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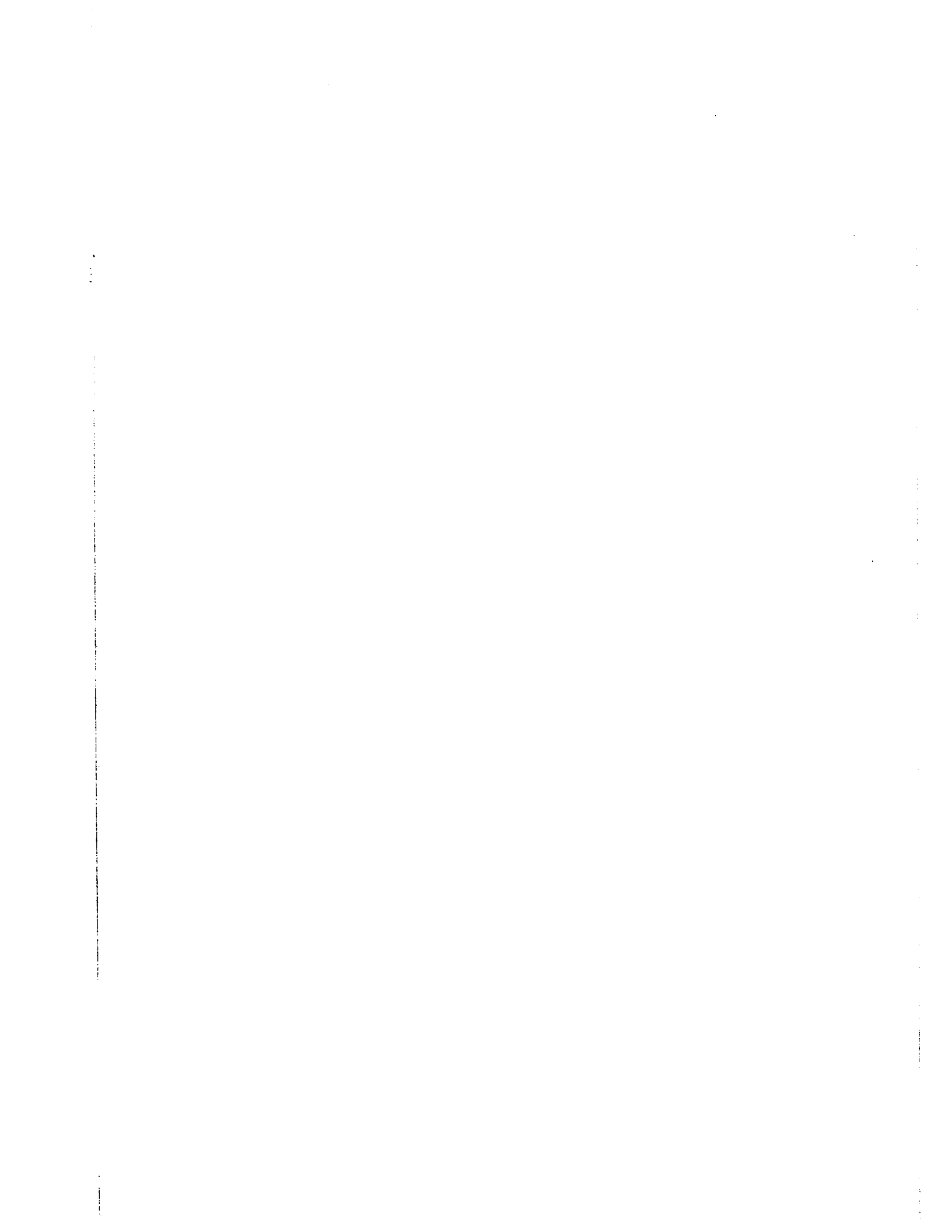
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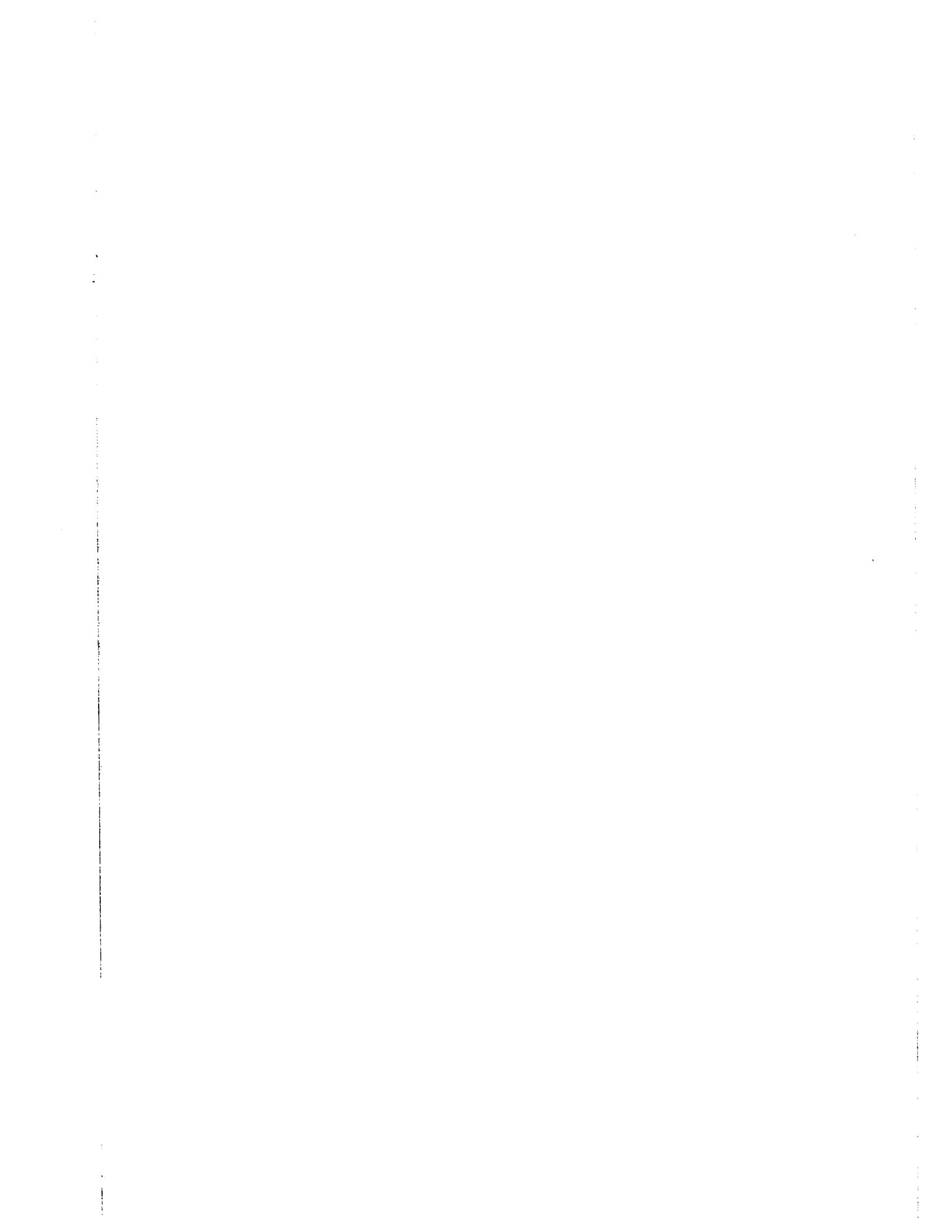
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TOWARDS AN ORGANIZATIONAL PLANNING SYSTEM DESIGN:
IMPLICATIONS FOR REGIONAL PLANNING

by Jean-Marc Lemire

Thesis presented to the School of Graduate Studies
in partial fulfillment of the requirements for the
degree of Master in Planning

UNIVERSITY OF OTTAWA

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UNIVERSITÉ D'OTTAWA / UNIVERSITY OF OTTAWA
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Title of thesis AN ORGANIZATIONAL PLANNING SYSTEM DESIGN: IMPLICATIONS
FOR REGIONAL PLANNING

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"The alternatives before us are having self-centered, non-symbiotic social systems, unable to cope with the challenge of the new environments, de-differentiating or else maintaining themselves by freezing their mis-functioning institutions into bureaucratic rigidity, or achieving a 'world' system of mutually symbiotic societies, mapping the new conditions into a flexible institutional structure and dealing with change through constructive reorganization" (Laszlo, 1972:282).

ABSTRACT

The purpose of the thesis is to explore the design of a planning system applicable to any formal organization. To do this, issues which are related to planning systems of various types (corporate, voluntary, public) are examined in chapter I. In order to take these issues into account, the chapters II and III indicate that the concepts of system and of design should be better understood. This provides tentative guidelines for the design of systems applicable to the management of organizations (chapter IV). These first four chapters make up the first part of the thesis and provide a review of some of the basic concepts which are needed to formulate a planning system of the type envisaged.

The second part of the thesis essentially describes the various components of the planning system using the guidelines and concepts provided in the first part. In chapter V, an overview of the system is provided while chapters VI, VII and VIII focus on three aspects of the planning system. Chapter VI, 'Planning Operations,' essentially revises already provided steps of the planning process and chapter VII provides guidelines for 'planning authority and responsibilities' which do not appear to have been extensively discussed in previous literature on planning systems. As a conclusion, chapter VIII presents a series of implications of a general planning system for regional planning theory and practice.

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GENERAL INTRODUCTION

Organizational problems and issues seem to have been neglected in planning and policy-making. The relationship between authority and participation in the management of organizations, the relationship between planning and implementation, the relationship between authority and responsibilities, the relationship between responsibilities and the necessary operations of an organization, the origin and the role of the objective and objectives in the construction of human organizations as a type of system, etc. seem to have been difficult to articulate so far. As indicated Dror (1971) "As yet, despite some recent literature on the subject, the organizational problems of planning are among the most neglected subjects in the study of planning, in organization theory and in policy sciences as a whole." Along this line, Friend et al (1974:39, 56) argue that a style of planning which "has not yet received the attention it deserves at the analytical and methodological level, especially in view of its widespread influence on public sector decision-making" is co-ordinative or connective planning. According to these researchers, if public planning is to be useful for the 'management of local and regional change,' it must be recognized that planning activities require 'organizational commitments to action' in a context of 'multi-organizational policy systems.' These form the focus of this thesis which is concerned with the planning of a planning system. More specifically, the purpose of this thesis is to formulate

a design which attempts to describe a planning system applicable to any formal organization. This exploration into the design of a planning system is concerned with: (a) The need for organizations' planning and for planning systems, (b) the similarities of variables which make up various types of organizations seeking to reach an objective, (c) similarities of planning operations and structures among different types of organizations, i.e., large versus small, private versus public, (d) the application of various types of systems hierarchies in planning, (e) the use of a planning approach which attempts to integrate individuals' creativity and organizational wholeness, (f) the notion of planning as orderly participation in policy-making, (g) the form and style of relationship and interaction between several horizontal and vertical organizations, (h) the description of a general planning system from a system design point of view: a review of the literature has not revealed the existence of a 'planning system design' as such, and (i) the implications of this information for regional planning.

The methodology followed in this thesis consists essentially in a literature review of the theories and the reported practices pertaining to the fields of planning systems and design and in the logical derivation of a model or guide for the set up, maintenance and evaluation of a planning system for formal organizations. Not all the theories nor the reported practices have been investigated during the development of this thesis. The present attempt tends to be biased toward a social psychological and operations research viewpoint and does not give due regard to the important works on ecology (e.g., Bateson, 1972; Odurn, 1971) and biology (e.g., Emery, 1969; Wilson, 1975).

Nevertheless we feel that the internal consistency of the content of the thesis along with the empirical referents used provide a significant basis to judge the validity of the results. It should further be kept in mind that the planning system design presented includes its own evaluative capacity thus suggesting that this model is open to new information which could be provided when the resources will be available. It should also be noted that although the basic concepts of the model presented here are applicable to any formal organizations, some aspects of the model are presented for organizations of about twenty-five individuals and more.

The thesis is thus divided in two parts. In the first part, the basic concepts of planning systems designs are reviewed with a particular emphasis on the regional and spatial dimension of organizational systems. In the second part, a model or design of a general planning system is documented. Emphasis is given here to planning operations or sub-systems, to planning structure or authority and responsibilities and to the implications of our view of planning to regional planning.

PART ONE

PLANNING SYSTEMS DESIGN: CONCEPTS

INTRODUCTION

The purpose of this first part of the thesis is to review the basic concepts of planning systems design within a variety of planning contexts. In the first chapter we will examine the two notions of planning activities and of planning systems to derive a general understanding of these two notions while acknowledging a series of related problems or issues. The most general issue which is dealt with is whether or not planning activities in general and planning systems in particular are required. Assuming a positive answer, the question becomes: How planning systems can best be integrated into organizations? This question is further elaborated in the second chapter where we review theoretical and applied concepts of systems to establish a general understanding but also to identify the potential for the useful application of systems concepts to organizations. This leads us to the information needs of managers of organizations and to a series of problems regarding current applications of systems concepts to organizations. These two sets of issues are dealt with in the two subsequent chapters.

In the third chapter we examine the concept of design in the context of planning and systems. This provides us with a typology of designs from which we derive two basic characteristics: Wholeness and creativity. The wholistic aspects of design stress the notion of communication while the creativity aspects stress the notions of individuality and specificity. From this examination we derive a concept

of design as a "communication instrument which can permit us to consistently and explicitly describe current or proposed social systems but which also allow individual and creative inputs to permeate and specify such descriptions or proposals."

In the fourth chapter we present 'guidelines for systems designs' as the communication instrument, discussed in the previous chapter (III), but also taking into account the deficiencies, identified in chapter II, with applications of systems concepts to organizations and management. This approach assumes that a 'plan' can be viewed as a 'design.'

CHAPTER I

ISSUES OF ORGANIZATIONAL PLANNING SYSTEMS

The purpose of this chapter is to derive a general understanding of planning activities and of planning systems while documenting several issues related to these two items for formal organizations. In this review, particular emphasis will be given to some of the 'traditional' premises of planning and to some organizational aspects. To accomplish this purpose, we will briefly discuss: (a) Organizations' needs for planning, and (b) organizations' needs for planning systems.

The expression 'formal organization' means here a group of individuals which forms a "network of social relations" and which "shares similar orientation" or goals (Blau, Scott, 1962). To insure a number of perspectives and inputs in this presentation, the concepts of society-nation, corporations or agency will be viewed within the purview of a 'formal organization.'

1. Organizations' Needs for Planning

Planning has been defined differently by many authors. The following is a random selection of such definitions:

"The process of preparing a set of decisions for action in the future, directed at achieving goals by preferable means" (Dror, 1963).

". . . a process of coordination, a technique of adapting means to ends, a method of bridging the gap between fact-finding and policy-making" (Galloway, 1941).

". . . a method for delineating goals and ways of achieving them" (Banfield, 1964).

". . . policy formulation and realization through choices and rationalization" (Kahn, 1969).

Short lists of definitions have also been provided by Dror and others.

The definitions of 'planning' may change over time as the concept becomes better understood. In spite of this short-coming, there is a general consensus that 'planning' refers to a method, a process or a mode of thought related to the rational formulation and preparation of activities to be implemented at a later date.

