need to imbue them with metaphoric dimensions. Equally many of the inadequacies of metaphors for governance are due to the lack of attention to the need to imbue them with modelling dimensions. In metaphorical terms, the former furnish clothes of appropriate strength, but which are so uncomfortable and ugly, that nobody is inclined to try them on or be seen wearing them. Whereas the latter furnish clothes which are a delight to try on, but cannot be taken more seriously than fancy dress, because they are not appropriate to the varieties of weather conditions which they must withstand. This is a problem of design.

For both the governors and the governed it is a question of the extent to which they are able

TABLE 3 DIMENSIONS OF THE INFORMATION SOCIETY (tentative)	HARDWARE (Devices or Systems)	GROUPWARE (Formal and Informal)	CONCEPTWARE (Context-dependent or Transconceptual)
MODE Media - sound - image - sound/image Data - text - image - sound - graphics Unmediated - voice - gesture	TECHNOLOGICAL CRITERIA Issues: - availability (incl. cost) - compatability - appropriateness (incl. cost) - maintenance (incl. parts) - dependency - abuse Possibilities: - enables new systems ARENA I	MANAGEMENT (ORG. DEV.) CRITERIA Issues: - adaptation of organization - appropriateness - erosion of traditional forms - dependency on media - vulnerability to media - manipulation of media/data Possibilities: - new modes of group communication - mode-engendered organizations ARENA IV	PUBLIC RELATIONS (MARKETING) CRITERIA Issues: - identifying viable media "concepts" - manipulative concepts - dehumanizing modes of communication - erosion of traditional order - technocratic exploitation Possibilities: - new media "concepts" - new paradigms, metaphors ARENA V
SOFTWARE (Programs) Non-computer - rules - procedures - music Computer - word/data processing - numbers - text - image - sound - graphs - artificial intelligence	PROGRAMMING CRITERIA Issues: - compatibility - effectiveness - user-friendliness - "bugs" - upgrading constraints - abuse and fraud - penetration and sabotage Possibilities: - enables new applications - desk top publishing - computer conferencing ARENA II	ORGANIZATION APPROPRIATENESS Issues: - search for "alternative" forms - requisite group complexity - minimalistic innovation Possibilities: - "global village" - software-engendered groups (e.g. in CC) - meta-stable coalitions - resonance hybrid groups ARENA VI	PARADIGN APPROPRIATENESS Issues: - handling complexity - appropriateness of classic models - operationalizing new paradigms - requisite conceptual complexity - naive holism - reinforce. of reductionist order - reinforcement of linear thinking Possibilities: - reinforcement of lateral thinking - new concept patterns - software-engendered - meta-stable - resonance hybrids ARENA VIII
CONTENT Hard data - facts - issues - socio-economic problems Soft data - values - opinions - psycho-social problems - reservations - visions - proposals	PRODUCTION (MARKETING) CRITERIA Issues: - hardware/content compatibility - cultural compatibility - "packaged culture" - erosion of traditional values - media-induced violence - electronic surveillance - "blip culture" Possibilities: - learning games - "telephone trees" - CB or CC exchanges ARENA III	INFORMATION APPROPRIATENESS Issues: - empire-building, territoriality - appropriateness of organizations to content - disinformation, censorship Possibilities: - group structure equivalent to substantive relation - new kinds of organization for existing content - new kinds of content for existing organization ARENA VII	SELF-REFERENTIAL CRITERIA Issues: - sensitivity to alternative paradigms - comprehension of complexity - single-factor explanations - indiscriminate relativism - self-reference Possibilities: - applied metaphors - embodying discontinuity - policy alternation - patterns of metaphors ARENA IX

Adaptive Group (Arenas I-V)

Innovative Group (Arenas VI-VIII)

Transformative Group (Arena IX)

to "get into" the "metaphor-model". In relation to this question of "getting into", Anne Buttimer notes the most profound transformation in twentieth century knowledge as being the movement from observation (of reality) to participation (in reality) (29) - a theme explored by Michael Polanyi (30). What degrees of "epistemological participation" does a "metaphor-model" offer? Are there more powerful forms of participation, or at least forms more powerful in different circumstances? These need not be trivial questions for governance, because in a sense epistemological participation can be more powerfully attractive than participation limited to political processes, which it effectively underlies.

It is interesting, with respect to such collective learning questions, that the American Cybernetic Society award for the best paper of the year has just gone to Kathleen Forsythe, for a paper entitled: *"Cathedrals of the Minds; the architecture of metaphor in understanding learning"*. In it she points out, citing Bohm (15), that the issues of content and process are no longer the key issues in the new ways of thinking about learning. But content and process are now to be seen as two aspects of one whole movement.

"The fundamental difference in this new view of learning is to see analogical thinking as the architecture and analytical thinking as the engineering of our mind's view of the world. Thinking and learning become a dynamic "open" geometry (Fuller, 31) characterized by increasing complexity and transformation as a dissipative structure (Prigogine, 32) based on a kinetic, relational calculus (Pask, 33). The meta design is not built on inference and syllogism but on analogy and relation thus allowing form to develop from an underlying logic - the morphogenises of an idea. (Sheldrake, 34). Knowledge is seen not as an absolute to be known but always in relation to agreement and disagreement, to coherence and distinction in terms of individual, cultural and social points of view. The language we use to communicate then takes on a heightened importance (Wittgenstein, 35)) whether that be the language of words or the metaphor language of pattern (Alexander, 36).

