A SITUATION STUDY OF THE ORBIT-SPECTRUM ISSUE (MODEL AND APPLICATION)

by

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Introduction

As contemporary societies become more complex and interdependent, world affairs develop into greater intricacy and global problems become more intractable. Under the circumstances international issues are increasingly difficult to resolve by traditional means. Political decisions based on haphazard or impressionistic grounds are no longer adequate to meet the mounting challenges of a dynamic world.

In order to improve the policy-making process, political institutions have to develop more systematic methods of problem-solving and conflict-resolution. A necessary pre-requisite to such systematization is a better procedure for sensing, understanding and forecasting world events. Such procedure should increase our capacity to describe, explain and anticipate environmental continuities and changes.

This study will try to contribute towards the improvement of policy-making by developing a methodical procedure of problem-handling. This method includes a situation-study algorithm shown in the next page. As is evident from the diagram, the model procedure involves three basic activities: diagnosis, analysis and prognosis. This triad forms the necessary and sufficient condition for the complete study of any event.

In order to demonstrate that proposition, this paper will first elucidate each step of the algorithm, and second apply it to a particular contemporary global issue. This issue is known as the Geostationary Orbit — Electromagnetic Spectrum (GOES) controversy. This and other authors have already written a lot on the GOES problem, so here we shall focus on a specific aspect of it relating to international politics.

The case study which follows makes a rudimentary diagnosis, analysis and prognosis of the GOES problem. It does not claim to be definitive, since that would take much more space and effort than we

have here. Rather, it is an illustration of how the method could be used to clarify a real outstanding issue and thus prepare it for resolution later on.

Diagnosis

The first phase in the study of any particular situation is to determine if there are any problems associated with it. In this sense diagnosis is the process resulting in *problem identification* (problem being defined as a "disturbing condition").

For purposes of this study, we have chosen as our situation the case of the geostationary orbit and electromagnetic spectrum (GOES); so, the first thing to do is to identify any problems in it. Since the diagnosis here is made from the point of view of political science, the problems we are looking for are *public issues* in the national and international arenas.

In order to do that, one has to perform certain operations required by the diagnostic process. We shall divide these operations in three main steps, which we review in sequence.