We could possibly determine the needs (necessity) for organizations' planning through a list of the expected consequences of planning. Various specialists in management and planning have explained in the following terms the expected consequences of planning:

"Planning forms the basis from which all future management actions arise, and the manager who ascertains and knows which goals to establish and what steps must be taken to achieve desired results, what results must be attached, and what basic elements will be required is reasonably certain to gain greater accomplishment than if he operated on a day-to-day, a guessing, or a hit-or-miss basis.

Without the activities determined by planning, there would be nothing to organize, no one to actuate and no need to control" (Terry, 1968).

"The function of management planning includes the formulation, determination and development of: objectives, policies, plans, programs, budgets, schedules, standards, methods, procedures, and organization" (Carlson, 1962).

"The challenge is the need to 'manage' the resources of the whole human environment, . . . planning must seek to guide and control systemic change" (McLoughlin, 1969).

"Our endeavour to employ strategic planning techniques was undertaken to realize a higher level of cost-benefit results and to do so in terms of both facilitating the personal growth of the key employees of the office and becoming more responsible to the will of the citizen" (Javits, 1976).

In his review of the theoretical and research literature regarding management for organizations, Miner (1971) has concluded that 'planning' is consistently viewed as a primary and essential function or process. In general, there is agreement that lack of planning will bring lack of integration, lack of coordination, lack of consciousness (past, present, future) and less appropriate decisions (Ross, Kami, 1973).

Unfortunately, there are several problems pervading the above statements regarding the necessity for planning. Firstly, little

research has been carried regarding its effects (expected as well as unexpected). Statements of such inadequacies were pointed out by Glass in 1959 (Glass, 1973:43-67) and more recently by Branch (1978). Dakin (1960), on the other hand, stated that "We cannot pretend that we are taking adequate measures to feedback the results of our planning activities into our thinking and practice." Similarly, Caldwell (1975) found that "A rare occurrence among the companies surveyed is a careful and systematic comparison of the plan with actual results."

Secondly, in order to evaluate the 'planning phenomenon,' its characteristics, components or elements must be distinguished from other phenomenon. A series of efforts have already been made in this regard. Dror (1963) has used Guttman's facet design concept to describe the various aspects of planning, Friedman (1967) has proposed "a conceptual model for the analysis of planning behaviour," Checkland (1972:97-116), Churchman (1968:146-76) and others (Bolan, 1971), have attempted to describe, specify and integrate elements of planning. Without reviewing in detail these approaches, we can identify a few aspects which concern us. Some of these presentations use an academic-analytical framework instead of an administrative-management oriented framework thus making difficult real-life identification. The first approach is essentially concerned with identifying knowledge of causal relationships while the second with moving current behavior towards an ideal one. Other frameworks use a series of related concepts to planning which seem to be either confused or confusing, for example: Policy, forecasting, levels of planning, scenarios, futurology, policy analysis, etc.

Thirdly, there has been a series of suggestions regarding the possible dangers and omissions of planning as presently understood and practiced. This point relates simultaneously to the two above problematic areas. Ward (1970), for example, found in his study of a therapeutic environment, that: "The role of value judgements in design methods has become obscure by the numerous techniques and mechanisms which architects and planners have accepted." Along with this problem, there is the difficult issue of 'distributive justice.' Churchman (1971) and others (Miller, Robby, 1970; Gans, 1973; Barry, 1973; Peterfreund, 1975), have pointed out the difficulty of integrating the concepts of diversity and individuality in a planning approach which typically standardizes and equalizes.

Fourthly, following his presentation of skeptics', non-intellectuals' and determinists' anti-planning approaches, Churchman states that there are two other anti-planning positions that should be integrated into the planning frame. Firstly, planning activities should integrate "the determination of religious assumptions." Secondly, there is the 'philosophy of self': "it is the position that the world as it really exists, exists in the individual self . . . the problem of living consists in the attempt to understand what we really like in ourselves and the different kinds of selves that we are." Churchman concludes to his own debate that the confrontation of science and the self has been weak, "Only in psychoanalysis does the debate flourish . . ." (1968). Frankl (1963), for example, indicates that "Logotherapy focuses . . . on the assignments and meanings to be fulfilled by the patient in his future. . . . It defocuses all the vicious-circle formations and feedback mechanisms that play such a

great role in the development of neuroses." Along a similar line, Tyler (1976) proposes an 'existential planning' approach to the development of individuals.

Fifthly, one cannot discard Rondinelli's most radical attack on urban and regional planning theory and practice (Rondinelli, 1975). His first point is that rational-comprehensive planning understood as the production of an 'ideal' development plan "specifying optimal targets to which resource-allocating organizations would conform . . ." and which would be the long-term solution to current and future problems cannot be operationalized and does not take into account the uncertainty of the decision-making environment. He explains, "rational calculation in policy analysis . . . is limited . . . because organizations lack information about the conditions under which they act . . . and because one participant in the policy-making process makes decisions without knowing what decision all other groups are making" (1975:203-204). This uncertainty, in turn, "arises from the characteristics of the structure and process of the policy-making system" (1975:205). Further, uncertainty is necessary to create leverage and influence on other organizations even "beyond the value of their stock of resources and power" (1975:207-10). Comprehensive-ness, on the other hand, is "constrained by 'spill over' effects from past decisions, externalities of current activities, and unanticipated consequences," the cumulative result of diverse organizations, the costs of interaction, the complex, amorphous and difficult-to-define problems, the long lead and lag times between problem perception, policy response and program implementation, the availability of means to perceive problems, etc., the difficulty of determining real

policy output, the indeterminate number of policy alternatives, the subjective interpretation of evaluation data on policy alternatives, the adjustment to expectations of success and the pursuit of policy objectives through 'foot-in-the-door' and incremental strategies, etc. (1975:212-31).

Rondinelli's second point is that objective, non-political, technical ideals of planning decision are essentially based on a rudimentary notion of economic-efficiency which is itself questionable and does not take into account other 'valuable' 'reasons' (Rondinelli, 1975:48; Diesing, 1962). Referring to Redford (1975), the author quotes: "the greatest deficiency of the efficiency goal is not that efficiency is non measurable, but that the goal itself is inadequate." Referring to Homans (1961), Rondinelli states: "Since almost as many possible combinations of values, ends, and means are introduced into the policy-making process as there are participants, the concept of rationality is highly subjective."

Two other related criticisms of traditional planning, by Rondinelli, refer to the faulty assumption of necessary centralized control and coordination and hierarchical integration of policies and programs. He explains, "The multinucleated structure of regional policy-making is the result of the way in which a complex society makes its social, economic, and political decisions rather than of pernicious administrative inefficiency, social irrationality, and political disorder. The pluralism, decentralization, openness, shared influence, and disjointed performance of functions result from the ways organizations respond to conditions in their environment.--But these processes that shape the structure of regional organization

cannot be made to conform to the traditional prescriptions of planning administration, which attempt to ignore, suppress, or centrally control the effects of such interaction . . ." (Rondinelli, 1975:60). "The desire of local governments to maintain a variety of leverage points in policy-making process militate against imposition of widespread government consolidation, centralized coordination and hierarchical integration" (1975:54).

In regard to the traditional dependence of planning theory on regulatory penalties and control, Rondinelli follows Dahl and Lindbloom's (1953) contention that this approach to compliance "is the weakest means of influencing policy-making behaviour. Complex policy-making debilitate subordinate-superior relationships upon which regulation and command depend, as do the costs of detection, enforcement, and punishment of violations. Regulatory controls provide few incentives for compliance when penalties can be avoided or mitigated" (Rondinelli, 1975:252-53). Finally, Rondinelli briefly despises "The national urban redevelopment policies which were aimed at the physical symptom of urban distress rather than at underlying socio-economic problems that produced physical deterioration" (1975:33-34). He quotes Webber who noted that "neither traditional city plans nor underlying studies have successfully depicted the city as a social process operating in space" (1975:37).

On the basis of his in-depth study of regional policy-making in Northwestern Pennsylvania, Rondinelli identified twelve sociological and spatial variables and sixteen organizational and institutional (political) variables which continuously influence the process of policy formation and implementation and the structure of regional

organization (Rondinelli, 1975:152). In that study he arrived at the following characteristics of current policy-making and structure (1975: 130-31): (a) That the "structure is organizationally complex, pluralistic, fragmented, and decentralized," (b) that "control over resources and decision-making power is disjointed and dispersed, both organizationally and geographically, over subsector of the region," (c) that "the policy-making structure is open to external influence from both public and private organizations," (d) that "regional development functions are shared," and (e) that "influence and power are shared, albeit unevenly, by the numerous organizations within the pluralistic policy-making structure." These conclusions led Rondinelli to propose a radical re-orientation of current theory and practice of urban and regional planning to take into account the political and socio-psychological aspects of group interaction in policy-making.

2. Need for Planning Systems

As indicated above, many view the necessity for planning activities but, should these activities be integrated into formal or recognized systems? Such a question first necessitates a definition of 'system.' Klir (1969) among others (Melchers, 1975; Johnson et al, 1973; Kast, Rosenzweig, 1972; Klir, 1972) have already listed a series of definitions of 'systems.' In spite of such diversity, there seems to be general agreement that a system can be defined as "a set of interrelated elements" (Ackoff, 1971).

At least five 'reasons' can be provided to support the notion that planning activities should be integrated into a system. Firstly,

if we assume that planning involves a series of activities aiming at the same objective (i.e., the objective of planning), then the value of a systems approach to integrate those activities appears positive. From a process point of view, Checkland (1972:87-116) has successfully used a systems approach to develop a methodology for problem-solving akin to a planning process and McLoughlin (1969) has used a systems approach to present his urban and regional planning process. From an organizational point of view, Faludi (1973a) has presented the activities of a planning agency using a learning system framework, etc.

Secondly, the mere existence of organizational planning systems may be indicative of a need for such systems. Government agencies at all levels have attempted to set up planning systems noticeable through the existence of numerous planning groups and agencies (Howlett, 1975; Turnbull, 1976). In 1963, the Stanford Research Institute estimated that sixty percent of the Fortune 500 companies had formal long-range planning systems (Simmons, 1977:20). A recent survey of various types of industries and businesses in Canada concluded that: "With the exception of many small firms, most Canadian companies use formal corporate planning procedures in one form or another" (Caldwell, 1975).

Thirdly, a perception of the cause-effect relationship between needs for planning and the success of agencies with a planning system suggest their positive contribution. Dix et al (1972:71) explain that profit fear, size, capital requirement, financial planning, diversification, growth opportunity identification, capital allocation, etc. led to the setting up of corporations' planning systems. On the other hand, a three-year survey of the "Five Best Managed Companies" selected by the editors of the Dunn's Review shows that all of them

have had a formal planning system for more than five years (with one exception--now, 1977, in the process of setting one up) (Simmons, 1977:20).

Fourthly, there is the general understanding (Mikulecky, 1974:2, 3) that lack of interrelations among an organization's activities will bring confusion, create gaps, promote duplication and will permit cross-purpose activities. As summarized in Pye (1964:15, 19): "Everything everywhere may be regarded as a component of a system. It is fruitless to consider the action of a thing without considering the system of which it is a component."

Fifthly, the necessity for the continuity and for the improvement (or sophistication) of the planning process would suggest an integration of formal procedures and activities. As indicated by Lorange and Vancil (1977), planning "system maintenance and coordination is the planner's primary function . . ." These researchers' view of planning is that it is a continuous or cyclical process involving the continuous redesign of the process itself. On the other hand, according to Naylor (1976), in order to use 'planning models' or 'modeling systems,' it is a prerequisite that "the design of the planning systems for the organization should be set in place." Also, if we view the planning process as both an invention and as a producer of invention, continuity is important. According to Gilfillan (1953), the first social principle of invention is 'accretion' which means 'continuity of development.'

The above suggests that planning activities within an organization or for organizations, should be systemized. However, how can planning activities best be interrelated and which factors may

condition the success or failure of the system? There exists a profusion of planning systems but few empirical attempts seem to have been made to differentiate them and to indicate their points of communality as well as their levels of effectiveness. Forrester (1968: 10-11) indicates that the process of integrating activities produces a dynamism which would not otherwise be produced. How positive is this dynamism?

A series of issues needs to be further explored and documented in regard to planning systems: Are so-called 'planning agencies' automatically providing planning systems? Insofar as Canadian urban planning is concerned, the answer may not be as positive as one would like (Gerecke, 1973). How can we best understand the process of planning as systems construction process? How can we best delimit the boundaries of the system to be constructed or being planned for? How can or should planning systems of various levels and sectors interrelate with each other? How does a planning system best integrate itself into or with other organizational processes and elements such as time, management and decision-making, organizational structure, finances, research, etc.? How does it relate to the participation phenomenon?

3. Conclusion

Planning can still be viewed as an essential concept; nevertheless several problems and concerns pervade the assumption of a need for planning and of planning systems. Those issues include the lack of evidence on the positive effects of this activity, the difficulty to clearly distinguish planning from other phenomena, the possible

dangers of formality, the omissions of planning processes and the false premises that planning is a rational-comprehensive process, that it must be coordinated centrally, that it is objective, that it must be integrated hierarchically, that it can be implemented through regulatory control and that it should influence change merely through physical and economic structures.

Assuming that the above problems can be dealt with appropriately, a series of reasons can be put forward which stress the need for the organization of planning activities into systems. Such an approach however also brings its problems and concerns. Among them there is the lack of documentation on existing systems and on their structural or organizational requirements, the possible contribution of general systems theory to planning systems' construction and, the integration of planning systems within human organizations.

CHAPTER II

SELECTED SYSTEMS CONCEPTS

The main concern of this chapter is to identify the basic concepts which would help us to understand human organizations and their management in terms of systems. This is done to best integrate planning systems within organizational contexts.

One approach might consist of investigating existing organizational and management systems, of comparing them according to selected criteria, and then of describing the 'best' one in systems terms. This approach has major drawbacks. Firstly, many organizational, management or planning systems descriptions are not readily available thus necessitating expensive and time-consuming research. Many descriptions would probably not be made possible simply on the basis of some need for secrecy. Secondly, existing systems would be conditioned by their contexts (size, geography, personnel, etc.) and generalization work would still have to be performed. Thirdly, none of the existing systems may be 'close' to an ideal system which could be designed otherwise. For these reasons, the approach that is used here is to derive a set of systems concepts from both existing theories and generalizations.

A conceptualization of organization theory in terms of systems theory is already a trend (Mayntz, 1964; Scott, 1961). Nevertheless, there remains a difference between those two notions. Human

organizations are only one type of system. Johnson et al (1973) situate human organizations as the eighth of their nine levels and types of systems amenable to empirical analysis. Furthermore, various researchers, as will be noted, have applied the concepts of systems to organizations in different ways.

In the following, we will present (a) a paradigm of systems characteristics and (b) selected systemic descriptions of organizations or of organizational elements.

1. A Paradigm of Concrete and Open Systems Characteristics

A brief review is made here of some simple¹ and generally accepted characteristics of concrete and open systems derived from widely used documentation (Ackoff, 1971; Katz, Kahn, 1966; Rosnay, 1975; Laszlo, 1972). A few additional specialized sources are also used as will be noted.

A system is a set of interrelated elements. Those elements may refer to activities (or events) and their requirements (Laszlo; Ackoff; Katz and Kahn).