Meaningful opportunities and the movement of meaning

Much has been made in recent years of the emergence of the "information society". Enthusiasts have envisaged this resulting in a "global village", given the facility of information access and transfer. Great care should however be taken in building on such hopes in envisioning new forms of governance.

In order to identify the opportunity for the emergence of a form of governance which responds with requisite variety to the issues identified in this paper, it is useful to distinguish three sets of arenas as presented in Figure 2, originally developed for an earlier paper on the information society (37). The table identifies 9 arenas and groups them into an: Adaptive Group (I-V), an Innovative Group (VI-VIII), and a Transformative Group (IX). Most effort and attention concerning the information society focuses on the Adaptive Group. Some effort is devoted to the Innovative Group, whilst very little is devoted to the Transformative Group.

For there to be a real breakthrough in processes of governance, there has to be a real breakthrough in the movement of meaning in society. The mere movement of information (as represented by the Adaptive Group) will not suffice, even if its is described as the "dissemination of knowledge". It leads to information overload and information underuse (a project of the United Nations University).

It is at the Innovative Group level that new key concepts emerge and, in the case of the international community, result in new programmes and institutions with new emphases. The manner in which this occurs at the moment is inadequate to the challenge. One useful way to envision the governance of the future is in contrast to Johan Galtung's insightful but disillusioned analysis of "concept careers" within the UN system, meaning both how innovative concepts undergo a career of stages or phases, a life-cycle in other words, and how concepts may move from one organization to another. Thus, as to their life-cycle at present, he notes:

- a fresh concept is co-opted into the system from the outside (almost never from the inside because the inside is not creative enough for the reasons mentioned). The concept is broad, unspecified, full of promises because of its (as yet) virgin character, capable of

instilling some enthusiasm in people who do not suffer too much from a feeling of déjà-vu having been through a number of concept life cycles already. Examples: basic needs, self-reliance, new international economic order, appropriate technology, health for all, community participation, primary health care, inner/outer limits, common heritage of mankind;

- the organization receives the concept and it is built into preambles of resolutions; drafters and secretaries get dexterity in handling it. The demand then arises to make it more precise so that it can reappear in the operational part of a resolution. A number of studies are commissioned, very carefully avoiding too close contact with people and groups behind the more original formulations as "they do not need to be convinced." The concept thus moves from birth via adolescence to maturity, meaning that it has been changed sufficiently to become structure and culture compatible (it will not threaten states except states singled out by the majority to be threatened); the idiom will be that of the saxonian intellectual style, rich in documentation and poor in theory and insights; very precise but limited in connotations and emotive overtones; "politically adequate" meaning that it can be used to build consensus or dissent; depending on what is wanted where and when.

- From maturity to senescence and death is but a short step: the concept thus emasculated can no longer serve the purpose of renewal as what was new has largely been taken away and what was old has been added in its place - except, possibly, the term itself. Even the word will then, after a period of grace, tend to disappear, those who believe in it now no longer identify with it; those who did not get tired of saying "we knew it would not work, it did not stand the test of reality". In this phase outside originators of the concept may be called in for last ditch efforts of resuscitation, usually in vain. There is no official funeral ceremony as the concept will linger on in some resolutions, but there will be a feeling of a void, of bereavement. Consequently, the search will be on, by concept scouts, for new concepts to kindle frustrated and sluggish consciences. And as a result-

- a fresh concept is co-opted into the system from the outside, e.g. one that has already been through its life cycle in another part of the UN system. For the rest read the story once more.

Nevertheless, each concept leaves some trace behind, more than its denigrators would like to believe, less than the protagonists might have hoped for. If this were not the case the cognitive framework for the system would have undergone no change during the 35 years of its existence". (38)

In the light of the arguments of this paper, the weakness of the system highlighted by Galtung is that it is focussed on concepts as they move into and out of fashion, rather than on the metaphor-models through which concepts emerge and may be associated. Effort is made to create the impression that such "concepts" as self-reliance should be understood as meaningful in their own right, as the product of academic, political and administrative expertise. At the same time, in order to communicate their significance and ensure support for them, they form the subject of public information programmes, documentaries, propaganda and sloganneering. Through this process they also become metaphors (as well as symbols of an approach which others attack). The problem is that as such these metaphor-models are not very rich. As conceptual models, they may be, but those dimensions are not well reflected in the metaphorical presentation that migrates through the field of public opinion - they were not designed to be. They do not excite the imagination of many as metaphors can.

How are current preoccupations with the concept of "sustainable development" (6) to be understood in this temporal context? How long will the concept be able to sustain its "career"? What factors will contribute to the emergence of a new concept?

GOVERNING SUSTAINABLE DEVELOPMENT: THE FUTURE

Sustaining the movement of meaning

It is a truism that development is an essentially dynamic process. It is however less evident that the modes of thought enabling that process need to be equally dynamic if that process is to be sustained (cf Ashby's Law). The dilemma is that any concrete action tends to have to be designed in terms of specific goals, models and institutions which must necessarily be characterized by a certain static quality in conflict with such dynamic flexibility. Loss of dynamism appears to be the price of concreteness. The argument here is that loss of specificity is the price of sustainability.

The points in the previous section make it possible to suggest that a desirable form of **governance should focus its attention on the emergence and movement of policy-relevant metaphor-models in society**. Instead of regretting or resisting the life-cycle that Galtung identifies, many possibilities lie in enhancing and ordering that movement, which is better conceived as the life-blood of the international community. The challenge lies in bonding metaphors to concepts to provide vehicles for the latter to move effectively through information and institutional systems - as motivating concepts rather than solely as part of the streams of information processed.