1. *Symptoms*

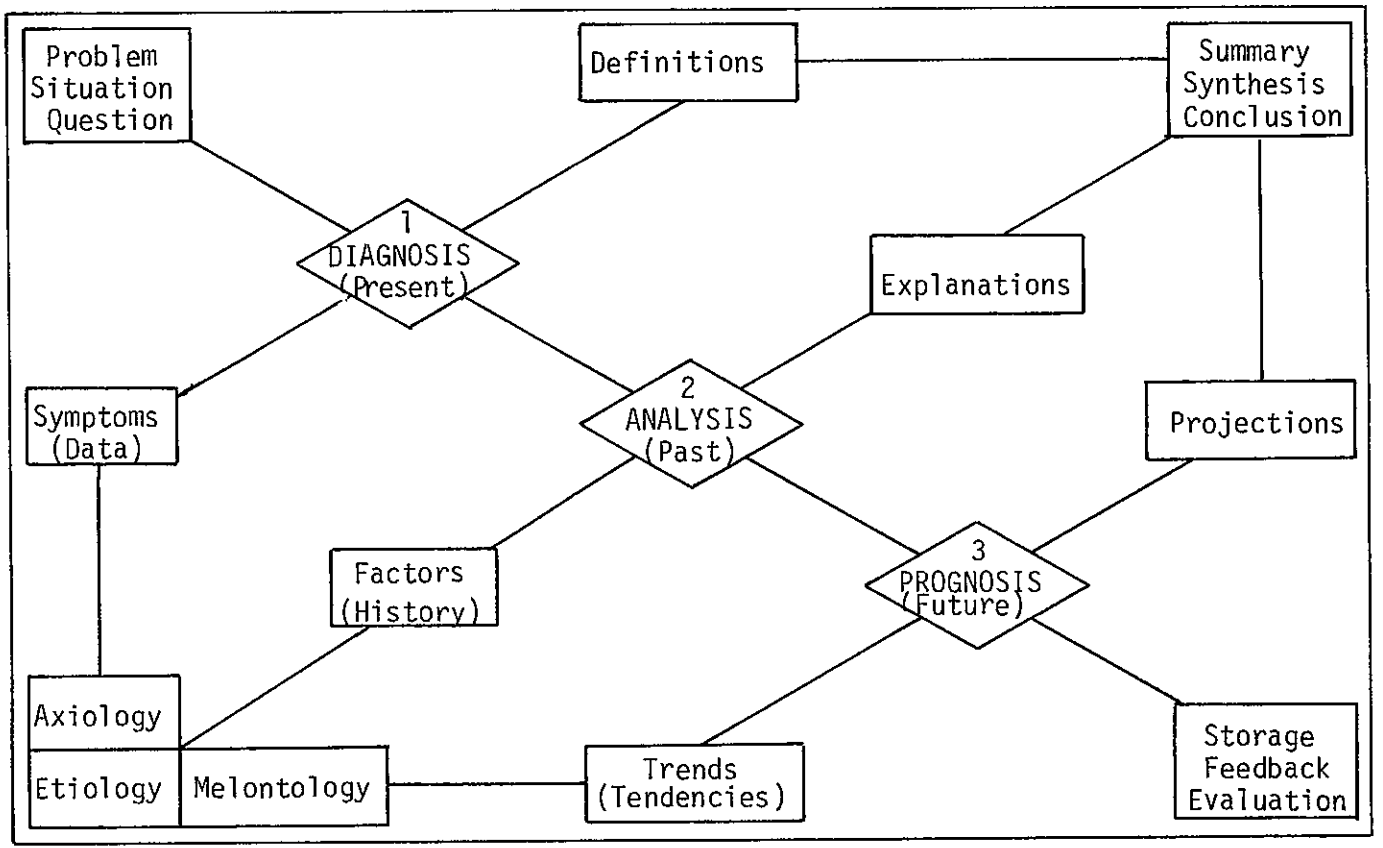
The first step consists of the *semiosis* or perception of *problem-indicators.* These indicators are the symptoms which characterize a given situation. The taxonomy of socio-political indicators is still in its infancy, so it is very difficult to agree on which group of phenomena constitutes what problem. Moreover, the collection of statistical data is still scarce, so that quantitative information is often lacking in this field.

Be that as it may, the symptomatology of GOES begins with certain hard facts which define the situation.

The geostationary orbit is a ring of space about 35,000 km above the equator. Its value lies in its ability to hold a satellite (geosat) stationary relative to any point on Earth. Because of this quality, geosats are used as relay stations for long-range telecommunications and broadcasting. Since 40% of the Earth's surface can be covered by signals from one geosat, three such satellites suffice to circumscribe the globe.

Telecommunication satellites can only operate by using the radio waves of the electromagnetic spectrum. In order to avoid interference among different transmissions, geosats must be parked at a certain distance from each other and use different frequencies along the spec-

SITUATION-STUDY/ALGORITHM



trum. As a result, the utilization of the geostationary orbit is inseparable from the electromagnetic spectrum. Hence, the combined label of GOES to describe this unique condition.

The first problem we may be facing in this situation, is the *congestion* of the geostationary orbit. Along with this looms a similar congestion of the radio channels in the appropriate frequency bands. With their more limited capacity and greater popularity due to their low cost, these frequencies are in great demand by the telecommunication agencies of all countries. The higher frequencies become available for commercial and extensive use as technological developments and economic conditions permit.