A concrete system is a system involving two or more things. Things are not concepts (Ackoff).

An open system is one which permanently relates to its environment. This relation is based on inputs from the environment and on outputs to the environment. Without this relationship the system disappears (Katz and Kahn; Ackoff).

A system's environment refers to all the elements or variables situated beyond the boundaries of the system which affect or can affect the system. Those elements may be interrelated and thus

¹For a more comprehensive review, one should examine the contributions of Bertalanffy (1975), Boulding (1956), Emery (1969) and others.

considered as systems themselves (Ackoff; Laszlo; Rosnay).

An input into a system may cause the system to react (internal change in one or more property of the system sufficiently produced by the external factor), to respond (internal change necessarily produced) or to act (internal change self-determined but produced by the inputted element) (Ackoff).

The reception of inputs into a system is selective. The selective mechanisms include filters to admit and reject elements and coders to translate or adapt the inputs to the system. The role of those two mechanisms are determined by the objective(s) of the system (Katz and Kahn; Nichols, 1966; Rosnay).

A system may be organized to reach an objective or a goal (teleological system) (Rosnay).

An output of a system is the product of a systems process and may be considered as an objective or goal (Ackoff).

A system can reach the same objective from differing initial conditions and by a variety of paths (Equifinality Principle) (Katz and Kahn).

Using its inputs and its already acquired 'elements,' a system has mechanisms moving it toward self-destruction (entropy) and self-stability (negentropy). The interaction of those two sets of mechanisms create a homeostatic dynamism which moves the system towards self-organization (ultrastability).

A system has self-stability or homeostatic mechanisms to maintain it or restore it as closely as possible to its previous state when affected by internal or external factors. A state of a system refers to a set of characteristic or typical properties of a system.

A system will attempt to anticipate disturbances (or future affectations) of its properties through growth: Differentiation, acquisition of new properties, expansions of boundaries, increased number and state of interaction, increased complexity and variety of properties or elements, multiplication and elaboration of roles with greater specialization of functions. This cumulative growth ultimately leads to total disorganization or self-destruction of the system.

The homeostatic dynamism uses information on the effects of the system on its environment (Feedback Principle) to either increase the same effects (positive feedback) or to change the system's elements or the environment (negative feedback). The interplay of these two kinds of inputs move the system toward a new, more complex 'equilibrium' (dynamic steady state, quasi-stationary equilibrium) conserving its character while producing new elements (such as supportive systems), new functioning and reorganizing its elements (fixed forces, internal constraints) (Katz and Kahn; Laszlo; Rosnay).

Using its inputs and its already acquired 'elements,' a system can give itself self-direction--it can change its objective (Laszlo). It can increase its efficiency in the pursuit of an objective without changing conditions (learning) (Ackoff).

Changes within or by a system on its environment involve time periods (Rosnay).

A system, which anticipates the future, will tend to set up bank(s) or stores or 'elements' to be used later and set up communications networks to permit exchange among elements and among elements and banks, and among the system and its environment (Katz and Kahn; Rosnay). Elements, banks and communication networks of a system are

situated in space (Rosnay).

A system has hierarchical properties (hierarchical law of organization). A system at a particular level is part of a higher system and includes systems of lower levels (stratified description hierarchy: The description of a vertical ordering of systems or system elements according to the level of generality and of specificity) (Laszlo). A system can include a series of decision units ordered in a sequential number in such a way that the decision of one contributes to the decision (or solution) of the next unit and so on (decision layers hierarchy). A system can also include a series of decision-making units ordered in a dominance subordination manner: In this case the higher level units partly control and condition (through authority and responsibility) the goal-seeking activities of the lower level unit(s) (multi-echelon or organization hierarchy) (Mesarovic et al, 1970; Johnson et al, 1973).

2. Selected Systemic Descriptions of Organizations

A series of specialists have attempted to use a systems approach to describe human organizations or their components. The specialists selected here have been recognized by others (through reference or direct use of their framework). Churchman (1968) and Henry (1975) provide five steps for the design of a system within a management context. These steps involve the description of the following:

- (a) The total systems objectives, stated in terms of performance measures of the whole system;
- (b) the systems environment including the 'clients':

Also referred to as fixed constraints;

- (c) the resources of the system (including information):
Also referred to as "the things the system can change and use to its advantage";
- (d) the components of the system, their activities, goals and measures of performance: Also referred to as "the product-lines" or "those sub-systems that produce and market each produce," "missions," "jobs," "activities," "the rational breakdown of the tasks the system must perform";
- (e) the management of the system: Also referred to as "the decision-making on the amount of resources to make available to each product-line," ". . . has to do with the generation of the plans for the system" . . . "set the component goals, . . . and control the system for performance."

Following his comprehensive review of systems concepts, Ackoff (1977) presents his view of the "four essential characteristics" of that type of system called 'organizations.' These characteristics are summarized as follows:

- (a) "An organization is a purposeful system that contains at least two purposeful elements which have a common purpose." (For him, a group of unwilling prisoners or slaves may form a social system but not an 'organization').

(b) "An organization has a functional division of labour in pursuit of the common purpose(s) of its elements that define it." "Each of two or more subsets of elements, each containing one or more purposeful elements, is responsible for choosing among different courses of action." "The classes of courses of action and (hence) the subsets of elements may be differentiated by a variety of types of characteristics"; for example:

1. By function (production, marketing),
2. by space (geography),
3. by time.

(c) "The functionally distinct subsets (parts of the system) can respond to each other's behaviour through observation or communication."

(d) "At least one subset of the system has a system control function. This subset (or subsystem) compares achieved outcomes and makes adjustments in the behaviour of the system which are directed toward reducing the observed deficiencies. It also determines what the desired outcomes are. The control function is normally exercised by an executive body which operates on a feedback principle."

Emery and Trist (1975) characterized "complex social systems" as follows:

- (a) "adaptive rather than mechanistic systems. That is, a given stimulus A does not automatically call forth a predetermined response B";
- (b) "learning systems, which are continually changing their centre of gravity, structure and external linkages in a cumulative response to generative factors";
- (c) "systems which are open to influences deriving from their external (or contextual) environment";
- (d) "systems marked by extreme interrelatedness among the constituent parts--that is organized complexity";
- (e) "systems in which there is considerable substitutability or interchange of parts and functions."

Katz and Kahn (1966) divided an overall organizational system into five subsystems:

- (a) The production/technical subsystem which is concerned with the transformation of resources into a product.
- (b) The supportive subsystem which is concerned with the input of resources and the output of products.
- (c) The maintenance subsystem which is concerned with tying people into functional roles.
- (d) The managerial subsystem which is concerned with the control, coordination and direction of the subsystems.

- (e) The adaptive subsystem which is concerned with the anticipation of relevant changes.

To each of these subsystems, Katz and Kahn relate the well-known elements of organizations: Job specifications, organization structure (division of labour), legal and social support, punishment (sanctions), recruitment, selection, training (socialization), research, planning etc.

Nadler (1970; 1973) concluded to his review of the literature and to his experience that any system includes seven basic elements and that each element can be specified according to four basic dimensions. Those elements and dimensions can produce what he calls a "system design matrix." He used this matrix to better design organizations and their activities and consequently to improve management. This matrix is as follows:

	Dimensions			
	Physical	Rate	Control	State
Function				
Inputs				
Outputs				
Sequence				
Environment				
Physical Catalysts				
	Real life	Measures goals	Management	Future planning

Figure 1:- System Design Matrix

Function refers to the mission (aim, results sought); inputs refer to resources entering the system; outputs refer to the processed inputs; sequence refers to the conversion process needed to change the inputs into outputs; environment refers to the setting of the system; physical and human catalysts refer to the physical and human resources that aid in the sequential process to change the inputs; physical dimension refers to the real life aspect of the element concerned, rate dimension refers to any measurement of the physical dimension; control dimension refers to the method of measurement and state dimension refers to the time aspect of the element.

Bourne's (1975) study of urban systems led to both a definition of such types of systems and to a list of their characteristics. He defines an urban system, within a western economy context, as an organization consisting of at least three levels as follows:

- (a) A national system dominated by metropolitan centres and characterized by a step-like size hierarchy, with the number of centers in each level increasing with decreasing population size in a regular fashion;
- (b) regional sub-systems of cities nested within the national system, and;
- (c) local or daily urban systems contained within the regional sub-systems.

These systems have various dimensions. They are "hierarchized in terms of city size, function performed, and the types of interaction

which define the role of each urban centre within the larger system." These hierarchical dimensions seemed to include social, economic and political aspects of the systems. A second dimension identified was space which seems to refer to the geographic and environmental situation of the systems elements viewed here as 'urban centers.' A third dimension, very related to the hierarchical one (if not the same) is structural: "Structural refers to the hierarchical or vertical organization of the national and regional economies . . ." A fourth dimension was temporal. The dimension of time was viewed as containing the spatial dimension.

Bourne points out three major "properties of urban systems" as follows:

- (a) "Distributive and redistributive mechanisms" which affect growth and inequalities in living conditions and social choice (allocation of income, resources, goods, ideas, opportunities, etc.). "One widely debated example" is "interurban or interregional migration" involving "the migrants themselves, those people left behind, and those the migrants join in the larger centres." Under this topic, Bourne includes three of the five types of regulating and transformation mechanisms presented by Vicker (1973): (1) "control by rule--the type of response conditioned by simple conditions and circumstances," (2) "control by purpose--a learning or heuristic process in which the result of the intended activity leads to revisions of the choice available," (3) "control by norm--the matching of

results and goals and the working out of conflicts."

This 'regulative' approach is viewed by Bourne as producing "policy responses to urbanization" or "urban strategies" directed towards the solution of a series of contemporary "issues" (agglomeration, decentralization, polarization, disequilibrium and externalities).

- (b) "Growth in urban systems" which accentuates redistributive mechanisms, relates to: The "filtering of growth-inducing innovations down the urban-size distribution from the centre of innovation . . . to increasingly smaller centres"; "the spreading of these innovations"; the "adoption" of innovations; centralized information as a location factor; multiplier effects from economic growth and social change; interdependence between large organizations, etc.
- (c) "City size" which may be necessary to reduce costs and increase benefits, "to provide and to perform a specific mix of functions and services," to provide an "appropriate level of diversity in jobs and living conditions, as well as a built-in mechanism which would ensure self-sustaining growth . . ."

A point which can strike a reviewer of systems applications is the fact that little reference is explicitly made between the systems paradigm used and the application itself. Although the application of systems thinking is obvious, it is not always clear which of the systems concepts are being used. In the following, we will attempt to

briefly identify the systems concepts used in the six above presented applications and we will indicate related issues.

- (a) On systems objectives: There is still not a consensus on the use of the term 'objective.' Terms such as 'function,' 'purpose,' 'policy,' 'goal,' are used with a similar meaning. There is general agreement that to be 'organized' a system must have objectives. It is not clear, however, where they come from nor why there should be several.
- (b) On systems environment: There is general agreement that the 'things' outside the system are part of the environment, context or setting of the system. It is not clear, however, when a part of the environment is also part of the system: For example, a consumer who is a shareholder.
- (c) On systems boundaries: In the 'applications' this concept is little dealt with except indirectly through 'control,' 'input,' 'output,' 'environment,' 'space,' etc. The difficulty with this concept may have to do with the notion that a system has several boundaries, each one related to an element of the system.
- (d) On systems resources: These are consistently viewed as systems inputs. One type of input sometimes not dealt with or difficult to handle is 'information.' (Dakin, 1973).

- (e) On systems production: This aspect of systems is sometimes viewed as a structural framework (organization structure, etc.) and sometimes as an activity (tasks, etc.). Terms such as 'transformation,' 'processing,' 'breakdown of tasks,' 'sequence,' 'division of labour,' etc. are used with a similar meaning. There seems to be general agreement, however, that it is this aspect of the system which best permits one to introduce the notion of sub-systems.
- (f) On systems outputs: These are consistently viewed as immediate results or products of either a sub-system or of the total system.
- (g) On systems banks and stores: There is little explicit elaboration on this concept in the 'applications.' One explanation may be that this concept is implicit to several or all elements of a system.
- (h) On systems interrelations of elements: Vertical interrelations are typically understood through the concept of hierarchy, however, reference to formal horizontal or diagonal relations are seldom elaborated upon. The concept of filter is also introduced here as a middle element changing either the direction or the 'qualities' of a relation.
- (i) On systems hierarchy: Various types of hierarchy are referred to in the 'applications.' Little distinction

is made of the type used. The 'urban systems' appear as a case where several types are simultaneously dealt with.

- (j) On systems interchange of parts: This concept is little elaborated upon in the 'applications.' This concept might be implied by several or all elements of a system (a dialectical view of each system element might provide an alternative and thus a possibility of interchange).
- (k) On systems adaptability: This concept consistently implies such concepts as: Regulation, learning, anticipation, change, evaluation, research, planning, feedback, control, etc. One issue here is the overlap of these notions or mechanisms with the notion and mechanism of management.
- (l) On systems management: This concept consistently refers to execution, coordination, control, direction and systems adaptability.
- (m) On systems dimensions of space and time: These two dimensions are continuously referred to but in different ways. The space dimension may refer to location, size, distance (physical or psycho-social), geography, etc. The time dimension may refer to periods, moments, past, present, future, etc.
- (n) On systems definition: There appears to be at least three components which serve to define a system in the

above 'applications': 'things' or 'purposeful elements' (Ackoff, 1971); 'activities or events' (Katz and Kahn, 1966); and, both things and activities (Bourne, 1975).

In general, systemic applications to management and organizations use very related concepts but with different terms. Many systems concepts do not seem fully exploited and some applications remain problematic. Systemic applications are not always comprehensive, i.e., attempting to cover all main aspects of a system (Emery and Trist; Bourne). On the other hand, comprehensive applications such as Churchman, Katz and Kahn, and Ackoff models appear too general for immediate managerial consumption. Nadler's model appears the closest to our view of a comprehensive management-oriented description of a system. Unfortunately, his definitions and use of the terms seem difficult to apply consistently. There is little concern for the needs, problems or concerns which necessitate the system to exist; the definition of function is used inconsistently as either an objective or as an activity (operation), the 'dimensions' require a great deal of imagination to apply which, although desirable, may bring results open to interpretation, and the 'matrix' might discourage its use by managers because of its appearance of complexity.

3. Conclusion

In spite of the above stated shortcomings, the applications of systems concepts to organizations seem to have been workable and enlightening. However, along the road of theory to application, systems concepts seem to have lost their meaning and their potential

contribution. If we want to integrate planning systems with management and organizations, we must improve on one hand the linkage between the notion of system and the needs of managers of organizations and, on the other hand, we must deal specifically with the above stated issues. This is the purpose of the next two chapters.

CHAPTER III

THE DESIGN CONCEPT

The notions of system design and of planning system design are not new. Nevertheless, seldom do we find, in such expressions, the term 'design' explained. Much of this may have to do with some confusion which persists regarding the meaning of this term used in those contexts.