Governance is then fundamentally the process of ensuring the emergence and movement of such "guiding" metaphor-models through an information society, as well as their embodiment in organizational form. Such stewardship also requires sensitivity to the progressive devaluation of any metaphor-model (at the end of its current cycle) and the need to adapt institutions accordingly. The stewardship required of the metaphor-model "gene pool" is analogous to that currently called for in the care of tropical forest ecosystems - as the richest pools of species and as vital to the condition of the atmosphere.

The merit of this vision of governance is that it does not call for a radical transformation of institutions - which is unlikely in the absence of any major catastrophe. Rather it calls for a change in the way of thinking about what is circulated through society's information systems as the triggering force for any action. At present governance in the international community is haunted by a form of collective schizophrenia - a left-brain preoccupation with "serious" academic models and administrative programmes, and a right-brain preoccupation with the proclivities of public opinion avid for "meaningful" action (even if "sensational"). This schizophrenic battle between models and metaphors could be resolved by legitimating the metaphoric dimensions already so vital to any motivation of public opinion as a vehicle for the models. There needs to be a two-way flow however from model-to-metaphor and from metaphor-to-model, as in any interesting learning process.

In a sense this proposal is only radical in that it advocates the legitimation and improvement of processes which already occur - if only in the sterile and demotivating manner highlighted by Galtung. New metaphors are constantly emerging in the arts and sciences. They are used by politicians. Presumably some of them are used in the existing policy-making processes of governance. But the ecosystem of metaphor-models is an impoverished one. It is totally divorced from the cultural heritage of the world. In terms of Figure 2, there is a need to shift the level of analysis to the Transformative Group (Arena IX). This shift is consistent with the analyses of the "post-modern" predicament (39).

Configurations of options: the contrast to relativism

This paper is not simply an argument for relativism. The current approach to governance focuses on the attempt to achieve consensus on a single policy which is appropriate -- usually for an unspecified long-time. This does not correspond to the challenge of sustainable development in a learning society. A next stage could best be described in terms of a configuration of metaphors -- each one of which is a distinct mode of perceiving the development process. Such metaphors are to be perceived as complementary -- appropriate to different conditions or different actors -- and implying the necessity to shift between them according to circumstance.

No one of them reveals the whole truth, but the pattern of alternation between them provides a best approximation to appropriate action.

The set of alternative structures, between which alternation takes place in any learning cycle, may be more clearly understood in the light of the theory of resonance. Johan Galtung first explored the possibility of using the organization of chemical molecules to clarify the description of social organization (40). He dealt with fixed structures and not with the transition between alternatives. The theory of resonance in chemistry is concerned with the representation of the actual normal state of molecules by a combination of several alternative "reasonable" structures, rather than by a single valence-bond structure. The molecule is then conceived as resonating among the several valence-bond structures, or rather to have a structure that is a resonance hybrid of these structures.

The best illustration of this is a resonance hybrid which is the form that best describes the dynamic structure of the benzene molecule -- basic to most organic substances (see Figure 3).

In such a light, it would be important in policy-making to design a set of complementary policies which would be successively activated or deactivated according to circumstances. Some might be implemented simultaneously by organizations whose counter-vailing preoccupations would ensure an appropriate pattern of checks and balances. To ensure sustainability of development the focus would be on building complementarity into the design of the set. Such complementarity might necessarily entail that certain policies be opposed to one another or have opposite effects in order to respond appropriately to turbulent conditions in the social environment.

It could be argued that such a set would be increasingly appropriate to sustaining development to the extent that the number of complementary policies composing it -- namely the diversity of policies -- increased. The challenge is to design large coherent policy sets but in which the coherence is defined dynamically rather than statically. The dilemma is that the larger and the more diverse such a set becomes, the more difficult it is to comprehend, and the more difficult it is to understand the dynamics through which its coherence can be recognized. Hence the importance of metaphors to providing insight into coherent patterns of alternation between policies within the set.

Cycles of policies: illustrative metaphors

The difficulty in exploring patterns of alternation between modes of organization is the seeming lack of concrete (as opposed to abstract) examples by which the credibility of such patterns in practice may become apparent. In an effort to clarify the nature of such alternation, some 80 metaphors have been explored elsewhere (41).

In searching for appropriate metaphors to illustrate the need for cycles of policies there is a certain appropriateness to using a process which has traditionally been considered basic to sustaining the productivity of the land, namely crop rotation (see Annex I). The rotation of agricultural crops is an interesting "earthy" practice to explore in the light of the mind-set which it has required of farmers for several thousand years.

A cycle of seemingly incompatible practices, such as crop rotation, appears coherent to a large extent because of the establishment of a rhythm. Recognition of the complementarity over time is reinforced by the rhythm. Particular practices are eventually recognized to be appropriate to particular phases in the cycle. This sense has been lost in high-tech agriculture, just as it has in contemporary policy-making. Policy-making today, with its short-term focus, may be said to be essentially "sub-cyclic". As such it becomes the victim of cycles whose temporal scope it is unable to encompass. Focussing on the design of individual policies, rather than a cycle of policies, effectively builds inappropriateness and nonsustainability into the policy. As an example, a recent newspaper article (entitled "Scandals grow when a party has been too long at the trough") states: "What the Reaganites face...is a growing national feeling that the Republican occupants of Washington's executive branch have been at the trough too long. They have become too caught up in self-interest to pay attention to the public interest". The same article notes a similar situation with respect to the Democrats in 1952.