This means that the technologically advanced and economically strong countries have a preponderant advantage in this field. Most of GOES is utilized by the North-Western industrialized nations. It has been estimated that 90% of the world's GOES is controlled by states with only 10% of the world's population; with the United States alone controlling more than half of the total telecommunications of the globe. The share of all satellite telecommunication traffic used by the developing countries was about one-third of the total, with the other two-thirds being used by the developed world.

These very rough indicators of the capacity and distribution of GOES form the primary symptoms of various techno-economic and political problems in the contemporary world. In order to translate these disparate symptoms into a political diagnosis of the situation, one needs some *standards* of international behaviour, which we shall presently outline.

2. *Axiology*

Problem-identification assumes the existence of some criteria which determine what is considered *normal.* It is only on the presumption of certain norms that one can diagnose the abnormal. In all social symptoms, norms are provided by various rational, moral, traditional, or legal standards. Different combinations of these standards set the parameters of acceptable behaviour and spell out the rules of the game which the various players should follow. In the world stage, international law and custom define the bulk of the operative rules at any particular time.

In the field of GOES, the international community has assigned the principal rule-making jurisdiction to the International Telecommunication Union. ITU organizes periodic World Administrative Radio Con-

ferences which allocate channel frequencies to radio services as well as set the principles for utilizing GOES.

The most recent WARC in 1979 reaffirmed that GOES is a "limited natural resource" which belongs to all mankind. As such, it should be used for the benefit of people everywhere. This means that GOES is not subject to national appropriation or occupation, but may be exploited by all states in an optimal and cooperative way.

Interpreting and supplementing these broad principles has generated a lot of technical, economic, legal and political controversies, which may be summarized as follows:

— **Technical:** what is the best direction for research to maximize the quantity and quality of communication channels.
— **Economic:** what is the most efficient utilization of the GOES resources so that overall benefits outweigh costs.
— **Legal:** what rules of international law apply in the operation of states in matters of telecommunication and outer space.
— **Political:** what decision-making process should be used and by whom, for an equitable distribution of the GOES resources.

The core of the political issue, upon which we are concentrating here is both procedural and substantive: *i.e.*, it involves the most acceptable method of determining the equitable allocation of common values. It is accepted by now, at least in principle, that all sovereign states have an *equal right* of access to the GOES resources. This right is to be exercised with discretion so as to avoid harmful interference and conflicts among states.

Accordingly, the 1977 WARC allotted each country in Regions I and III, (for ITU purposes the world is divided into three regions, and region II — Americas, has not yet decided its allocations), certain radio frequencies and geostationary orbital slots, according to their requirements.

This exact allotment emphasizes the potential equality of all states to benefit from the common resources of the world. Unfortunately, this allotment plan is the only exception to a general rule of first come-first served for the "taking up" of orbital positions and radio frequencies. The few powerful and wealthy states, therefore, possess or control most of the GOES resources; while the rest are looking for ways of changing this *status quo.* Therein lies the political power struggle going on in the world today.

3. *Definition*

Having determined the salient facts of the case on the one hand

and the rules of procedure on the other, one should be able to make a proper diagnosis of the situation. In such diagnosis, the extent of a problem is proportional to the discrepancy between facts and values in any given situation.

In this case, the gap between the symptoms and the principles just outlined gives an idea of the seriousness of the present condition in GOES. The contradiction between the principle of equal access and the practice of unequal possession creates grave political problems.

The question of how to satisfy the growing demands of the world's majority for a more *equitable* share of the GOES resources is the substantive issue in this field today. Given the symptoms of increasing congestion, interference and disparities in the GOES, what political solutions will satisfy the powerful forces operating in the world?

As to the procedural issue, the question is how to arrive at *legitimate* decisions by international institutions. The international policy-making process is still hazy and does not enjoy widespread support, especially from nationalist sources. Under the circumstances, it is very difficult to resolve conflicts and build consensus.