1. Types of Design

The term design has been used by a variety of disciplines (Glegg, 1973:7-9): Visual communications, engineering, interior and industrial design, architecture, landscaping, literature (Lynen, 1969), economic development, scientific research, etc. In these cases the term has been used in at least three different ways. Firstly, the term has been used to describe a process (Edel, 1969). Typically, this process was related to the planning process and in such a case one is referring to the verb 'to design.' According to Chermayeff et al (1973:5-6) "To design is to solve human problems by identifying them, examining alternate solutions to them, choosing and executing the best solution." Secondly, the term has been used to refer to the form of a product (Gorb, 1976). Typically, this notion was related to the one of 'system' or to the noun 'design.' According to Balinger and Vroman (1965:27-29) and to Rhead (1965), the principles of design give a

"prominence to a particular form or area: The principle of unity provides 'a satisfying sense of relationship' among the elements of a design." Finally, a design has been used to indicate both a process and a form (Asimow, 1962). Such interesting compromise is provided for example by Glegg (1973:7-9) when he states: "design is a succession of plans that progresses from ideas to physical forms." Design is viewed here as a product moving within a particular process.

2. Wholeness and Creativity

Although 'design' and the need for such have been documented in a way very similar to 'planning' and 'system,' the discussion has pointed out two notions which have been difficult to interrelate in planning theory and in practice. Those aspects are: Wholeness and creativity.

The concept of 'design' seems to be a unifying concept. It appears as the medium or the contemporary meeting place of the two controversial concepts of structure and function (Whyte, 1967; Muller, 1967) as well as the 'common ground' between art and science (Muller, 1967; Pye, 1964:7). In fact design can be viewed as providing a medium of communication. For William (1950:64-67), the specific planning design provides a "universal visual language." A role of design, according to Chermayeff et al (1973:5-6), is to "enhance communication with people." According to Pye, one requirement of design is its appearance--it "must be acceptable." Elaborating on this notion, Deasy (1974:126-41) explains: "What is most important is that what is communicated by the design is what each viewer needs or wants to see at the moment." This seems to be a point of juncture. From the relation

of design and communication, the relationship of form and function takes place. The design is prepared for a user and must satisfy his needs yet at the same time it 'influences' or 'informs' the user in its own way. As stated McLuhan, "The medium is the message."

Albarn et al (1974) concluded to their study of Islamic patterns that "patterns structure our thinking . . ." This complements Itten's (1975) finding that "exercises in composition of abstract forms (circle, square, triangle) serve in the improvement of thinking and at the same time the study of new means of representation." In their presentation of the 'system design function,' Johnson et al (1973:142-48) clearly point out the necessity to organize information flow to facilitate interrelationships among sub-systems and to provide "the linkage necessary to develop systems of systems."

The creative aspect of design has also been pointed out through various sources. Nervi (1967:105) defines design as "L'invention et l'étude des moyens nécessaires pour atteindre un but déterminé, avec un maximum d'efficacité." Although Pye (1964:15, 19) disagrees with the view that design is a process of invention (defined by him as "the process of discovering a principle"), he admits that "the designer prescribes a particular embodiment of it" (a class of system) and this activity which he refers to as an adaptive activity is, according to himself, an art within some constraints: "design is distinct from art in that it implies function and thus a limitation on imaginable shapes." If we admit, on the other hand, that the process of design is a problem-solving process, as has been proposed by those viewing design as related to planning, then, for Guilford (1968), this process is equivalent to a creative process. Presenting the necessity

for an economic planning system, Galbraith (1973) states: "The creation of the planning machinery, which the present structure of the economy makes imperative, is the next major task in economic design." The term 'design' seems to be used here as a whole which includes the creative integration of a planning system within the overall economic system. The creativity of design is also stressed through Bevilin's (1970:4-11) characteristics of the artistic design which includes simultaneously "a plan of order" and an "expression of individuality." According to Patricx (1973:22-28), the Italian term 'disegnare' "réunit l'idée de dessin et dessein." This author also points out the necessity for the creative product to be adapted or to contribute to a "socialisation de l'environnement": "Le design m'apparaît comme la relation entre l'homme et les services de la technologie, à la fois manifestation permanente de l'homme vis-à-vis de ses créations et en même temps disponibilité ouverte à un monde à construire . . . Le design essaie de formaliser les équipements de cette dynamique (relation homme-société changeante) préservant le rapport visuel et tactile de l'homme . . ."

In his presentation of the role of design for city planning, William (1950:64-67) suggested the use of detailed site planning as a planning tool. Hall (1962:20) suggested that systems design has a similar meaning to systems engineering. With much reference to designs, the editorial philosophy of the journal Architecture Concept stipulates its concern for "la conception et l'élaboration des devis architecturaux." The term 'devis' in French is defined in the dictionary (Petit Robert, 1973) as : "Etat détaillé des travaux à exécuter avec l'estimation des prix." This is consistent with Nadler's

(1967) definition of 'design.' "Design is the multi-dimensional (physical state and rate) specification of the precise conditions for each of the characteristics (function, human agents) of a system." The close relationship between design and creativity is further examined by Broadbent (1966). The specificity or creativity and the communication or wholeness aspects of designs seem to differentiate this concept from the one of 'planning,' although it seems part of it and from the concept of 'system' although it seems like a type of system.

3. Conclusion

The concept of design which we derive from the above is one of a communication instrument which can permit one to consistently and explicitly describe current or proposed human activities systems but which also allows individual and creative inputs to permeate and specify such descriptions or proposals. How can we tie this notion to management and organizations to improve wholeness and creativity? This is dealt with in the following chapter.

CHAPTER IV

SYSTEM DESIGN GUIDELINES FOR MANAGEMENT

We have identified in chapter II (Systems Concepts) a series of issues pertaining to the use of a systems approach to management and to deficiencies in current systemic applications. In chapter III we have derived the concept of design as a communication instrument amenable to both wholeness and creativity. The purpose of this chapter is to use this concept of design to describe organizational systems while attempting to resolve the issues identified earlier with the applications of systems concepts.

One way to initiate this integration of organizational 'systems' and 'design' is through the communication quality of design. One comprehensive management tool which has, typically, been used to communicate the elements of an organization is the so-called 'Plan.' It would seem logical to think that an understanding of the elements of a 'Plan' would help to visualize how a system can best be described and expressed from an organizational point of view. It is on the basis of the systems concepts, their applications and the notion of 'Plan,' that we will derive some 'design' guidelines applicable to organizational systems.

1. A Plan as a Design

It is interesting to note that the definition of planning such as: "continuous formulation of program" (Potvin, 1975; Faludi, 1973a:62), "preparation of a set of decisions" (Dror, 1963), "prescription of roles" (Miner, 1971), etc., rarely, if ever, include a definition of the general form or format through which those programs, options or roles may be expressed. There may be various explanations for this. One may be the assumption that planning is a creative process and that it expresses itself in different outputs. On the other hand, the dangers of producing rigid, ivory tower plans are stressed by Faludi (1973a:131-48), Beer (1969) and Rondinelli (1975). Another reason may be that not too many plans are produced to start with (or, are recognized to be produced). As indicated by Willms (1971) "In fact, most planning in government administration does not reach this final stage."

Despite this seemingly lack of concern for the form of a plan, some enlightening descriptions are available from, at least, four practical domains (two domains of interest left out due to lack of resources are: Architecture and film making): (a) Urban and regional planning, (b) corporate planning, (c) administration or P.P.B.S. and (d) scientific research.

2. Urban and Regional Planning

On the overall form of the Comprehensive Plan, Black (1968) indicates that it should be "contained in a single, published document, which should include a large drawing showing the general physical

design proposed for the entire community, written text and whatever maps, illustrations, and tables (are) needed to support the text . . ."

On the content and organization, Black describes the sequence of the topics:

- (a) Introductory materials: What the plan is, why the community needs it, and how it is to be used and implemented;
- (b) Background information: History, current conditions, future trends, geography, population, economy, land use, regional context, assumptions on which the plan is based. Statement of community objectives;
- (c) Summaries: Summary of key or major ideas (policies) of the plan (written and graphic);
- (d) Physical development proposals: Full description of policies and proposals;
- (e) Concluding materials: Implementation aspect of plan;
- (f) Large drawing of the general design for the community: Graphic integration of all proposals;
- (g) Problematical materials: Annexes or special sections.

In spite of its immediate relevance to urban planning, one would have expected greater adherence by other types of planners to the general framework provided by Black. One possible explanation may be the difficulties to develop section (d) 'Physical development

proposals' into an applicable framework for higher levels of government and corporate planning.¹

3. Corporate Planning

In his recent review of corporate planning in Canada, Caldwell (1975) reports an outline and description pertaining to all plans of a particular financial institution. They include:

- (a) Summary and overview
- (b) Planning premises
 - Scope
 - General objectives
 - Strategies
 - Management policies and guidelines
- (c) Situation appraised
 - Economic, social and political environment
 - Description of the market
 - Services offered to the market
 - Competitive assessments
 - Human resources
 - Fixed assets
 - Performance analysis and projection of results

¹Few 'urban planners' in Canada seem to belong to associations of corporate planners, and few 'corporate planners' belong to associations or urban and regional planning.

(d) Statements of problems/opportunities/issues and specific objectives

(e) Action plans

Caldwell's review also shows that the plan outline of the financial institution shown above somewhat differs from the outline of a building material manufacturer and with the outline of a heavy manufacturer's plans.

There are, nevertheless, great similarities between the corporate plans framework and the comprehensive urban plan outline. Willms (1971) attempted to summarize the framework of various types of plans as follows:

(a) Statements of objectives and policy

(b) Forecast of expectations

(c) Outline of resources required

(d) Organization charts

(e) Outline of methods and procedures

Apart from the fact that there seems to be no agreement as to a general framework for any type of plan, a series of issues remains unclear. The urban plan outline made no reference to budget; both the 'physical development proposals' and the corporate 'action plans' were left without frameworks; the general categories of the urban plan were too general, the specifications of the corporate plan were too specific; neither of the two types of framework made reference to

evaluation, an essential feature of open-systems.

4. Administration or P.P.B.S.

Confronted by the need to manage huge sets of government and corporation activities, the P.P.B.S. proponents have invented the so-called 'Program Memorandum.' Interestingly enough, the preparation of such memoranda was not, as might be expected, viewed as a part of 'planning' but as part of 'programming' (Sheito, Thollon, 1972:24-28). Further, little can be found in the P.P.B.S. literature on what 'form' the memorandum should take (Lyden, Miller, 1968).

An early presentation of P.P.B.S. in Canada (Government of Ontario, 1968:68) defined the 'Program Memorandum' as "The document used by a Department to obtain a policy decision with respect to a Program or Activity. Its recommendation is supported by a brief summary of the Program Analysis and through supporting details."

"The Program Memorandum should contain:

- (1) a statement of issues and Program Objectives;
- (2) a summary of the results of the analysis;
- (3) legislative requirements, if any; and
- (4) the recommendation of the departmental executive as to its own priorities for Program Implementation."

Sheito and Thollon (1972) indicate that the Program Memorandum "fournit une présentation détaillée de la problématique, des objectifs, du choix des moyens, des avantages et des coûts, des agents responsables,

des critères d'utilité et de rentabilité."

Bluet (1968:406) defines the 'Program Memorandum' as a "document analytique à contenu très large qui dissèque et évalue les programmes recommandés en fonction des hypothèses sous-jacentes, des incertitudes qui les affectent, de leurs coûts et de leurs avantages, de leur efficacité composé à celles d'autres programmes alternatifs."

In the preparation of the 'Program Memorandum,' the authors have often emphasized 'items to consider,' but unfortunately the only standard document which seems to derive out of the full exercise is the budget. One should thus not be surprised by the following statements from the Auditor-General (Government of Canada, 1975:37, 52, 55).

"The present Estimates appear to imply the government's implementation of P.P.B. concepts, but this is misleading. . . . The existing information provides little practical indication as to what those involved in the programs actually do, who benefits, or the precise objectives sought . . ."

"Program forecasts are usually based on organizational costs or are prepared in such an approximate fashion that detailed assessment of costs in relation to operational results is rendered extremely difficult . . ."

"Program forecasts often lack information necessary for Treasury Board purposes and it must be obtained by direct inquiry . . ."

5. Scientific Research

The interest for 'scientific research' here is that research techniques are typically used within a so-called 'research design' document. The 'research design' presents the overall strategy to be used by researcher(s) to find what they are looking for (testing of hypotheses in the case of experimental and quasi-experimental designs or objectives of survey research).

The various aspects to be considered in a research design are usually stated in basic 'Research Methods' textbooks. Few textbooks, however, present all the aspects of the management of a research project. Instead, many present the framework of the report which will follow the study. Selltiz et al (1959) for example, indicate that the study report must include a "description of the study design." Nowhere do we find a clear step-by-step guideline for developing such a design study.

Ackoff (1953) presents design guidelines which can, in many respects, be viewed as an exception to the above. His outline for the design of social research provides a comprehensive view of each step that would be followed and elements that would be considered in the preparation (planning) of any social research project. His ten basic elements or steps are as follows:

- (a) The sociological problem;
- (b) the theoretical framework;
- (c) the hypotheses;
- (d) design of the experiment of inquiry;
- (e) sampling procedures;

- (f) methods of gathering data;
- (g) working guide;
- (h) analysis of results;
- (i) interpretation of results;
- (j) publication or reporting plans.

The details of steps (e) and (g) above are of particular interest since they relate to the management of any project. They include such items as: Describe environment, subjects, etc., prepare time and budget schedules, collect data, selection and training, etc. The emphasis, however, in most guides for research methods relate to the treatment of the subjects and of the data (figures). Even research design related to large projects such as surveys (Moser, 1958) rarely include aspects of staff organizations, scheduling, budgeting, evaluation, etc.

Although the above-stated models for designing activities are highly suggestive, they either need to be used by specialists or are stated at a level of generality which does not easily lend itself to immediate application by boards, managers and operation planners. These models also tend to exclude key elements applicable to any systems plans. We should acknowledge, however, that every design may emphasize a particular aspect of a system.

6. System Design: Proposed General Format

In our above-stated paradigm, a system was defined as "a set of interrelated activities and their requirements." Katz and Kahn (1966) have defined social organizations as "the patterned activities

of a number of individuals." Novick (1965) defined program as "a combination of activities to meet an end objective." As suggested by Novick, however, an objective must be added to the system in order to make it of a managerial nature. Thus, the system with which we are concerned, can be defined as: "a set of interrelated activities and their requirements oriented towards an objective." This choice of definition is consistent with a psycho-social view of organizations and of administration (Henry, 1975). The characteristics of those activities, requirements and objectives must be presented in such a way as to favour managerial communication and ensure the qualities of creativity and specificity of design. As indicated above, much of the existing formats to describe systems for managerial purposes have some deficiencies.

The term 'design' has been defined in various ways in chapter I. A short definition which we can adopt is: "a general and technical plan." A more comprehensive definition would consist of describing the elements of the design or the following: "a documented set of variables showing a proposed course of action to help formalize, organize or systemize the current and future activities of unit X." The concern here is with the variables and the order which permit one to express or present an organizational type of system and, for that matter, any set of human activities and their requirements (to be managed).

In order to simplify the aspects of the presentation of a design to managers (to ensure an effective communication of content), only a simple list of elements (variables) are formally presented. Nevertheless, this simple list does not exclude the possibility of

elaboration and of originality for each variable (Guilford, 1967; Torrance, 1966) described. Consistent with this aspect, only 'guidelines' pertaining to each variable will be presented here. The order of each variable will be discussed as part of the 'guidelines.'