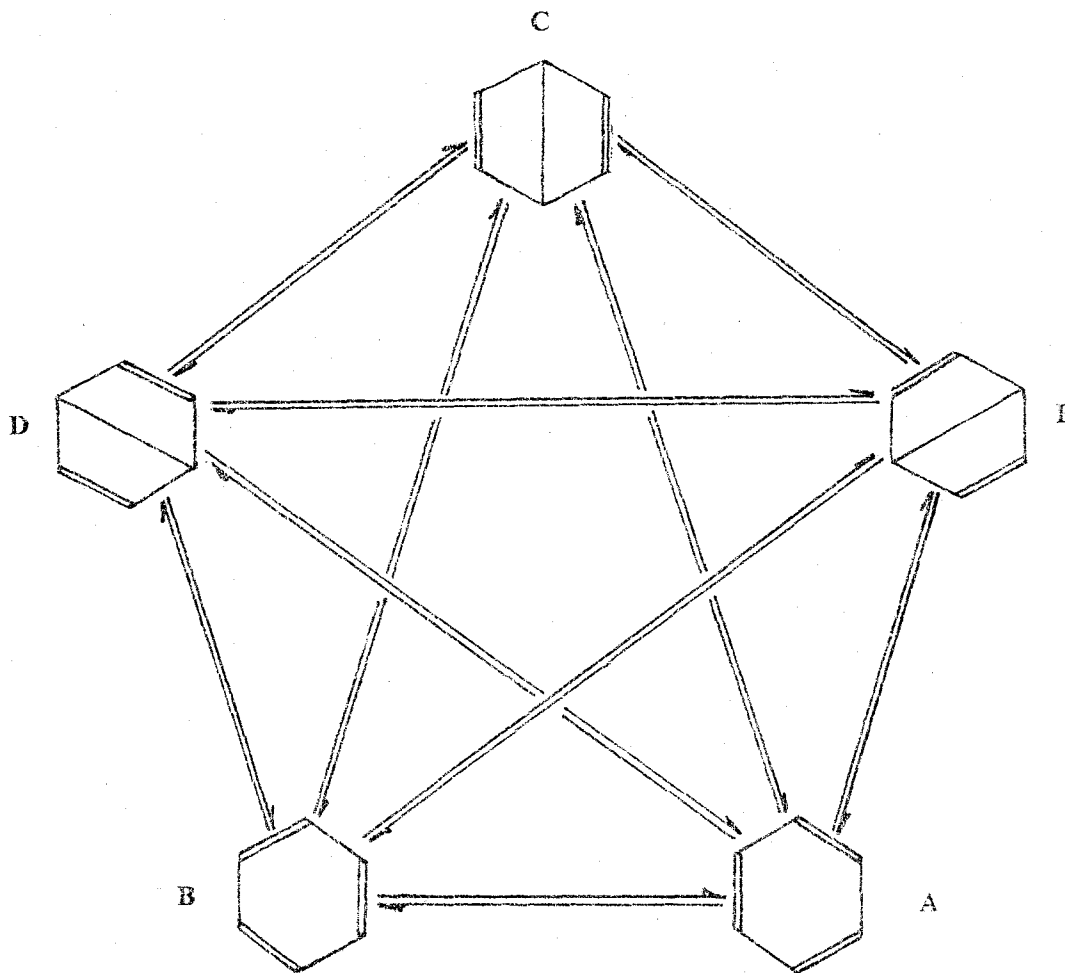


Figure 3. Resonance hybrid: an illustration of variable organizational geometry.

Some chemical molecules cannot be satisfactorily described by a single configuration of bonded atoms. The theory of resonance is concerned with the representation of such molecules by a dynamic combination of several alternative structures, rather than by any one of them alone. The molecule is then conceived as "resonating" among the several structures and is said to be a "resonance hybrid" of them. The classic example is the benzene molecule (represented above) with 6 carbon atoms. This is one of the basic components of many larger molecules essential to life. Its cyclic form only became credible when Kekulé showed that it oscillated between structures A and B. Linus Pauling later showed that it in fact alternates between all five forms above (and as such requires less energy than for any one of them alone).

This concept can be used in designing, describing or operating organizations, especially fragile coalitions or volatile meetings. It may provide a key to the "marriage" between hierarchies and networks. It could also be used to interrelate alternative definitions (or theories, paradigms, policies, etc), especially where none of them is completely satisfactory in isolation. The underlying significance then emerges through the resonance between the set of alternatives.

In one of three sets of alternatives in Figure 2, for example, each individual alternative can be usefully perceived as dynamically related to the others in the set. The set thus constitutes a resonance hybrid. Each alternative embodies an aspect of the significance of the whole, but more fundamental significance is embodied in the pattern of transformations between them, as exemplified in inter-species relations in the natural environment.

Some organization management implications of similar conceptual structures have been explored in practice by Saul Kuchinsky who, for example, indicates the management significance that can be attached to each of the arrows in such a diagram (11, p. 141).

Sustainable development can only be sustained by a sustainable cycle of policies. This must necessarily encompass the necessary changes of particular policies associated with changes of government. Whilst government needs to be free to change policies in the short-term, a different attitude is required to cultivating and enriching the metaphors which give coherence to the cycle of such policies. In a very real sense those metaphors symbolize for people the significance of the process of human development in which they are engaged -- irrespective of the phases of abundance or austerity by which the policy cycle may be characterized. Without such metaphors, abundance and austerity are simply associated with the promises and failures of different policies rather than as characteristics of a cycle of policies through which the society develops.