Since the method according to which policies are made influences their substance, the general diagnosis is that we are faced with a complex *problematique* of interrelated issues. The world presents a picture of opposing elements: great wealth and abject poverty, high technological sophistication and primitive political institutions, mass-production and maldistribution. All these and other contradictions coexist in different parts of the world, culminating in the so-called *North-South* dichotomy, based on industrial development.

The GOES issue is one aspect of this dichotomy which confronts the technologically underdevelopped countries of Africa, Asia and Latin America on the one side with the space powers and their clients of Europe and North America on the other. This confrontation is a classic example between the "haves" and the "have-nots" of this world; the former trying to maintain their privileged position, while the latter pressing for more equal redistribution of the common wealth in the area of GOES as in many others.

Analysis

On the basis of the foregoing diagnosis, one is then in a position to undertake an analysis of the given situation. Analyzing something means breaking it down to its basic *components* and then trying to find their significant *interrelations* in space and *interactions* in time.

Thus, analysis involves research for causes and effects, structures and functions, constants and variables of a system.

Analysis is a much more difficult task than diagnosis because it goes beyond phenomena and investigates the essence of things. As diagnosis describes the existing situation, analysis traces its *history* and explains how it works. All that within a given *paradigm*, which provides certain assumptions and makes possible the development of general theories.

In this particular case, we shall try to discover the contributing factors which created the present situation in GOES and on that basis formulate some explanatory hypotheses on how the politics of this issue relate to the global problematique. Following our model algorithm, we shall proceed with the analysis in the following three steps.

1. *Factors*

In the first place, analysis distinguishes the various factors which make up a situation. These factors are both *spatial* (structural) and *temporal* (operational); that is, they comprise the institutions of the system in question, as well as the activities of its units.

In our case here, we are looking at the political system in which the GOES issue is being discussed. The analytic focus has been determined by the diagnosis of the political problem, (maldistribution of the GOES resources) and its attending public issue (how to find an equitable redistribution).

The structural factors behind this problem are basically the 160 *nation-states* of the world political system. Although legally equal, these states are economically, technologically and environmentally unequal. These natural and social factors combine to give some of these states (*i.e.* US and SU) much more political influence or *power* than the others, especially in outer space affairs.

The main international institutions where space politics take place are the United Nations (COPUOS) and ITU. The latter organization is the central arena in which the GOES problem is confronted. This confrontation is a reflection of the larger power struggle between the few rich and the many poor countries of the world; so the GOES issue has become one aspect of the demand for a New International Economic Order.

Today's pressures for revision of the existing order of things stem from widespread dissatisfaction which has long historical roots. Without going too far back to the imperialistic era, the world became

divided into the transatlantic metropolitan centers and the colonial periphery in the rest of the world.

This division was continued in the post-colonial era when the North-Western countries extended their predominance in the world through economic and cultural means. One area where this dominance became particularly acute was that of high technology in information and communication.

With the advent of the space age, it was only natural that the most economically developed and technologically advanced would get there first. As a result, the principle of "first-come, first-served" was used to legitimize the exploitation of the GOES resources by the wealthy countries.

The acquired "squatters rights" in both the orbit and the spectrum, however, are now being questioned. The new states which came to the scene later are not willing to accept whatever is left over. Their demands for "a place in the sun" are therefore quite understandable. The question is do they have enough power to back them up?

To answer this question, one must make a detailed power inventory and calculate the interplay of forces applied to this field. Of course, we cannot do that here, so we will only give some hints of the infrastructural supports and underlying currents which will shape the outcome.

2. *Etiology*

The interpretation of historical as well as of current events requires some theory of *causality* which establishes the rules of relationships and interactions. Historical theories are usually based on the broader conceptual framework of *ideologies*, from which they derive their normative parameters. In any case, all our explanations are ultimately based on some unprovable assumptions or *axioms* which we implicitely accept on faith.

Trying to interpret the behaviour of states in international affairs, one may choose the "national interest" or "raison d'état" as the basic *motive*. This rationale puts a state's existence as the primordial goal of the search for "national security". Of course, what constitutes the national interest and what is the best policy to attain security is determined by tradition and authority in each society.