The overall system design format, which we thus propose, is as follows:

- (a) Title
- (b) Introduction/Context
- (c) Needs/Problems/Concerns
- (d) Ethic/Policy/Objective
- (e) Target Population/Market
- (f) Implications
- (g) Operations/Operational Sub-systems
- (h) Schedule/Timing
- (i) Authority and Responsibilities
- (j) Resources Required/Supply
- (k) Budget
- (l) Planning and Research Mechanisms

a. Title

Titles have traditionally been given to identify individuals, groups, ceremonies, rituals, wars, etc., and more recently, missions, programs, systems, projects, sub-projects, etc. In systems terms, titles are tied to boundaries: They help to situate the set of activities within a larger set. In this sense we should not be surprised to see titles at the outset. In design terms, titles can set an 'image': They have been used for promotional and motivation

purposes. Still in design terms, titles must convey a message.

There have been two problems with titles. Firstly, titles have been expressed in terms of the objective of the activities concerned instead of in terms of the activities themselves. It is argued that systems titles have a summary role thus their interest at being presented as the first variable of a design. For example, a project consisting of constructing a warehouse to store highway fences should better be titled 'warehouse construction project' than 'highway fences storage project.' This notion is consistent with the systems principle which states that an objective can be reached through several means. Using a project (or system) objective to define the title does not help to identify the project as much as the specific activities involved. The art, however, is to best summarize those activities. The second problem with titles is to mix up the technical title, just described, with the promotional title. Both types of titles can be integrated such as in N.U.L.I.F.E. for national urban low income family evaluation (a national poverty study). The technical title remains the managerial tool to rapidly differentiate two systems or sets of activities.

b. Introduction/Context

It is expected that the material presented in 'Introduction/Context' will vary according to each system design. The 'Introduction/Context' can easily be expanded to make up new elements of a design.

This 'part' of the design is closely linked to the 'Title' in that it also helps to situate the system within a larger system, it helps to delimit the boundaries. The emphasis is, however, on the past

of the system and on its 'environment.' Identification may be made here of the level and the sector of the system in terms of the larger and parallel systems it is related to. The 'urban planning' "background information," the 'corporate planning' "appraised situation," and up to a point, the 'scientific research' "theoretical framework" fit this part of the design.

c. Needs/Problems/Concerns

In our systems paradigm, it is stated that the very existence of a system is dependent upon the relationship between the system's inputs from the environment and the system's output to this environment. It is also stated that an input into a system may cause a system "to act, react or respond." Suggestions have already been made, that one type of input, which the system requires to take shape and to survive, is information about the needs and concerns within the environment. "The starting point of a design project," states Asimow (1962:18), "is a hypothetical need which may have been observed currently on the socio-economic scene. It may be phrased in the form of a primitive statement resting on untested observations; or it may have been elaborated into a sophisticated and authentic statement based on market and consumer studies." It is argued that knowing about those needs and concerns provides to the system an 'opportunity' to deal with them and subsequently support the growth of the system.

It is also important for the system's survival, as is suggested by the homeostatic dynamism property of systems, to obtain information about the effects of the system's outputs on the environment. Did the system produce the type of effects required or aimed at? Did it deal

'appropriately' with the needs or concerns the system was set for? If the system does not produce the expected effects or if, in doing so, it created additional needs or concerns, then the system may be considered as having 'design problems.' On the other hand, the system can have concerns or needs to "increase its efficiency" (or effectiveness) in the pursuit of the objective. These various types of information on the environment's needs or concerns and on the systems problems are typically provided, according to a systems design, as the outputs of the research mechanism built into the system (to be further elaborated below).

From a management point of view, it appears useful to use the general term 'Needs/Problems/Concerns,' suggested by Kahn (1969), as the issues which are typically referred to in various plans and which seem to be at the roots and cause of a system to be established.

The application of our systems paradigm leads to a distinction between two general types of N/P/C, those of the system and those of the environment, and in each case, between design N/P/C and human N/P/C. Indeed, within the system, each aspect of its design (i.e., those twelve aspects being presented) may not be 'appropriately' formulated, mixed, balanced, fitted, etc. The same can be said for the systems which are part of the environment (including the ecological systems). For example, there is a design problem each time two systems have contradictory objectives or each time two systems struggle for the same required resources. On one hand, organization types of systems all include a minimum of two of the most complex elements of system, i.e., human beings. Whether he be within the system being designed or part of the environment (or both), the human

being displays a generally agreed upon range of N/P/C (Coleman, 1960; Maslow, 1954; Lebret, 1961; DeLauwe, 1971). The following shows a general typology of N/P/C to be managed.

Systems types--	Design type ¹ of N/P/C
	Human type of N/P/C
Environment types--	Design type of N/P/C
	Human type of N/P/C

d. Ethic/Policy/Objective

Ethics, policies and objectives may be viewed as a 'stratified description hierarchy' of the orientation sub-system of a system. Ethics play a role at a general philosophical level, policies follow as a more specific statement of direction, while objectives (or goals) specify results to be realized. As pointed out by Bourne (1975), these aspects of a system can also be viewed as outputs of the planning processes (or sub-system).

Within a managerial and action-oriented context, a logical step to follow from the identification of needs, problems or concerns is a decision to either deal or not with them. Such a decision typically involves criteria or the use of a reasoning or a value system which can be linked to or which represents a moral, normative, philosophical or ethical code. Whether explicit, such 'judgement' may be based on a mental state, feelings as well as on "an explicit theory of man" (Lazslo, 1972; Henry, 1975). Various definitions of 'values' suggest

¹Also referred to as delivery systems.

this specific aspect of design. Kluckhohn (1951:395) defines values as "a conception, explicit or implicit, distinctive of an individual or characteristic of a group, of the desirable which influences the selection from available modes, means and ends of action." Consistent with this definition, Williams (1969:169, 171) situates 'values' "in the context of societal planning and action . . . as one of the sources of goals and criteria for policy formation."

As suggested by Williams, policy and objective follow from a normative decision to deal with an issue. Depending on how specific the statement is, we may be stating an objective or a policy. Both can be defined as the expected consequence of a system¹ or as the expected outputs of a system and their effects on the environment.

Policies and objectives of a system are its organizing principles. If the policies and objectives change (the possibility of which is indicated in our systems paradigm), then the total system must be reviewed. The importance of objectives for management has already been stressed through numerous sources (Drucker, 1954; Odiorne, 1965; Humble, 1970) and along with policies objectives consistently come up as a feature of the various types of plans reviewed earlier (section 1. of this chapter).

There are at least two guidelines which must be stressed in regard to objectives and policies. Firstly, objectives and policies should essentially be derived from the identified (and hierarchized) needs/problems/concerns. This is crucial to the system since a change in the needs/problems/concerns should bring a change in the nature of

¹This is consistent with the concept of 'manifest function' (Merton, 1967).

the system (Lemire, Rehill, 1974; Ritchie, Labrèque, 1975). Secondly, a system must have one overall objective and the policies must be consistent (further discussed below).

e. Target Population(s)/Market

This aspect of design is according to our view of systems characteristics and according to the related applications, tied to the general concept of environment. Churchman more precisely refers to it as the 'clients.' A major issue of P.P.B.S. is "who benefits from each program?" (Johnson et al, 1973:452).

The importance of the target population(s) is derived from the fact that it is directly related to the needs/problems/concerns which the system is established to deal with. An 'early' understanding of the target population is a necessary complement to the objective and consequently is an organizing principle for the design of a system.

The target population can be defined as that part of the population (environment) expected to benefit from the realization of the objective. It is sometimes difficult to distinguish the target population from other 'beneficiaries.' Firstly, the human resources required by the system may coincide in totality or in part with the target population (i.e., share-holder and consumer; social club member, etc.). To help specify this situation, we can identify this type of target population as 'participants.' Secondly, a system may have positive spill-over effects or positive implications for a population which is not aimed at. This can be referred to as a 'subsequent benefitting population.' Thirdly, the outputs of a system may be directed at a group or at objects such as roads, parks, energy sources

in order to benefit at one point, in a series of effects, at a particular aimed at population. These intermediary groups or objects may then be referred to as 'intermediary targets.'

A comprehensive approach to system design would suggest that the 'subsequent benefitting population' (an aspect of Implications--below), the 'intermediary targets' and the 'target population' be fully identified. A series of characteristics should permit one to define those elements. The population can be described according to socio-economic characteristics. Additional factors such as psychological profiles can also be used. They can also be described through their quantitative characteristics. Furthermore, those targets and benefitting populations can be described in spatial terms: Site, location, area, etc. This last aspect is a major interest of urban and regional science as will be documented below.

f. Implications

Often referred to as the advantages and disadvantages of a system, the 'Implications' refer to the documentation of the possible effects (negative or positive) of a system not stated in the objective. They are the 'unexpected consequences' of a system (Martin, 1967; Glasson, 1974:7). Implications can also be understood as external constraints for the design of a system.

Politicians often make decisions on the basis of the implications: Given the same objective for two programs and very similar investments--the implications will be decisive (Hartle, 1972). Implications should, however, be used in the design of a system after the objective has been used. So-called 'political strategies' and

'political timing' fit the realm of implications and the way a system is designed. But, because the objective and implications refer to the consequences of a system, there is a danger to build a system on its implications instead of on its objectives.

Information on the implications of a system is essential to the 'homeostatic dynamism' of a system: Such knowledge can help modify the objective of the system either before it is implemented (consideration of major undesirable effects may force to change the system objective or sub-systems objectives) or after it is implemented (consideration that an objective cannot be reached but that some positive effects are reached suggests a new objective for the system).

g. Operations/Operational Sub-systems

Churchman's components of the system as the "rational breakdown of the tasks," Ackoff's "functionally distinct subsets," Emery and Trist's "interrelatedness among the constituent parts," Katz and Kahn's "production/technical sub-system," and Nadler's "sequence" fit the following concept of 'Operational Sub-systems' and stress its importance as an aspect of system design.

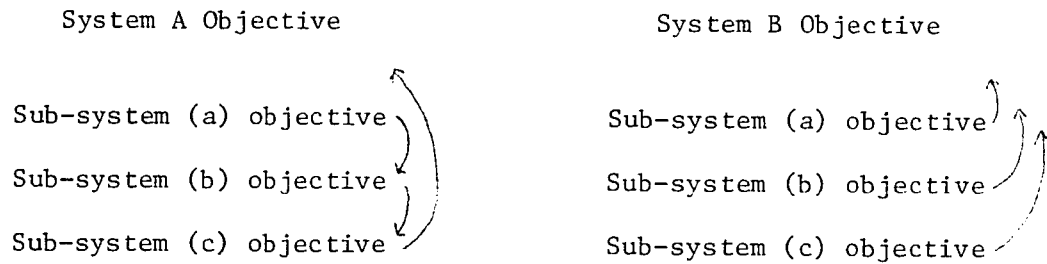
Operations or operational sub-systems essentially refer to the handling, utilization or transformation of the resources or inputs to the system. Two types of systemic hierarchies can be used to describe operational sub-systems.

Firstly, an operation or an operational sub-system of a system provides a more specific view or understanding of the system concerned than any other aspect of design. In terms of a 'stratified description hierarchy,' this aspect of a system can be described in a way similar

to the system itself. The operation of the system or each operational sub-system can be described according to all the system design variables: Title, objective, target population, etc. This type of system description is related to Nadler's (1970) 'function determination' concept.

Secondly, an operational sub-system can be described according to the 'decision layers hierarchy' where the 'decision' of one level unit contributes to the 'decision' of the next higher level unit. This essentially refers to a hierarchy of sub-systems on the basis of their objectives. As indicated above, each system includes a sub-system which can be described according to the same variables, including a statement of objective. Thus, a sub-system provides a sub-objective of the system and this sub-system objective must 'by design' contribute to the objective of the system. This hierarchical arrangement of activities (sub-systems) according to their objectives is essentially what the P.P.B.S. proponents referred to as the Program-Activity Structure (Government of Canada, 1969). It is also here that we find the potential for creative thinking or the expression of lower level systems.

A well-known aspect of operations is the fact that within a system, some operations occur simultaneously while others occur consecutively. These two cases fit the 'decision layers hierarchy' as can be noted in the following examples, A (consecutive) and B (simultaneous):



It is probably after consideration of these notions that some authors have insisted on referring to objectives instead of the objective of a system. We should, however, note that each time there are several objectives, we are faced with several sub-systems which may or may not contribute to a unique system objective.

As will be presented below, a design variable is 'resources.' This variable is also found in each operational sub-system, thus, the distribution of resources among the various sub-systems becomes a major issue. This resources allocation process is referred to by Bourne and Vickers as the result of "distribution or redistribution mechanisms" which are formulated through the "regulating and transformation mechanisms."

h. Schedule/Timing

As indicated in our systems paradigm, "changes within or by a system on its environment involve time periods." The operational sub-systems and other sub-systems of a system 'work' within a time dimension or framework. In our 'Applications,' Nadler is the only one who explicitly considered 'time' as a key concept to system design. Yet, corporate management continuously makes reference to so-called scheduling techniques and their application as part of the planning

and controlling functions (Terry, 1968:162-72).

Theories of time (Rosnay, 1975) suggest at least two principles for system design. Firstly, when a system has to reach a particular objective at a point in time in the future, the time that has already been 'spent' cannot be 'brought back' to compensate for errors or accidents. This notion is derived from the entropy (waste) principle. Secondly, although time may have gone by, the time left to accomplish a systems objective may be used to compensate for previous errors or accidents. Nevertheless, compensation for time 'lost' typically necessitates creative action. The problem with such creative action is that it may require more time than automatic and intended action, to produce the necessary output.

i. Authority and Responsibility

In Lasswell and Kaplan's terms, authority refers to a type of power, a "formal power"; for Jouvenel authority is the "faculty of gaining another man's assent" (Friedrich, 1964). Friedrich (1964) suggests that authority generates power and influence "through the consent it engenders." In bureaucratic organizations such power and influence is derived from a "rational-legal structure" typically referred to as the 'authority structure' (Weber, 1947; Blau, 1956).

The authority structure (often referred to as 'organization structure') provides 'formal' positions of supervisors and of subordinates. As states Terry (1968:353), "the supervisor is to instruct, communicate requirements for change, correct any deviations from required performance . . . (and) accede to the influences of his own supervisor." This system variable is part of Katz and Kahn's

'managerial sub-system' and of Churchman's 'management.' It refers to the self-direction aspect of systems as well as to a type of hierarchical order. Authority is organized according to the 'multiechelon hierarchy': "a system can include a series of decision-making units ordered in a dominance-subordination manner." The authority invested in either the position of a group or in the position of an individual permits it to "partly control and condition" the formal activities of the sub-group(s) or subordinate(s) and so on. Authority can stipulate the types and the number of people involved. This then refers directly to the domains of decentralization, delegation and to the various types of organization structures (Crener, Monteil, 1975).