METAPHORIC REVOLUTION

Individual opportunity

The complexities of society and the global problematique are such that the shift in focus advocated in the previous section may well only occur in isolated groups, corporations and countries, if at all. Although it can be demonstrated that such a shift is a natural evolution beyond the current situation, and that it is pre-figured in many ways by current uses of metaphor in government, the pressures in favour of short-term political crisis management will in all probability prevail. Exceptions may however emerge from recognition of the power of metaphor in elaborating more sophisticated strategy and in the current preoccupation with fruitfully moulding a corporate culture. On this point it was argued in a previous paper that the success of Japanese business in comparison with that of western corporations may be fundamentally due to the subtlety of the sporting and military metaphors (intimately linked to metaphoric imagery) associated with the "martial arts" -- as against metaphors based on western sports and military practices (3). This is typified by the place accorded by Japanese management training to *The Five Rings*, a traditional treatise on swordsmanship (recently subtitled *The Real Art of Japanese Management*).(43)

The opportunities for the individual and affinity groups are entirely different. Individuals may relatively easily choose to make much more extensive use of metaphor to provide themselves with quite different ways of restructuring their perceptual environment. This may be done, as it is to some degree at present, quite superficially and primarily for rhetorical or illustrative purposes. There is however little to prevent individuals and groups from selecting or designing metaphors to be used over an extended period of time to structure their perceptions and their communications. Such use is evident in the implicit use of military and sporting jargon amongst management groups already.

Such use of metaphor may become "revolutionary" in the following two ways, as consciously cultivated cognitive dissonance, and through a rhythmic change of cognitive framework.

Consciously cultivated cognitive dissonance

Individuals alienated by mind-sets and policies prevailing in society may choose metaphors which enable them to totally reinterpret social dynamics, attributing value according to a very different pattern. They may associate with others sharing that metaphor.

The key question is whether this is in any way different from the current freedom of individuals to hold (or convert to) certain beliefs or work with certain paradigms. In many ways it is not, except perhaps in the greater recognition that individuals are free to do so. The shift becomes more radical and revolutionary to the extent that individuals choose metaphors which provide them with insights into dynamic relationships about which they can communicate amongst those who share the metaphor, but are totally unable to communicate meaningfully with those who do not. This too is already a characteristic of those using specialized jargons. The question is how would society be if the number of active specialized jargons increased by several orders of magnitude -- if individuals effectively felt empowered to develop their own specialized languages and cognitive systems (44).

It is one thing for such specialized jargons to emerge from scholarly or technological preoccupations legitimized by establishment institutions. It is quite another when people are actively developing uses of metaphors which effectively ignore or devalue such structures and the cognitive systems on which they are based. None of this is especially improbable, as can be seen in the development and seductiveness of the cognitive systems associated with cults. And to the extent that the importance of the drug problem is indicative of the need for new ways of perceiving the world, development of metaphoric skills may offer a more meaningful alternative than unrealistic medical attempts to simply "get people off drugs" and legalistic attempts to "stamp out drug-taking". In this sense the metaphoric revolution opens the gates to a new cognitive frontier, a set of parallel conceptual universes, possibly richer and more challenging, in which people can develop new relationships to their available resources.

Features of this process are indicated (whether ironically or because of its traditionally pre-figurative role) by some current initiatives in theology. As in other arenas, considerable rethinking has been evoked by perceptions of the current psycho-social crisis. One theologian, Sally McFague, writes:

"One of the serious deficiencies in contemporary theology is that though theologians have attempted to interpret faith in new concepts appropriate to our time, the basic metaphors and models have remained relatively constant: they are triumphalist, monarchical, patriarchal. Much deconstruction of the traditional imagery has taken place, but little construction. If, however, metaphor and concept are, as I believe, inextricably and symbiotically related in theology, there is no way to do theology for our time with outmoded or oppressive metaphors and models....The kind of theology being advanced here is what I call metaphorical or heuristic theology; that is it experiments with metaphors and models, and the claims it makes are small....What this sort of enterprise makes very clear is that theology is mostly fiction: it is the elaboration of key metaphors and models. It insists that we do not know very much and that we should not camouflage our ignorance by either petrifying our metaphors or forgetting that our concepts derive from metaphors." (45)

These points could equally be applied to thinking about development. She discusses the considerable advantages of using metaphors of God as mother, as lover, and as friend, in contrast to the traditional patriarchal model. Her point being that no one metaphor is appropriate for all or appropriate for one person all the time. (45,46)

(b) Rhythmic change of cognitive framework

If people are enriched by having a range of metaphors within which they can select and move in creative response to pressures from the social environment (and especially information overload), how should they govern their choice of metaphor? Rather than clinging to any one metaphor (with the false sense of security that that gives), or shifting reactively from one to another in spastic response to external pressures, the real challenge is to enable people to cultivate a rhythm of changes amongst a set of metaphors -- to evolve a cognitive dance with their environment.

Again such a transition is not improbable in that it is prefigured in many ways by the manner in which people switch cognitive frameworks in switching from home to work to café to leisure activity, or in their dealings with people in different roles (e.g. as spouse, as helpmate, as lover, as companion, etc). But people are offered little insight as to how such switches are to be governed and consequently tend to live them spastically unless they can evolve some sense of pattern and rhythm for themselves.