The cumulative efforts of all societies, however, to maximize their security, inevitably results in a "conflict of interests" situation, where the security of one means the insecurity of another. Thus, the con-

flict of national interests becomes a "zero-sum game" in which the gains of one state are made at the expense of the others.

In order to prevent the international system from breaking down by the eventual hegemony of one party or chaos, the "balance of power" theory has developed certain rules for propagating a *dynamic equilibrium* of forces among the main actors of the system. Accordingly, each player should only try to get his "fair share" of the benefits and make sure that no one gets too much. This requires eternal vigilance of all the players which generates a climate of *mistrust* and endemic *insecurity* on the part of everybody.

In such conditions, every advance of higher technology or discovery of new resources disturbs the precarious balance in the system and triggers a new round of competition and conflict. In this context, the innovations of space technology opened up the exploitation of the new GOES resources and thus created another arena of international confrontation.

In spite of its vastness and inexaustability, space is *limited* at any particular time and for any specific actor. Thisa inherent condition of *scarcity* makes GOES politically, economically, and socially valuable, because it can add to one's power and security, welfare and profit, or knowledge and prestige.

The perennial question is how to maintain a balance between the individual or national interests of each and the collective or "common interest" of all. Power politics is forever trying to find the *optimal* solution for any particular time and place. In the contemporary world arena, this search is extremely difficult because of the rapid changes and the high complexity of the global system.

3. *Explanation*

From what we have said in this chapter, the explanation for the present situation in GOES, lies in the structure of the international system, as well as the history of its evolution. Our analysis has shown that inequalities in economic wealth and political power produce inequities in resource distribution and value sharing. The perception of these differences cause widespread dissatisfaction and conflict between the 'haves" and the "have-nots".

The political system tries to resolve these conflicts according to certain principles and rules. The kind of criteria used by the political system, however, depend on the overall social environment in which politics operate. International politics, of course, use different prin-

ciples than national politics, because it takes place in a larger and looser society.

In advanced national communities, value-allocation criteria take into account the public interest much more than the nascent international society does. The former try to reduce inequalities by *affirmative action* which gives priority to the needs of underprivileged groups; whereas the latter is still very 'laissez-faire' in this area.

The federal governments of Canada and the USA, for example, have national policies which favour *minorities and localities* even if such policies are strictly speaking "uneconomic". Local community and public education stations are subsidized, so that commercial criteria do not impinge on their operation. For this reason, certain communication channels have been reserved for actual or possible use by these groups, even at the expense of economic efficiency.

The similar situation in the international system, however, is not handled in the same way. The latecomers in this system demand *privileged access* to the lower, less costly but more congested frequencies of the radio spectrum, as well as guaranteed access to the orbit, as a compensation for their historical deprivation. This demand would require the equivalent of "affirmative action" in a global scale in order to be fulfilled.

But, in its present stage, the international system still operates on criteria closer to an economic *market* than a political *community.* Its rationality is still largely individualistic and egoistic; therefore, the national interests of its units take precedence over the collective welfare of the whole world.

Under the circumstances, this "double standard" can be explained by the hypothesis that: allocation criteria in political decision-making tend to be more *inclusive* as a function of the strength of the community in which they operate. By "inclusive", of course, we mean taking into account broader criteria based on equity and morality, in addition to economy and rationality.

According to this theory, the international political system cannot do much more than its overall social environment permits. The question now is: how long will this situation continue? For this, we must presently move to the next and last phase of our study.

Prognosis

Now that the *present* situation has been diagnosed and its *past* has been analyzed, it remains to speculate on some *future* outcomes of this process. To do so, one has to assume that the future is partly a

continuation of the past and present, but unlike them it is not yet absolutely determined. Prognosis, therefore, is a study of probable alternative and conditional developments into the foreseeable future.