Because, as its definition implies, authority is so dependent on the influence it exerts then it is dependent on a motivation basis. This, in turn, refers directly to the domains of rewards and sanctions (including exclusion) and of leadership (Katz, Kahn, 1966). Along this line Blau and Scott (1962:28-29) identified three essential conditions for authority. Firstly, there needs to be "voluntary compliance with legitimate commands," secondly there needs to be "suspension of judgement in advance of command" and thirdly "a value orientation must arise that defines the exercise of social control as legitimate." This 'value orientation' refers essentially to the relevant participants' shared beliefs that it is in their best interest to obey.

Tied to the division and distribution of authority is the division and distribution of responsibilities for activities. As explained Terry (1968:252-55), "responsibility comes into existence because a person with authority . . . requires assistance from an

individual and delegates authority for performance of needed specific work to the individual . . ." He defined responsibility as "the obligation of an individual to carry out assigned activities to the best of his ability." The concept of responsibility then permits one to relate the human resource of the system to its operational subsystems and mechanisms. For each operation, there should be an integration of 'who' performs the activity with the 'how' (International Labour Office, 1970:244).

This is typically referred to as the 'role expectation,' the 'prescribed role' or the 'job description.' Terry (1968:711) defines a job description as "a written description of an individual job and includes the duties, responsibilities, work performed, and the equipment used."

Authority and responsibility are two related/intimate system design variables. Both are parts of the 'managerial and control' aspects of the systemic applications reviewed above. Both can be found in the management instrument referred to as a 'constitution.' Schlecher (1964) defined constitution as "a set of devices to subject the freedom of the holders of political powers to limitations and restraints." Bourne's application of systems thinking to cities and regions does imply a political dimension which may have been best examined through the notion of federalism as a particular "organization of systems of government" spread over a particular territory (Anderson, 1964; MacMahon, 1955). In this case, the relationship between authority and responsibility includes the problem of a lower level system having to perform responsibilities without the corresponding 'support' and 'decision-taking' abilities available to higher level

authorities. Authority and responsibility also stress the central role of the human resource necessarily involved in the design and the implementation of open teleological systems.

j. Resources Required/Supply

There has been various classification of resources (Voich, Wren, 1968). In general, however, they refer to material and equipment, information (including legal), personnel (i.e., human beings), capital, facilities and land.

This design variable is not concerned with the distribution of resources within the system, but with their acquisition and/or guarantee of use (including shared-use). Prior to transformation (in order to produce outputs) a system requires inputs referred to as the resources. Congruently, Katz and Kahn refer to those as being handled by the "supportive sub-systems." Until 'internalized' in the system, the resources 'belong' to the environment and specific processes must be set forth to secure those resources for the system.

Importation or use of resources from the environment (or from other systems) into a system to be planned, necessitates at least two kinds of information (of importance to the planner): (a) The characteristics of the resources to be imported or used, and (b) the means to import or to use the resources.

A system objective and target population will dictate up to a point, the types of resources needed and, if not available, the types of resources needed and, if not available, types of trade-off (or a change in technology) necessary to be made. One characteristic of those resources, is where the required resources are located. The

location of the resource(s) indicates, among other aspects, how far it is or the distance between the resource to be used or imported and the system concerned. The concept of distance, in turn, can be used to predict the 'force of interaction' (or attraction) between two or more activity centers or between a resource and a system (Heilburn, 1974:57-73; Glasson, 1974:114-18).

In a general sense, two means are used to import or to use the resources required: The market mechanism and government mechanisms. In both cases, however, modes and channels of transportation/communication must be considered. Insofar as the market mechanism is concerned, there are places which offer particular market advantages. In those places, there is a greater chance to find a supply for what is demanded, there is a greater chance that some resources can be obtained at a better price than in other locations and there is a greater chance to find a greater amount of both 'supply and demand.' These places are described as 'agglomeration economies' classified by Isard (1975:67-69, 113-17) as: Scale economies, localization economies and urbanization economies.

Government systems like the private systems have been using the market mechanism to obtain their required resources. In addition, however, a series of means have been used which are either not feasible (taxation) or not 'profitable' for the private sector to use. Those means have been generally rationalized through the Theory of Collective Action (Olson, 1970; Glasson, 1974:187-94; Heilburn, 1974:194-208) which stresses the necessity for government intervention in various situations. Some of those means have been used to obtain resources for government systems themselves while similar or other

means have been used to move resources between non-government systems. Insofar as urban and regional development is concerned, government(s) has developed programs directed at individual firms or industries to either control their mobility or to incite them to move into an area (e.g., subsidy for capital costs, subsidy for labour costs, etc.). Programs have been developed to encourage labour mobility (retraining, resettlement grants, etc.). Programs have been directed at the government system itself (location of government offices; placing of government contracts; provision of infrastructure). Programs have been directed at non-profit private organizations (industrial development associations). In the domain of controls, zoning and 'building permits' are probably the most notable. Also, as a drastic move towards a specific government use of land, expropriations have been undertaken (as in the case of urban renewal, airport and highway construction, etc.).

Planners have also been particularly concerned with the modes and channels of transportation and communication for regional development. As stated McLoughlin (1969) "The communications enable the various activities to interact, to link up and cross-connect so that necessary patterns of human behaviour can occur." Besides the cost element of each mode and channel of transportation, the positive and negative implications of several modes and channels for regional development have been examined, i.e., through Location Theory-- (Alonso, 1975:35-63; Hoover, 1963). The typical modes and channels of transportation and communication that can be considered are as follows (McLoughlin, 1969:79): Roads (truck and cars), air routes (planes), water-ways (boats), railroads (trains, subways), contact

system (face-to-face), electronic and telecommunication (telegraph, computer terminal, telephone), vertical tracks (elevators and escalators) and prints (books, journals, newspapers).

The presentation of the resources required by the system should, in our view, precede the other aspects of design such as planning and research mechanisms because we feel that it is simply of greater interest to the decision-maker on one hand, and because it follows logically from a presentation (or an understanding) of the operational sub-activities and the authority and responsibility variables on the other hand.

k. Budget

Although budget is usually the first aspect being 'looked at' by decision-makers, it is purposely removed from the front of the design to emphasize the other aspects of design. This is in line with Nadler's approach to first examine the ideal design of a system prior to examining its feasibility (Nadler, 1970). Churchman (1968) has also deemphasized the importance of 'accounting centers' to emphasize, along the P.P.B.S. approach, the objective and activities. He explains:

He (the management scientist) needs to know whether one activity of a system component is better than another. This is why the management scientist is so skeptical about managerial accounting, in any of its various forms. The managerial accountant wants to generate "scores" of departmental performance, or "cost centers" which can be examined for their utilization of resources. But insufficient thinking goes into the identification of these scores and centers in terms of their real contribution to the total system objective. (Churchman 1968).

On the other hand, budget is a crucial aspect of management as a well-known aspect of survival where each input into a system, their transformation and their output have their 'cost(s).' Furthermore, budget represents the output of a specific (specialized) type of resource planning which can be distinguished from the systems planning and research mechanisms.

This aspect of a design has already been treated extensively in other sources and, consequently, does not need to be expanded here. The essential argument here is that a breakdown of revenues and expenditures for the system is a basic variable of its design.

1. Planning and Research Mechanisms

The planning and research mechanisms are viewed, in some 'systems applications' (Emery and Trist; Katz and Kahn) as the adaptive mechanisms of a system, in other systems applications (Ackoff, Churchman), they are considered as part of the 'management sub-system.' Our systems paradigm suggests, through the 'self-direction' concept and the 'homeostatic dynamism' concept, the necessity for a system to set up mechanisms concerned with its future direction(s), its conservation and its growth or change within the environment.

We have already presented, through the above systems variables, some of the outputs typical of planning and research mechanisms. The research mechanism was particularly concerned with (a) the identification of needs, problems and concerns of the system and of effects of the system and of the environment and (b) the identification of the effects of the system on its environment (evaluation-research).

Lemire and Rehill (1974) added to those two 'roles' of research, a

short list of ways research can "assist in program planning."

Those types of outputs from the research mechanisms may suggest the necessity to distinguish between research and planning. Some authors such as Faludi (1973a:60-85) presented research as a component of planning but others such as Churchman (1971) have defended the necessity of autonomy between research and planning in order to keep the concerned system open. Because of the nature of this thesis, we feel it is important to elaborate on those two mechanisms.

Two interrelated concepts of planning have been of particular interest to regional planners: Coordination and comprehensiveness. These two concepts have a major significance for institutional and procedural aspects of planning. Apart from the necessity to link short-term and long-term developments, an aspect which has been viewed by Page (1969) as lacking in planning and was recognized as a requirement by Wen (1975:417-19), two other problem areas related to coordination have been discussed: Vertical coordination and horizontal coordination (two types of comprehensiveness).

The need to use various levels of planning in government, such as national, regional and local, is required as suggested Glasson (1974) to (a) reduce the complexity of the subject and (b) increase the ability to administer the systems. On the other hand, Wen (1975: 417-19) suggested that although decentralized planning is required, in order to (a) increase the participation of the population in developments, (b) reduce the cost of data collection and (c) reduce the difficulties of transmitting qualitative information from region to center, a central development tied to an overall concern and to

international trade is necessary. Problems related to this vertical hierarchy of planning have been exemplified by several planners. An example of the countereffect of intra-regional planning with inter-regional planning is provided by Glasson (1974:258): "Growth point programmes in prosperous regions may limit the effectiveness of programmes to attract mobile industry to the assisted areas; conversely their viability may be threatened by high development area inducements attracting industry to the assisted areas." The problem was generally stated by Lefebvre (1975:285-86) as follows: "If central planning is practiced, the harmonization of regional plans and the coordination of regional resources allocation decisions with the central plan represent a complex problem which cannot be resolved without reference to the meaning or concept of nationhood--if there is a strong concept of nationhood represented by a dominant, nationally agreed-upon set of welfare objectives,--there is the problem of how to induce regional decision makers to act in harmony with national welfare priorities. . . . In particular, if the component regions themselves are political units with elected government,--it may not be possible to find regionally decentralized means for the pursuit of national welfare interests. . . . Furthermore, the decisions of regional government with respect to resource use may directly and significantly affect large segments of the total economy, so that the economic behaviour of one regional government can and often will affect the welfare of other regions."

Or, the interstate transfer of resources may well result in a deterioration of the intra-state social justice: Extra help received by a region may be used to pursue existing development instead of reducing intra-regional disparity. In his proposal for comprehensive

land-use planning for recreation, Glickson (1956) used the term in a geographical sense. For him, "the interdependent recreational facilities of the house, the town, and the region have to be equally considered and provided for."

Regional plans should also cover all relevant sectors and spheres bearing on the well-being of the population (Wen, 1975:417-19). In reviewing the Appalachian Program, Newman (1969:318) puts the problems of horizontal coordination as a question: "How can highway, water resources, physical resources and land use planning be coordinated and kept compatible and harmonious?" To amplify this notion, Page (1975:244) explains, in part, the ineffectiveness of comprehensive urban planning by "the lack of communication between planners and policy-makers resulting in the delegation of planning responsibilities to relatively remote non-political commissions." In his proposal for comprehensive recreational land-use planning, Glickson (1956) indicated that "the environment planned for functions such as working, trading, circulating, and dwelling should be recreational as well as utilitarian . . . recreational zoning . . . may miss the very meaning of recreation . . ."

Faced with these problems of coordination, a series of institutional and procedural suggestions have been made: One solution has been the setting up of intermediate levels of government (to include planning) tied to an intermediate size area such as a sub-national region or sub-provincial region. Besides this regional government development, Hearle (1969:319) reports the setting up of economic districts (in the U.S.), which group several states in partnership with the federal government. Wen suggested the necessity "to develop

mutual (central, regional) implementation procedures and coordination techniques of planning and to work out methods for the overall guidance of the decentralized spheres of planning . . . It is also crucial to clearly define the dividing line between the centralized and decentralized spheres of planning in order to avoid an overlapping of activities." He also suggested that (a) knowledge of existing situations at the regional and national levels should be provided to both the local and regional levels, (b) locational policies and decisions should be mutually transmitted and (c) both levels should participate in the evaluation of the implementation, including both the planners and the decision-makers.

On his part, Lefeber suggested the following: (a) The set-up of an institutional mechanism for conflict resolution--possibly a council of national and regional heads of state, (b) the set-up of specific criteria for inter-state (regions) distribution of resources, (c) a set of criteria for intra-regional project selection and guidelines for plan formulation, (d) increasing detailed knowledge for disaggregated plans from national to local, (e) harmonization of plans at all levels vertically and horizontally, both types requiring adequate hierarchical relationships and communication channels. In regard to this last suggestion, Thayer (1972) proposed non-hierarchical interactive policy processes.

Two general aspects of research have also been documented in urban and regional development: Firstly there is the data base to be collected and administered for the formulation of plans and secondly, there is the integration of research related to planning theories and practices.

Hermansen (1969:123-28) proposed a cross-cultural study where nine general categories of information for planning were to be specified. Those were:

- (a) Regional statistics and resource information;
- (b) theories of regional development;
- (c) regional growth models;
- (d) guidelines for interregional development (from national planning);
- (e) sectoral plans and forecasts (derived from national planning);
- (f) local plans and projects (derived from community planning and enterprise planning);
- (g) national development goals (derived from national politics);
- (h) local and regional development goals (derived from local and regional politics);
- (i) efficiency criteria (derived from research related to information (b) and (c) above).

McLoughlin (1969:125-65) presented an overall classification of the data to be collected and guidelines for systems types of analysis and considerations. This classification is, in general terms, as follows:

- (a) Descriptions and measures of the activities within each sub-area comprising the total area concerned.
- (b) Descriptions and measures of the various adapted spaces within each area.
- (c) Descriptions and measures of the various types of communications and channels between each located activity in the area and between the area and 'the rest of the world.'

(To complement this list of descriptive data or to help the compilation of some of those data into an informative framework, three analytical methods are also currently used: Regional accounts (McGrone, 1967), input-output tables (Isard, 1975) and shift and share tables (Buck, 1970).

In his review of the last ten years of regional planning, Friedmann (1975:806-809) proposed the following agenda for research related to planning theories and practices:

"The effects of imbalanced power relationships (economic and political) on regional growth and development."

"The spatial effects (spread and backwash) of accelerated urbanization in developing countries."

"The dynamic relationship between agricultural production and urban growth."

"The structure and evolution of urban fields in post industrial societies and their impact on the natural environment."

"The evaluation of regional planning practice and the effectiveness of implementing procedures."

In the same context, Kuklinsky (1975:442-43) proposed six projects to integrate research activities as follows:

". . . a worldwide review of policy and planning activities."

"Review of the ideological and motivational basis of planning and policies."

"Review of the intellectual equipment for planning (theory, methods, etc.)."

"Review of information systems for planning."

"Review of institutional patterns for planning."

"Review of training and education systems for planning."

In order to facilitate inter-organizational communication of research data, Kuklinsky added that the information flows in the system "must be related to the same concepts, time horizons and geographical units" and must be accessible to "other units in the system."

7. Conclusion

In the first part of the thesis we have documented the need for planning activities in general and of planning systems in particular. In doing this we have indicated the necessity to integrate those systems in organizations. A review of systemic applications to organizations did indicate a series of issues which needed to be dealt with to increase the contribution of systems thinking to the management of organizations. This led to the use of the notion of design and to the development of guidelines to better describe management or organizational systems. An expansion of those guidelines, to take into account information provided by urban and regional planning and development helped to situate and to deal with organizational systems in their regional contexts.