In this sense the metaphoric revolution is one of revolving through a cycle of cognitive frameworks such that the revolution itself defines a new psychic centre of gravity for the individual immersed in a socially turbulent environment. A very sophisticated version of this is to be found in the Chinese classic the *I Ching* (or Book of Changes), which involves transitions between 64 conditions, each described in metaphoric terms. This has been interpreted into Western management jargon in the *Encyclopedia of World Problems and Human Potential* (see illustration of the pattern in Figure 4). The fact that it is traditionally recommended for the over-60s is an indication that simpler cycles could usefully be developed and explored.

POLICY IMPLICATIONS

In the light of the challenge of sustainable development, the question might well be asked as to how many metaphors people need to ensure their survival -- and especially their psychological survival? Is there a problem of metaphor impoverishment and deprivation associated with both ineffectual policies and individual alienation? Is it possible that a metaphoric measure is necessary as a complement to the questionable value of current social indicators and the questionable educational role played by the exclusive use of the IQ measure of intelligence? To the extent that we ourselves are metaphors (48), do we need to develop richer metaphors through which to experience and express our self-image? If individual learning is governed by metaphors (as a number of studies indicate), how is it that metaphors governing societal learning and development have not been studied? In the light of Andreas Fuglesang's severe criticism of western assumptions concerning communication in developing countries (49), would it not be more useful to conceive of different cultures as operating within different root metaphors? Is it possible that social transformation is essentially a question of offering people (and empowering them to discover from their own traditions) richer and more meaningful metaphors through which to live, act and empower themselves?

(a) Design

Investigations are required into the way extended metaphors can be designed as an aid to governance. Such investigations should cover the following:

- appropriate richness of the metaphor
- constraints on use of the metaphor
- degree of isomorphism with the problematique and/or operational style
- degree of familiarity with dynamics of substrate

The design challenge should be explored in terms of the need for a set of complementary metaphors that can be used under different conditions to contain the problematique in question. Of special interest is the facility with which the shift from metaphor to metaphor within the set can be accomplished.

It is important to bear in mind that because metaphor is used extensively in many cultures in formal processes, skill in the use of metaphor in such circumstances may have to be acquired from them by those who attempt to use metaphor-free Western languages in development planning and implementation.

(b) Education

Educational techniques on the practical use of metaphor should be documented. The question is what media and other techniques can be adapted to facilitate access to the use of metaphor -- bearing in mind that most people, especially those without a formal education, appear to make extensive use of metaphor. Metaphor may be natural to the language in the culture in question or associated with traditional (or emergent) symbol systems. The problem is thus one of encouraging and legitimating an existing skill rather than of implanting a new one.

(c) Development of metaphoric indicators

Irrespective of whether enhanced use of metaphors is encouraged, there is a need to develop aids to the recognition of what might be considered metaphoric "aggression" or "entrapment". In the terms of Jacques Attali, people open themselves voluntarily to "seductive" truths by which they may subsequently become entrapped. At what point, or to whom, are metaphors to be considered aggressive -- to the point of violating a sense of identity or cultural integrity? The misuse of advertising and political propaganda should be reviewed in this light.

Indicators are also required of metaphoric poverty to aid in determining vulnerability to metaphoric aggression and as a warning that information may be relatively incomprehensible in that form. The bureaucratic use of metaphor-free texts, especially within the international

community, should be reviewed in this light.

(d) Engaging and disengaging from a metaphor

Effort should be made to articulate the skills required to "take-on" an extended metaphor to guide understanding of complex issues, whether individually or in a group -- especially where concrete action is called for. Corresponding effort is required to develop the skills which make it possible to "take-off" the metaphor, possibly in order to move to a more appropriate metaphor. Of special concern is developing the ability, when working within one metaphor, to determine that it is no longer as appropriate to the circumstances as some other metaphor might be.

(e) Empowerment

The metaphors to which people have access should be examined to determine to what extent these are empowering or disempowering. The question is whether it is possible to design, or bring about the emergence of, empowering metaphors. This is especially relevant in relation to the issues of unemployment, cultural impoverishment and drug abuse.

(f) Identification of metaphors of specialized agencies

As pointed out in an earlier paper (9), it is not recognized, when advocating or imposing the use of particular sets of values, needs or programmes, that these effectively compete as functional substitutes in traditional societies with other sets of qualities and modes of action symbolized by hierarchies of gods or spiritual beings governing those qualities. The fundamental sets society now attempts to implant, whether embodied in the Specialized Agencies of the United Nations or the equivalent government ministries, are indeed designed to perform many of the regulatory functions previously ascribed to supernatural beings or potencies. Given the ersatz quality of the academic and administrative approaches to legitimating such initiatives, in contrast with the cultural richness popularly associated in the past with pantheons or Camelot, for example, it is not surprising that public information programmes have relatively little success in arousing enthusiasm and generating "a political will to change".

The question is therefore how such agencies could make creative use of the metaphoric and symbolic dimensions to counteract their superficial and "bloodless" images, and give credibility to their initiatives. Given the criticisms of inefficiency and fragmentation, such investigations could uncover ways in which the metaphors governing agency action could be seen as components of a self-organizing organic pattern of fundamental significance - even to the governance of the planet as a whole. Such investigations could highlight the necessary functional complementarity between the metaphors in any such pattern;