On this assumption, research on the future must take into account significant trends established in the past and project them according to different hypotheses. Such extrapolation should be done very carefully, keeping in mind that there are unpredictable factors which may change the course of events. For this reason, the forecaster must present his prognosis in the form of alternative scenarios within the range of various possible options.

This is what we shall do here to predict the future of GOES: first by tracing some recent trends in this field, then by stating our theories about historical continuity and finally constructing the most probable scenarios for the next few years.

1. *Trends*

For the past twenty-five years, since the dawn of the space age, the developments in the area of GOES have been both rapid and dramatic. During this time, the number of geostationary satellites has grown from zero to a hundred, so that now they are a significant part of global communications. The total number of operational and planned geosats is more than double that figure. Of those, about 60% belong to the developed and 10% to the developing countries; the remaining 30% are reserved for international telecommunication by IGO's. Along with these, the growth in the utilization of the radio waves has been in the order of many magnitudes.

If the total number of geosats increases considerably, as is expected by the mid-eighties, then the best orbital spots will be filled, and congestion will become a reality in some segments of the geostationary orbit. Assuming that the demand for its services keeps growing at 15% annually, INTELSAT alone claims that it will need the entire arc between 245° and 305° West for its geosats. INTELSAT's estimates for the global requirements of satellite communication project a growth of 100% by the mid-eighties. Demand is expected to rise from 20,000 circuits in 1981 to 40,000 by 1986 in the Atlantic region; from 7,000 to 14,000 in the Indian Ocean, and from 3,000 to 7,000 in the Pacific (at the beginning of the decade, INTELSAT provided about 25,000 of these circuits around the world).

If such demands come true, by the early nineties, we will have exceeded the GOES capacity for most services and regions of the world. At least for North America, saturation will have been reached even

before then. The implications of these forecasts, especially for Canada and the USA, are evident. For this reason, the governments of these and other states are for some time now searching for solutions. Since these problems are international, the solutions will have to be sought in multilateral conferences.

The first and most immediate of such conferences is a RARC for the American Region, coming up this year (1983). After that follows the GOES WARC's in 1985 and 87. In effect, the next five years will be busy ones for ITU conferences, since a dozen of them are scheduled for that period. All these conferences will deal in one way or another with the way GOES should be distributed and utilized for many years to come.

2. *Melontology*

The systematic study of the future requires that one takes into account human *imagination* as well as technological *forecasting* and policy *planning*. The synergistic combination of these three methodologies is the best way we have found yet to look into the future of social systems. Because of the increasing complexity, dynamism and vulnerability of modern societies, melontology is becoming an indispensable component of the social sciences. Therefore, in spite of the immense difficulties associated with it, we have little choice but to study the future.

The basic assumptions of this study are that the future is neither predetermined nor random, but depends on certain *historical* tendencies and *human* actions within the general framework of *natural* law. Accordingly, the future is shaped not only by what already had happened, but also by what we are about to do. Intentions, therefore, may be as important as deeds when one calculates the probability of occurrence of a social event.

It is for this reason that social *demand* and government *policy* must be taken into account along with technological *innovation*, and ecomomic *capacity*, as the most important factors in determining the future of GOES. These socio-political and techno-economic parameters are very complex and rapidly changing, thus making our task even more difficult. But since we have to make some prognosis, let us present what seem to be the most probable tendencies.

As we have stated in the previous section, all authorities agree that demand for telecommunications will increase, so the only question is by how much. Since GOES is a limited resource, increasing demand

is bound to catch up with available supply sooner or later, but most likely before the end of the century.

The next crucial point is whether technology will advance in such a way as to keep the supply in parallel with the demand so that the net situation does not deteriorate. Those who believe in the "technological fix", like the USA, can put their faith and resources in that research and hope for the best. For this reason some technologically advanced and powerful countries do not believe in international socio-political planning as a means of avoiding future problems.