At this point, however, we have not applied these guidelines to a typical planning system. This is the purpose of the second part of this thesis.

PART TWO

AN ORGANIZATIONAL PLANNING SYSTEM DESIGN

INTRODUCTION

On the basis of the concepts provided in part one and on the basis of additional sources, guidelines and substantive content for a planning system design are provided in this part two. The application of those guidelines in real-life situations should produce a design specific to the total system (organization, government, corporation, agency) concerned. As documented by Lorange and Vancil (1976:75) "An effective planning system requires situational design; it must take into account the particular company's situation, especially along the dimensions of size and diversity."

The following chapters present guidelines and 'content' which are assumed to apply to any situation or sector of human activities and to any level of 'delivery systems' capable of financially supporting such a planning system. The planning system envisaged must be tied to either a system to be created or to one already operating (see figure 2). For convenience purposes the system design is presented first in its entirety (chapter V) and then there is a focus on three selected aspects: Planning operations (chapter VI), planning authority and responsibilities (chapter VII) and implications for regional planning (chapter VIII).

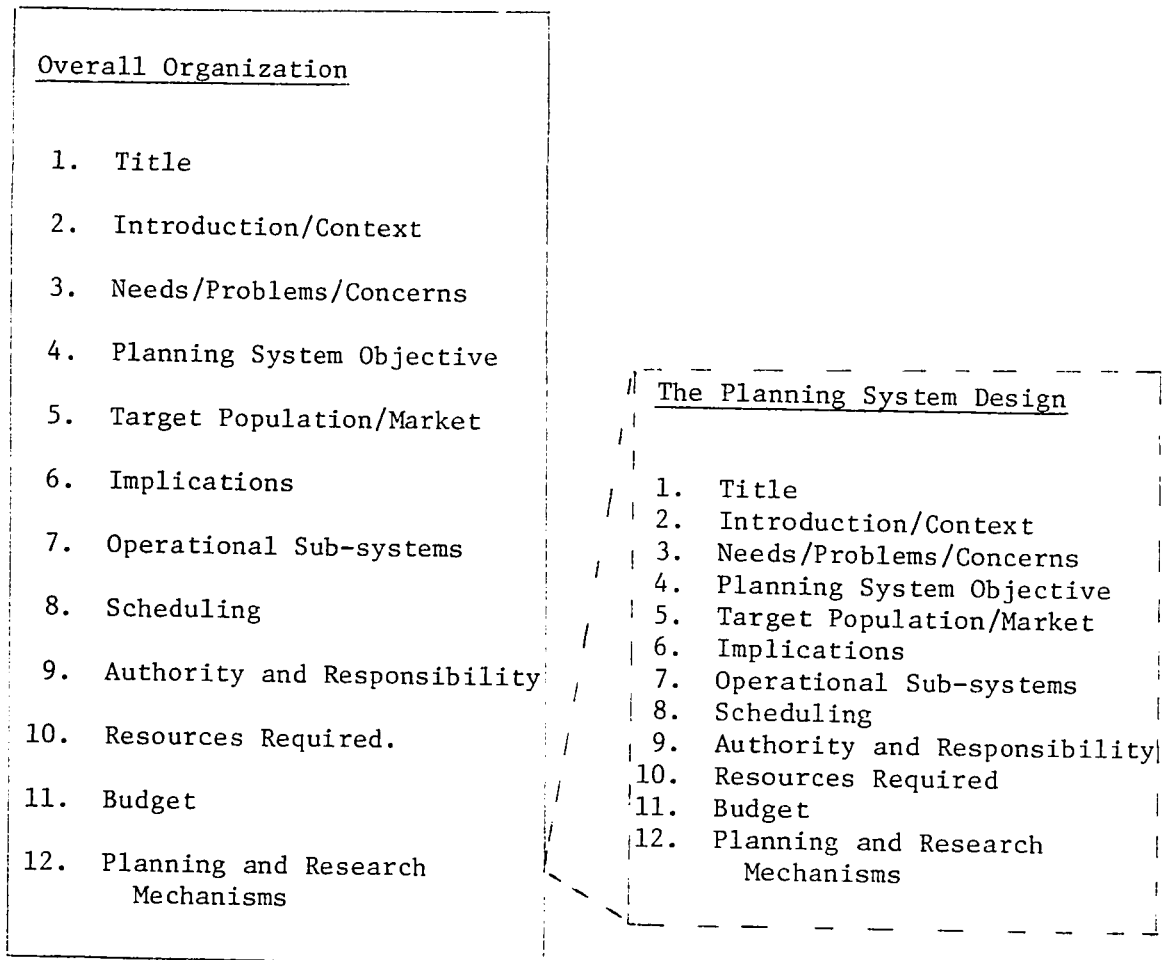


Figure 2:- The Planning System as Part of the Overall System Design

CHAPTER V

THE OVERALL PLANNING SYSTEM DESIGN

In this chapter we will generally document the twelve system design variables, identified in chapter IV, in terms of a planning system.

1. Title

As indicated above (chapter IV), the title of a system or subsystem which warrants a design, must be related to its operations. Consequently, assuming a total organization of name X and assuming a system (tied to this organization) dealing with planning activities, the title could simply be ORGANIZATION X--Planning System.

2. Introduction/Context

One way to situate planning activities in the universe has already been provided by Checkland (1971:107-14). According to him "we need a picture of the universe in system terms, one which will separate man-made and natural systems and delineate the areas within which we may hope to 'engineer' systems so that their performance may be improved." He thus classifies systems according to five basic classes (figure 3): Transcendental systems, natural systems, designed physical systems, designed abstract systems (systems of knowledge) and human activity systems.

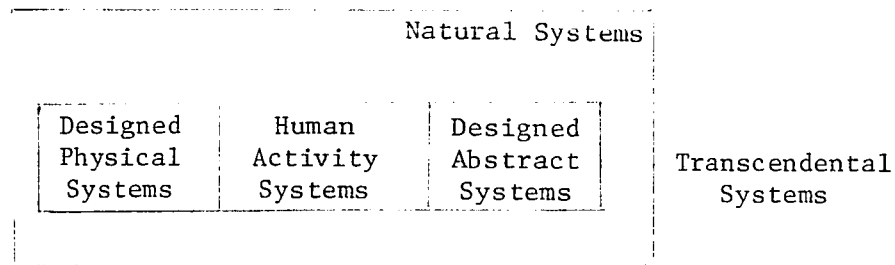


Figure 3:- Checkland's Classification of Systems

For Checkland the 'human activity systems' vary from "the one-man with-a-hammer at one extreme to the international political systems"--at the other extreme. Although this researcher does not specifically identify management systems as part of his "system map of the universe," he does indicate that "there are the activity systems which are concerned with the management, in the broadest sense, of these systems." One of those which he specifically identifies on his systems map is 'planning systems.'

Along with Miner's (1971) review, we view 'planning functions' and consequently planning systems as part of 'management functions.' Further, to help understand the importance and utility of planning systems, we view management systems as including three essential relatively distinct sub-systems: The planning system, the research system and the implementation system (figure 4). This concept is related to Littauer and Shewart's (Declerck, 1974:324; Declerck, Boudeville, 1973:741) "cybernetic cycle of management" described as: Planification, application et controle. The concept can, however, be used in different ways depending on the definition of 'management system.' In Declerck's approach (1974:325), a 'management system' is one of two aspects of an organization. This aspect is concerned with

planning, internal and external information, decisions, administration and control. The second aspect is referred to as the 'système physique d'entretien' and it is concerned with production, marketing, maintenance, 'research and development' and finance and accounting. A similar view is held by Kornai (1971) who divided an economic organization or system in two sets of processes: The control processes, which include observations, transfer of information, processing of information, preparation of decisions and decision-taking and the real processes, which include production, consumption and commerce. In this thesis, a 'management system' is not an aspect of an organization, it is a whole organization that has an objective (implicit or explicit).

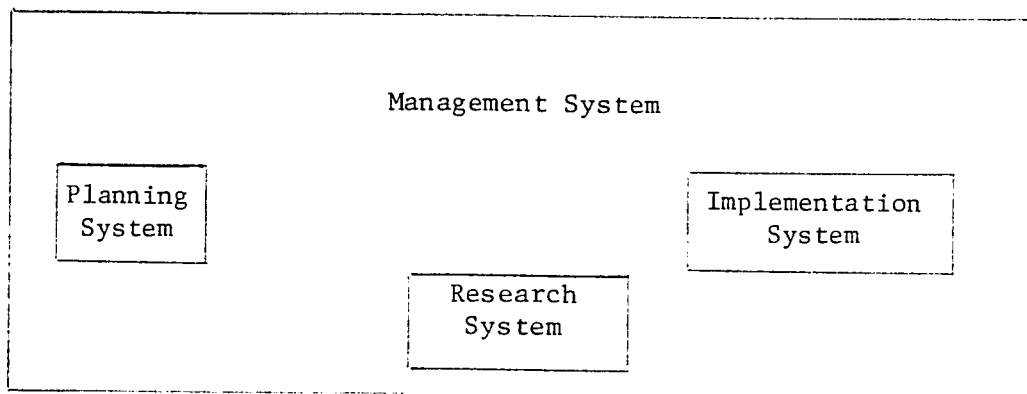


Figure 4:- Basic Management Sub-systems

A second aspect of our management system which is different from previous views refers to the notion of 'control.' For Johnson et al (1973:75-76), a control system includes four basic elements. Two of these elements, which we view as part of the research system, are:

(a) "A sensor or a way to sense or measure the characteristic or condition to be controlled" and (b) "a comparator--an individual, unit

or device that compares measurements with the plan or standard." These elements do appear to coincide with the provision of 'feedback' information which can be viewed as a research role (Lemire, Rehill, 1974).

Thirdly, the two other elements of control identified by Johnson et al (namely "a characteristic or condition to be controlled" and "an activator--an individual, unit or mechanism that directs action to bring about a change in the operating system") appear to refer directly to the notion of implementation. The problem with the 'implementation' concept is that few researchers have documented it. In 1973, Pressman and Wildawsky (1973:167-75) introduced their extensive review of the social science literature as "While we cannot hope to provide conclusive evidence (after all, there can always be something we have overlooked), we do hope to be persuasive beyond the mere assumption that there is no analytic literature on implementation." Consequently, we use here the term according to Roget and Webster as was used by Pressman and Wildawsky (1973:ix) these referring to executing, effectuating, realizing, completing, fulfilling, carrying out, producing, doing, achieving, performing, giving practical effect to and ensuring of actual fulfillment by concrete measures.

Fourthly, the above view of control which emphasizes the measurement of the effects of a system often assume, as we will show later, that the planning system undertakes the responsibility of scanning the environment in search of needs, problems or concerns which may be of interest to the system. This, as we will also document, is incongruent with the role of planning and consequently such analytical responsibility should reside with another system (i.e., research).

In regard of the distinction between implementation and planning, Pressman and Wildawsky did indicate that an object like 'policy' must precede the verb 'to implement' and that "implementation cannot succeed or fail without a goal against which to judge it" (1973:xiv). If goals formulation is viewed as a planning element, the decision to accomplish them or not is viewed here as part of the implementation system. It is in that sense that we interpret Simon's notion of a 'hierarchy of decisions' where "each step downward in the hierarchy consisting in an implementation of goals set forth in the step immediately above" (1945:5).

To summarize this brief discussion, it appeared to us more useful to move the measurement and analytical aspects of 'control' into a research component which also includes an environmental scanning component (not always understood as 'control') and which maintains a relative independence from the planning system. We also found it useful to dissolve part of the concept of control into the implementation system which is viewed as including decision-taking and directing responsibilities at all levels.

If, in addition to the above abstract approach, we introduce a planning system from a concrete point of view, we should document here whether the system is the first to be set up for the 'organization,' whether the planning system is decided from a legislative requirement, or from already on-going or recognized past or current planning activities (or exercises) etc. In addition, whether the system design is presented for approval, consultation or as the result of a decision are various aspects to be documented. Further, information should be provided on who designed the system as well as on the process used to

arrive at it (McLoughlin, 1969).

The present planning system is viewed as including two major participatory components: One from the 'inside' of the management system and one from the 'outside.' These components are viewed as essential for the survival of the management system and for the development of the symbiotic notion of cooperation (Perlmutter, 1965; Barnard, 1966:96-98) and they should thus be identified.

3. Needs/Problems/Concerns

The first chapter of this thesis was particularly devoted to the needs, problems or concerns related to planning systems. Those 'reasons' why a planning system is established should be documented here. Formal and informal research may be used here to provide evidence of any lack of coordination and integration of concepts, programs, resources, etc. pertaining to the 'organization' (inside and outside), any lack of direction for planning or for the 'organization' as a whole, the multiplicity of ad hoc decisions on policies, programs, projects, any anticipated N/P/C (for the organization) which are not being dealt with, etc. Studies or findings might show that increased formal planning might add benefits to the 'organization,' simplify its operations, improve its relations with other organizations. We should not disqualify here findings showing improper planning methods or approaches including too much formal planning.

Typically, the need for a planning system as opposed to the need for some planning activities will be derived from the lack of a continuous process to update the organization's plan(s). As was indicated previously, these kinds of data are sometimes difficult to

compile due to inadequate evaluative capacities. Nevertheless, the causes of bankruptcies, management crises and constitutional problems may lend support to the need for a greater interaction with the system's environment in such a way as to convince for the need of a planning system.

4. Planning System Objective

There may be various ways to state the objective of a planning system. The one we select is based on the typical problem of continuity stated above. It also assumes the existence of or the recognized need for a plan for the 'organization' (the management system). This objective is as follows: "Ensure the continuous and effective development of 'ORG-X-Plan'." This objective is, in our view, consistent with the two major functions of a corporate planning system identified by Lorange and Vancil (1976:78) "develop an integrated, coordinated and consistent long-term plan of action, and facilitate adaptation of the corporation to environmental changes."

5. Target Population/Market

The people who should ultimately benefit from the realization of the planning system objective are the members of the 'organization' as a whole. These are the clients of the planning system. The people who should make use of the data of the planning system are the decision-takers at all levels of the 'organization' starting from the top.

In the case where the 'organization' is a public body then the planning system is expected to indirectly benefit the population

which wanted this body (and continuously participate in its making). A similar reasoning might apply to private 'organizations' depending on their stated objective and the way(s) they deal with the outside population from an ethical point of view.¹

6. Implications

'Inside' and 'outside' effects, positive and negative effects of the planning system should be continuously documented in order to improve its efficiency and effectiveness. As indicated by Manor and Sheffer (1977) "Problems are not there to facilitate planning--" but knowing about problems caused by the planning system may help to resolve them.

From an 'inside' point of view, Declerck (1974:333-37) documented four types of effects caused by the introduction of planning systems (of the type described here). Lemire (1977a) observed similar effects. These are as follows:

- (a) Professional aptitudes: This refers to changes in language and methodologies which, in turn, affect some professionals positively and increase their effectiveness but may affect others negatively

¹In practice, a planning system is not necessarily humanistic (aiming at human survival and maturity). According to Rondinelli (1975:248) planning is 'amoral.' Long-term and comprehensive perspectives integrated into the planning system may appeal to rationality but it depends mainly on the individuals involved, their bio-psychosocial maturity, their value systems etc. (see Kuklinsky's proposed studies of planners above). Wars and suicides, understood as planned death, sometimes 'rationalized' on the basis of metaphysical beliefs support this notion. Faludi (1973a), Ferreira (1968), Leuret (1961) do provide a humanistic rationale upon which to build planning theory and ideal planning systems.

leading to hostile behaviour and withdrawal.