(g) Investigation of problems as metaphors

It is seldom realized that a societal problem, as such, is a problem (at least to some degree) precisely because it escapes any attempt to encompass it within any conventional set of categories. Such problems cannot be "defined" in any scientific way (1). Global modelling initiatives do not model problems. Any problem emerges from human interpretation of the significance of the relationships modelled under certain conditions - they are not embodied in the model. As a psycho-social reality, people claim, however, to perceive problems. But as abstractions escaping definition, such problems could well be better understood as metaphors. It is indeed possible that metaphors offer a more fruitful way of handling them. It is arguable that the Chinese currently, emphasize this approach. Investigation is required into the strengths of this approach and its weakness (possibly as illustrated by Reagan's "evil empire" metaphor). Of special interest are the metaphors through which the global problematique may be perceived. Extremes include the "billiard ball" metaphor, the "network" metaphor (1), the "field metaphor" (with characteristic analogous to electromagnetic fields), and the "wave metaphor" (with problems emerging into prominence and then disappearing, as with political issues). Better metaphors, or more developed metaphors, could suggest more coherent strategies;

(h) Investigation of metaphors implicit in development action

It is seldom realized that a significant proportion of organization vocabulary results from innovations made by the Cistercian Order of monks after the 12th century in an early form of transnational organization. The notions of "assembly", "commission", "constitution", "agenda" and "ballot", for example, derive from that context (50). Given the key role played by the limited vocabulary of international action and development action in general, it would be appropriate to explore what metaphors are hidden in that vocabulary - "organization", "programme", "congress", "in the field", etc. In some cases tracing the metaphor may enrich understanding (e.g. "organization"), in others dangerous limitations may become apparent (e.g. "project", "mobilization"). Such investigations may suggest the possibility of a richer vocabulary more appropriate to "marshalling" resources in support of development action;

(i) Relevance of therapeutic metaphors to development action

Metaphors traditionally have played an important role in therapeutic situations, both in the case of individuals and for communities as a whole (). Many cultures have sets of "fables" which assist in this function. Development thinking has paid little attention to the insights in such materials, whether in its own right or as a schema through which the culture defines development processes. David Gordon's study of *Therapeutic Metaphors* represents an extremely valuable articulation of the therapeutic possibilities which are highly suggestive of new approaches to development and societal learning.

(j) Investigation of cycles

The argument for a shift to a cyclic focus needs to be based on further theoretical understanding of cycles in relation to social phenomena. Kinhide Mushakoji is exploring the effects of the introduction of cyclic assumptions into understanding of nature/society interactions, which may result in a proposal for a quasi-Buddhist group of transient reality with an underlying non-aristotelian logic (53).

(k) Adapting insights from the arts: fiction, poetry and music

It is one of the recognized functions of the arts to give form to visions of new ways of organizing perceptions of the world. The arts are therefore an important resource in exploring new visions of social organization and visions of the future. As such it might be expected that they would suggest new approaches to governance.

In the case of fiction this has taken the form of description of utopias or, more recently, the scenarios explored in works of science fiction. To the extent that literature fulfills its function of prefiguring new modes of governance, it is from such writings that insights should be available. But despite an incredible range of scenarios covering the far distant future of a multitude of galaxies, the main innovations explored are technical -- and yet it could be argued that films like the *Star Wars* series will have more impact on people than most development programmes.

The social innovations envisaged tend to be more the consequences of adaptations to alien environments rather than significant innovations in the way humans might organize their relationships. But most disappointing is the poverty of insight into new modes of governance. Writers tend to project onto the distant future modes of governance characteristic of the classical Roman Senate, the US Government and the United Nations, reinforced by electronic gimmicks (many of which are already available) - or fall back on governance through a mega-computer. This is regrettable because such literature reinforces the poverty of expectations with respect to governance and is no stimulant to creative thinking on the matter.

One situation explored by a number of writers is however of relevance to comprehending complexity. That is the problem of piloting or navigating a spacecraft through "hyperspace" or "sub-space", as imagined in the light of recent advances in theoretical physics and mathematics. Because of the inherent complexity of such environments, several writers have explored the possibility that pilots and navigators might choose appropriate metaphors through

which to perceive and order their task in relation to that complexity - for example, flying like a bird, windsurfing, swimming like a fish, tunneling like a mole, etc. The mass of data input, otherwise completely unmanageable is then channelled to the pilot in the form of appropriate sensory inputs to the nerve synapses corresponding to his "wings" or his "fins". The perceptions through the chosen metaphor are assisted by artificial intelligence software. The pilot switches between metaphors according to the nature of the hyperspace terrain. Such speculations do at least stimulate imagination concerning a possible marriage between metaphor and artificial intelligence in relation to governance.

Given the key position of poetry as a source of metaphor, as well as the subtlety of insights attributed to poets, one might expect the existence of poetic insights into the problem of governance. One interesting initiative in this connection is the multi-lingual compilation by V S M de Guinzbourg entitled the *"Wit and Wisdom of the United Nations"* (51). Whilst on the staff of the UN Secretariat, he collected proverbs and apothegms on diplomacy, some of them poetic in form. Of greater interest is the little known novel by the English Robert Graves, entitled *Seven Days in New Crete* (52). This is in effect a study of governance through poetry.

In explaining why "we are our own metaphor", biologist Gregory Bateson pointed out to a conference on the effects of conscious purpose on human adaptation that:

"One reason why poetry is important for finding out about the world is because in poetry a set of relationships get mapped onto a level of diversity in us that we don't ordinarily have access to. We bring it out in poetry. We can give to each other in poetry the access to a set of relationships in the other person and in the world that we're not usually conscious of in ourselves. So we need poetry as knowledge about the world and about ourselves, because of this mapping from complexity to complexity." (29, p. 288-289)

Bateson is thus pointing to the advantages of poetry in providing access to a level of complexity in people of which they are not normally aware. This could well be of significance for the governance of social processes characterized by patterns of relationships normally too complex for the mind to grasp. Of special interest in comprehending non-linear cyclic processes in relation to linear thinking, are the potential insights arising from the relation of rhythm to metre in poetry. In this sense the current "spastic" development of society, as a victim of economic cycles, may be seen as resulting from an a-rhythmic approach to governance.