On the contrary, those who do not stand to gain much from technology, like the third world countries, would rather have legal guarantees now, to ensure their position in GOES, under any eventuality. They are, therefore, looking for a "political fix" as a safety net, just in case technology does not come through for them.

So far these countries, which represent the majority of the world, have succeeded in getting their demands accepted in principle by international institutions. WARC '79, for example, resolved to call a special GEO-WARC in 1985 and 1987 to "decide which space services and frequency bands should be planned."

Accordingly, the international community has committed itself to *long-range planning* as necessary to ensure the optimal use of available common resources in GOES. The main obstacles against this majority will rest on the vested interests of the various groups, largely represented by the USA. The question is which of the two will prevail.

3. *Projections*

From what we first said, we should be able to make some tentative projections into various possible futures of GOES. We shall do so in the form of three *scenarios* representing the most probable alternatives extracted from the overall range of possibilities. Futuristic scenario-building can be done in many ways; here we have to choose its most elementary form for purposes of illustration only.

The three scenarios will include the two opposing extreme cases of planning and laissez-faire, as well as a middle-range moderate situation. The first two scenarios set the maximal and minimal limits of possibility, whereas the third sets the central focus of the most probable compromise.

As the *first* scenario we have chosen to project the *status quo* into the foreseeable future. This involves the linear extrapolation of recent trends as outlined at the beginning of this chapter. It assumes

the continuation of the world situation as we know it now. If this does happen, one may expect a "market" determination of how GOES is utilized.

In this case economic optimality will decide who gets what resources. Capacity to exploit GOES will be the main criterion of allocation of space and frequencies. Of course, the technologically advanced states will continue to get their lion's share of the spoils, while those behind will be left still further off.

In order to maintain a semblance of international law and equity, the space powers may even increase ODA (official development assistance) to the Third World so that it can use some of the GOES resources. But the relative configuration of forces will remain the same and the present political issues will be extended onwards unresolved.

On the contrary, the *second* scenario assumes a radical departure from the current situation. The traditional "first-come, first-served" practice will be replaced by a rational *a priori* long-range plan which distributes GOES resources to all the members of the international system according to some acceptable formula. As a result, every state will be given title or claim to a portion of GOES, which it can then dispose as it wishes.

If this happens, many countries who cannot use their portion for the time being may lease it out to those who can; thus exploiting their allocation financially if not physically. This system will obviously result in large transfers of capital from the North to the South, since the advanced countries will have to pay for exploiting more than their share of GOES.

This transfer of resources should improve the relative position of the Third World vis à vis the first and second. But it will make the exploitation of GOES more uneconomical for the advanced countries and hence may slow down overall development. Equalization, therefore, may have to be bought at the expense of growth.

In their extreme form, these two scenarios involve a common trade-off between social equality and economic optimality. It seems that those two principles are applied in inverse ratio. Because of this apparent mutual exclusivity, international politics is presently trying to devise ways to affect an acceptable rapprochement of the two sides.

The *third* scenario is an example of such rapprochement. As the UNISPACE '82 Report put it: GOES optimal utilization requires planned arrangements which are both equitable and flexible. If our international institutions succeed in combining these two principles, then and only then will the present political issue be resolved satisfactorily.

As global interdependence is increasing, especially in the realm of

GOES, international cooperation becomes more and more imperative. But any cooperation requires compromises from all concerned so the moderate scenario is the most politically acceptable alternative.

Admittedly, these and other scenarios should be developed further in order to do justice to them. In particular, the third scenario should be extensively elaborated to become a feasible policy option for many countries, including Canada. Such elaboration, however, would require a study of its own, which we have to reserve for another time.

Conclusion

Before concluding this study, we shall summarize its findings as succinctly as possible. For that purpose, we have devised the *synoptic table* in the next page, which presents an overview of the salient points made throughout this report. The tabulation rationale should be self-evident, so we will only give a minimum of explanation in it.

The three columns obviously correspond to each of the *phases* of our model or chapters of the study. One can, therefore, read vertically each column in turn, in order to follow the sequence of the report.

Cross-cutting these columns are five rows which correspond to the *steps* of each phase or the sections of each chapter. By reading horizontally, one can see that all phases have certain inputs and outputs; with the output of one forming part of the input of the next phase.

In between inputs and outputs are the three steps of the transformation process. The first involves gathering of *evidence*, the second interpreting it according to a general *paradigm* and the third performing the *operation* called for in the algorithm.

This synopsis, therefore, translates the diagram at the introduction into its tabular form in the conclusion. On the basis of this table, one can draw one's own conclusions of both the model and its application in this case study.

Finally, what remains to be done is a short *synthesis* of our findings in the field of GOES.

According to our diagnosis of the situation, GOES has the characteristics of a "common property" because it can be used freely by many parties at once. As any limited property, however, it is subject to congestion, interference and degradation, if it is abused by too many at a time.

It would appear that the world is rapidly approaching a situation resembling a "tragedy of the commons" in many areas, including GOES. This prognosis of a deteriorating situation is basically due to the accumulation of many unilateral actions taken by different par-

ties in view of their own immediate interests. We are beginning to accept that what may be individually rational, could be collectively suicidal. The overall system cannot survive for long, when its members only look after their narrow self-interests at the ultimate expense of the common good.

If this analysis is correct as it applies to the GOES metaphor in particular as well as to the global problematique in general, then it behooves us to try and find a way to reverse the trends and establish a balance between the available resources and the extent of their use.

Under the present conditions in the world system, this search must be a political process of collective policy planning in one way or another. Only a negotiated settlement will be acceptable to all concerned and will resolve the present impasse as regards GOES.

SITUATION-STUDY
SYNOPSIS TABLE

STEPS	PHASES 1 DIAGNOSIS	2 ANALYSIS	3 PROGNOSIS	METHOD
INPUTS	*Semiosis* Satus Quo Situation Question	*Diagnosis* Condition Demands Pressures	*Analysis* Thesis History Variables	GIVENS
1 EVIDENCE	*Symptoms* Indicators Orbit/Spectrum Geosatellites	*Factors* Nation-States Technology Resources	*Trends* Estimates Supply/Demand Extrapolations	MEMORY
2 PARADIGM	*Axiology* Legal Norms Equitable Access ITU-WARC	*Etiology* Conflict-of-Interest Power-Politics Insecurity	*Melontology* Natural Limits New Technology Intentions	PROGRAM
3 OPERATION	*Definition* Problem Identification Maldistribution	*Explanation* Mistrust Scarcity Double-Standard	*Projection* Scenarios Options Innovations	PROCESS
OUTPUTS	*Problematique* Confrontation Congestion Disparities	*Hypothesis* Privileges Structures Affirmative Action	*Forecasts* Propositions Tragedy-of-Commons Anticipations	RESULTS

POSITION DU PROBLÈME DE L'ORBITE GÉOSTATIONNAIRE ET DU SPECTRE DES FRÉQUENCES (APPLICATION D'UN SCHÉMA-TYPE)

Il est possible de faire une analyse systématique d'événements courants, à l'aide d'un schéma-type qu'on applique ensuite à un cas spécifique ayant soulevé une controverse internationale.

L'algorythme de ce schéma-type se divise en trois phases: le diagnostic, l'analytique et le pronostic. Chacune de ces phases comprend plusieurs étapes, qui, si elles étaient suivies avec rigueur, conduiraient à la description complète, à l'explication et à la détermination des perspectives futures de la question analysée.

L'étude d'une question politique d'actualité ayant trait à la répartition de l'orbite géostationnaire et du spectre des fréquences entre les états du système mondial permet d'illustrer le fonctionnement de ce schéma.

Une telle procédure a pour but d'améliorer l'élaboration des politiques publiques grâce à un examen approfondi des problèmes sociaux et à la recherche de solutions globales.