ANNEX I SUSTAINABLE CYCLES OF POLICIES: CROP ROTATION AS A METAPHOR

In searching for appropriate metaphors to illustrate the need for cycles of policies there is a certain appropriateness to using a process which has traditionally been considered basic to sustaining the productivity of the land, namely crop rotation. The rotation of agricultural crops is an interesting "earthy" practice to explore in the light of the mind-set which it has required of farmers for several thousand years.

Crop rotation is the alternation of different crops in the same field in some (more or less) regular sequence. It differs from the haphazard change of crops from time to time, in that a deliberately chosen set of crops is grown in succession in cycles over a period of years. Rotations may be of any length, being dependent on soil, climate, and crop. They are commonly of 3 to 7 years duration, usually with 4 crops (some of which may be grown twice in succession). The different crop rotations on each of the fields of the set making up the farm as a whole constitute a "crop rotation system" when integrated optimally. Long before crop rotation became a science, practice demonstrated that crop yields decline if the same crop is grown continuously in the same place. There are therefore many benefits, both direct and indirect to be obtained from good rotational cycles (54, pp. 170-8):

(a) Control of pests: with each crop grown the emergence of characteristic weeds, insects and diseases is facilitated. Changing to another crop inhibits the spread of such pests which would otherwise become uncontrollable (to the point that some crops should not be grown twice in succession). By rotating winter and summer crops, the farmer fights summer weeds in the winter crop and winter weeds in the summer crop.

(b) Maintenance of organic matter: some crops deplete the organic matter in the soil, other increase it.

(c) Maintenance of soil nitrogen supply: no single cropping system will ordinarily maintain the nitrogen supply unless leguminous crops are alternated with others.

(d) Economy of labour: several crops may be grown in succession with only one soil preparation (ploughing). For example: the land is ploughed for maize, the maize stubble is disked for wheat, then grass and clover are seeded in the wheat.

(e) Protection of soil: it was once believed necessary to leave land fallow for part of the cycle. Now it is known that a proper rotation of crops, with due attention to maintaining the balance of nutrients, is more successful than leaving the land bare and exposed to leaching and erosion.

(f) Complete use of soil: by alternation between deep and shallow-rooted crops the soil may be utilized more completely.

(g) Balanced use of plant nutrients: when appropriately alternated, crops reduce the different nutrient materials of the soil in more desirable proportions.

(h) Orderly farming: work is more evenly distributed throughout the year. The farm layout is usually simplified and costs of production are reduced. The rushed work characteristic of haphazard cropping is avoided.

(i) Risk reduction: risks are distributed among several crops as a guarantee against complete failure.

The situation is somewhat different in the case of single-species forests where "rotation" is the guiding principle in the special sense of the economic age to which each crop can be grown before it is succeeded by the next one. (For example, on a 100-year rotation required for oak, one per cent of the forest would be clear cut each year, and a further 20 percent thinned out). In total contrast to crop rotation is the "monoculture" cropping system in which the same crop is grown every year. This is possible on a large scale only by the heavy application of chemical fertilizers, herbicides and pesticides. It leads to long-term problems of soil

structure and erosion, as well as to the accumulation of pollutants.

Because of the short-term advantages of fertilizers, efforts to design new approaches to crop rotation have been limited. It is only with the resurgence of interest in non-exploitive, non-polluting agriculture that such possibilities are being investigated (55). From an agronomist's perspective, the problem is to strike a balance between harmonizing the three-fold soil-plant-climate relationship and those of the economic constraints of production. Because such threefold relationships are now fairly well understood, rotation cycles can now be considered as a whole in which the order and the plants used are of secondary importance. The problem is to ensure that the soil-plant-climate relationship is in an optimally balanced state at every moment in order to become increasingly independent of its past. The production constraints complicate this evolution and the choices possible, especially when requirements change rapidly without taking into account the recent history of a crop rotation (55).

There is a striking parallel between the rotation of crops and the succession of (governmental) policies applied in a society. The contrast is also striking because of the essentially haphazard switch between "right" and "left" policies. There is little explicit awareness of the need for any rotation to correct for negative consequences ("pests") encouraged by each and to replenish the resources of society ("nutrients", "soil structure") which each policy so characteristically depletes.

There is no awareness, for example, of the number of distinct policies or modes of organization through which it is useful to rotate. Nor is it known how many such distinct cycles are necessary for an optimally integrated world society in which the temporary failure of one paradigm or mode of organization, due to adverse circumstances (disaster) is compensated by the success of others. It is also interesting that during a period of increasing complaints regarding cultural homogenization ("monoculture"), voters are either confronted with single-party systems or are frustrated by the lack of real choice between the alternatives offered. There is something to be learnt from the mind-sets and social organizations associated with the stages in the history of crop rotation which evolved, beyond the slash-and-burn stage, through a 2-year crop-fallow rotation, to more complex 3 and 4-year rotations. Given the widespread sense of increasing impoverishment of the quality-of-life, consideration of crop rotation may clarify ways of thinking about what is being depleted, how to counteract this process, and the nature of the resources that are so vainly (and expensively) used as "fertilizer" and "pesticide" to keep the system going in the short-term. The "yield" to be maximized is presumably human and social development.

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