- (b) Power and authority structures: This refers to changes in organization structures which inevitably occur while introducing new functions. These changes are sometimes gradual but frequently abrupt thus provoking an 'organization revolution or mutation.'
- (c) Social relations: This may refer to feelings of manipulation and of alienation. Interpersonal communication may become more complex and difficult. Disturbed behaviour may be observed. Previous effective methods may be wiped out along with the ineffective ones.
- (d) Value systems: From a paternalistic or authoritarian attitude, a new participatory attitude may take place.

To summarize his findings on the impact of introducing a 'strategic' planning system, Declerck (1973:738) states: "l'introduction d'un système de planification modifie de façon inéluctable la culture de l'organisation."

The perception indicated in the following internal government memo is also indicative of possible problems to be dealt with:

"Daily workload and unavoidable pressures and crises tend to dictate priorities for senior management thereby delaying planning activities which may be viewed as interference to tasks at hand."

"Proposed Planning System, where the Management Committee is responsible for most significant decisions removes much of the individual director's authority."

"Current plans apply for the next five years--a planning system is redundant."

Some positive effects such as the following may also be documented: Decentralization of decision-making; increased order, comprehensiveness, representativity and creativity; clarification of direction and subsequent improvement in public relations; reduction of crisis management due to increased concern for the future; increased teamwork and new channels of communications. Some implications of this system for the practice of Canadian regional planning need to be presented separately (chapter VIII) due to the amount of information required.

7. Operational Sub-systems

This aspect of the planning system essentially refers to the so-called 'continuous planning process.' This is a major aspect of the design which differentiates it from other types of designs. As indicates Dror (1973:338) "The systems, methods and procedures of work in the planning unit determine the detailed form of the planning process." The operational sub-systems of this planning system can be generally presented as follows:

- (a) Introducing formal planning;
- (b) hierarchies of needs, problems and concerns;

- (c) definitions of the system's philosophy and overall objective;
- (d) generation of an activity-structure;
- (e) formulation and selection of activity designs;
- (f) establishment of review mechanisms;
- (g) plan formulation and approval.

Because of the amount of information which should be considered here, this aspect of the design will be treated as a separate chapter (VI) of this thesis.

8. Scheduling

The various operations of the planning system need to be scheduled as much as is possible. Dror (1973:340) specifies that "the selection of the preferable time-span for each planning activity depends on various factors--the natural cycle of the subject matter of planning, the acute needs for interference to change an unbearable situation, limitations on our ability to predict the future, our evaluation of present versus future needs . . . the desire that planning should serve as a guide to present actions."

9. Authority and Responsibility

This aspect of the planning system includes the notion of 'planning organization' or 'planning structure.' This aspect also differentiates this type of design from other types. It is here that

the planners' roles are formally recognized. The amount of information that should be presented here makes it necessary to deal with it in a separate chapter (VII) of this thesis.

10. Resources Required

Of the various types of resources which may be required by the system, i.e., personnel, capital, facilities, land, material, equipment, energy, etc., the most valuable, besides the 'planner' himself, is information. This information is continuously being produced by both the overall system of which the planning system is a part (in particular the overall system research mechanism) and by other (outside) organizations (in particular academic systems, research institutes and other planning systems).

11. Budget

Like any 'practical' system, the planning system of a 'concrete' organization must finance the resources required for its operations: Staff, office, information, etc. This was briefly examined above (chapter IV).

12. Planning and Research Mechanisms

Insofar as the planning mechanism is concerned, we are referring here to Faludi's 'self-image' (1973a:8-9, 98-100) of the planning unit or to the planning of the planning system. This system, like any other, should plan its operations and the allocation of its resources. Thus a planning process should be built into the planning system design. This planning process is the same as referred to

above (Planning Operations). Melcher (1975:5) did suggest a similarity of methodology for various levels of systems construction.

In regard to the research mechanism we are referring to (a) the detection of these new needs, problems and concerns (from all their various environments) which lead to the requiring of this planning system, (b) the determination of the effects of the planning system's operation--on its various environments, (c) the determination of the planning system's efficiency and (d) the necessary scientific 'data' collection which are a requisite to optimize planning operations (methodology) and structures.

These research operations (i.e. research on planning) may not, for the purpose of objectivity, be carried by the planning system, however the planning system must ensure their availability and must formalize or document the communication process involved. The planning system may secure this necessary information from the management system's research sub-system. Annex A shows this type of relationship between the planning system and the research system of an 'organization.'

CHAPTER VI

PLANNING OPERATIONS OR SUB-SYSTEMS

It is acknowledged here that several researchers, observers or thinkers have presented their views on the so-called 'planning process' and implied planning activities. The following presents, on the basis of some relatively recent and comprehensive overviews, a process where each relatively consecutive planning phase (major planning operations) can be viewed as a sub-system of the planning system and where each sub-system includes sub-sub-systems. In many instances those sub-systems are interacting with each other and subsequently the phases of planning become more or less simultaneous operations. The planning process is typically dependant on its organization context which becomes more dynamic as several organizations become involved (Friend, Jessop, 1969). This notion also implies that formal planning may be initiated at any phase of the total process while recognizing the total process as a type of ideal.

In spite of his major criticisms of 'traditional' planning theory and practice, Rondinelli (1975:246) admits with Jones (1970) that "policy-making . . . encompasses a variety of functional activities: perception and definition of needs and wants, aggregation and organization of needs into demands, representation of demands to government, formulation of demands into possible courses of action. Once demands are transformed into proposals, policy-making proceeds by enactment, . . . proposals do evolve through identifiable decision stages." His point, however, is that the policy-making process is

extremely complex and, as indicated above, "the process is not necessarily sequential. Nor are the stages always clearly distinguishable or mutually exclusive; components of the process may occur simultaneously or spill over into each other . . ." It is also understood here that planning refers to human activities characterized as: Direction, integration, coordination, decision-making and consciousness raising (chapter IV; also Manor, Sheffer, 1977:213). These activities are understood here to be directed at either the establishment of a new management system or at the change or maintenance of an existing one.

As can be expected, the proposed planning process bears a great resemblance to the design framework presented in part one. Nevertheless, for the purpose of this presentation, we draw a difference between planning behavior and designing behavior. The first refers to activities of specially trained people in rational methods while the second refers to the activities of people involved in planning activities but from a creative and substantive point of view.¹

1. Introducing Formal Planning

Introducing formal planning within a managerial system is, in our view, a basic step of the planning process. Yet, some researchers or authors who purport to describe the total process seem to give little consideration to this initial phase of planning.

¹This is consistent with our approach that people at any level of a delivery system can provide feedback on the relationship between planning and implementation as well as contribute new ideas for plans.

In his 'planning theory,' Faludi (1973:8-9) assumes the existence of a planning structure and does not take this step into account. He essentially presents the problems of 'understanding planning' as one of the planner facing "the challenge of constructing an image of himself in his role as a planner." His approach can probably be understood by the context of his planning which is mainly 'urban planning.' In most countries this type of planning is legitimized through various 'urban and regional planning acts.' Without much elaboration, McLoughlin (1969) does indicate that "the first stage in the planning process is the decision to plan--." In one of his lists of planning phases he states as a first step: "The decision to adopt planning and as to what methods of planning to adopt." He further explains "That this is not a finite step but one which needs continuing through effort."

Kahn (1969:12) differentiates between 'planning instigators,' and 'decision to plan' and the 'right to plan' as a prelude to the beginning of meaningful planning. The planning instigators refer to various factors which lead to a decision to plan. These include "a problem, a widely-felt need, major dissatisfactions, or crisis"; "a transfer of power and the decisions of new leadership to systematize their activities"; an "urgent need to allocate scarce resources of personnel"; "a demand from a source of funds or of power that planning be done to qualify for continued subsidy"; "the access to considerable new resources"; the perception that "everybody is doing it." In regard to the right to plan, Kahn is very brief and mainly indicates that "Law, sanction, political action may all be involved before a department, a unit, a staff, or a commission has the right to plan.

There may be considerable gap between the formal right and the achievement through exercise of power and bargaining of the actual right."

With due consideration to the above, two systematic approaches may be undertaken to introduce formal planning within a managerial system specially where there is no legal leverage (Lemire, 1976a). One is to introduce to the top management of the system a project aiming at developing an overall plan for the system: As part of this project a planning system may also be developed. Another approach is to introduce to management a planning system design including a set of procedures to (a) immediately design on-going activities according to the guidelines set above and (b) develop new ideas about future possible programs/products.

A series of activities should be carried out by the planning system which can be seen as implied within the two above systematic approaches and as a follow-up to them. The top management must be sensitized to the need for planning and so for all the participants; information to any related population must be made available throughout progress reports on planning exercises; newcomers to the system must be made aware of the on-going planning system and of its procedures and structure etc. These activities become essentially on-going operations of the overall 'planning introduction' operation and consequently can be viewed as sub-systems of the 'planning introduction' sub-system. It is here that formal 'planning education and information' takes place and where these activities are recorded.

2. Hierarchies of Needs/Problems/Concerns

The importance of needs, problems and concerns for the design of systems has already been stated in chapter I. The following will essentially show how some planners have integrated this notion into the 'planning process' and some guidelines will be provided for an orderly presentation of those N/P/C.

For McLoughlin (1969:95) needs and problems are viewed as a step which is both preceding and integrated to the step of goal formulation. On one hand he suggests that before goals are formulated "the environment is scanned and on the basis of values held by the individual or group, certain needs or wants become apparent--." On the other hand, in his discussion of 'goal formulation,' he indicates that "The first step is one in which the planner casts his net very wide indeed to gather as much information as possible on the aspirations of the client groups" (1969:121). For Faludi (1973a:88), need identification and goal formulation are clearly part of the same stage of planning: "Ideally, the process of problem definition provides statements of objectives." This approach is derived from his acceptance of Chadwick's definition of problem which he translated into "a state of tension between the ends pursued by a subject and his image of the environment" (Faludi, 1973a:82).

Although intimately related, problems and objectives are not, however, similar. The latter are "descriptive statements of a hypothetical but conceivable situation . . . in which the tension resulting from impediments to one or more goals has disappeared" (Faludi, 1973a:87). Similar to the two previous authors, Kahn (1969:63) admits a

very close interrelation between needs and goals: The goal of "meeting certain needs . . . both derives from a concept of needs and also helps shape that concept." For him the first overall step in planning is to 'define' the planning task. This is done "through a constant playing back between an assessment of the relevant aspects of social reality and the preferences of the relevant population community" (1969:61). As part of this major step he does distinguish, albeit generally, firstly a series of 'planning instigators' generally conceived as 'needs, problems and concerns' which are mainly socially defined, secondly an input in terms of 'values and preferences' and thirdly the 'planning task' itself where the goal becomes apparent" (1969:60-129). The above three sources clearly show a difficulty in dealing with needs, problems and concerns as a separate phase of planning. Further, the relative importance of those N/P/C as well as the distinction between types of N/P/C are aspects either not dealt with (Faludi, McLoughlin) or little discussed from an operational point of view (Kahn). Nevertheless, all those authors do stress the crucial importance of understanding the needs, problems and concerns in order to best formulate the objectives.

It is mainly from the contribution of Ferreira (1968) and the "Economie et Humanisme" group that we derive the planning guidelines for dealing with needs, problems and concerns as a specific stage of planning. For Ferreira, we should first distinguish between the N/P/C related to the total environment of the system (world problems), current and future, and those from this environment directly related to the system concerned. As part of this first step, the suggested approach is to use a process of successive specification (similar to

Human N/P/C--Urgent --Same as above.

--Not Urgent--Same as above.

(b) Internal System N/P/C

Design N/P/C--Same as above.

Human N/P/C --Same as above.

(c) Overall Environment N/P/C

Design N/P/C--Same as above.

Human N/P/C --Same as above.

Fourthly, criteria to decide on the importance of N/P/C within and between each class of N/P/C must be developed. To this effect, Ferreira suggests two criteria: (a) The numbers of people affected by the N/P/C and (b) the strategic importance of N/P/C in regard to the general frame of life (cadre de vie) of the population concerned. In regard to this last criterion, we would specify that an attempt should be made to find the causal linkages between the N/P/C in order to give more importance to the causal ones.

Fifthly, the prioritization of the N/P/C within and between each class of N/P/C should take place. This prioritization, it is important to indicate, should occur as much as is possible between N/P/C stated at the same level of generality. Throughout those processes, verification or validation of N/P/C should occur.

Underlying this major phase of the planning process is a process in itself: Validated statements of needs, problems and concerns must be obtained by the planning system (either from the management system research sub-system or from other 'outside' planning systems),

these N/P/C must be classified, criteria must be developed, ranking must proceed. These operations of this planning phase can make up sub-sub-systems where, for example, array of N/P/C is continuously updated, the classification revised, etc.

3. Definition of the System's Philosophy and Overall Objective

As already indicated above, a system should have only one ultimate objective if it wants to move in one direction at a time. Further, the importance of the system objective is not only derived from the direction it provides to the system but also from the guidance it provides for the integration of the elements (all other design variables) of that system. It is in this sense that we interpret McLoughlin's (1969:105) statement that "most detailed choices are greatly facilitated by the existence of broader and more general plans which have taken account of inherent detailed ramification." How is this one objective derived or redefined from the previously identified and characterized hierarchies of N/P/C is not too clear in the literature. As was indicated in the previous section, N/P/C and objectives are typically seen aspects of a same general process. This makes it difficult to isolate any process to define the overall objective. A second aspect which seems generalized is that there is little concern for the ultimate, albeit temporary, objective of the system. Typically, objectives are seen as a group, with little discussion on the objective at the top. The way some planners have handled this issue will be reviewed briefly and some guidelines for the definition of the system's objective will be provided.

According to McLoughlin (1969:96-97, 120-23), the process of moving from the 'needs' to 'goal formulation' is entangled with the necessity to initiate a planning process, the necessity to plan for the resolution of specific problems and the classification of objectives from goals and, somewhere during that process, the "planning professionals and the elected representatives of the political unit or units for which the plan is being prepared . . ." must dialogue with each other (1969:121). Faludi (1973a:87) provides an enlightening discussion of the relationship between problems and goals to which he essentially concludes that (a) "only when a subject has formulated a set of objectives . . . may we say that he has defined his problems," (b) it is not always possible to fully define either of these two items and (c) if it is found that an objective does not remove a particular tension then "the objective is reformulated" or the problem is redefined (Faludi, 1973a:104). For Kahn 'the planning task,' which he relates to planners' 'overall goals' or objectives and which immediately precedes the 'formulation of policy' (viewed as "the cluster of overall decisions relevant to the achievement of the goal"), essentially "develops out of evaluation of components of the social reality in the context of values and preferences" (Kahn, 1969:61, 70, 131). Ferreira provides us with an additional hindsight. For him a proposal should be prepared which provides objectives classified according to the hierarchies of N/P/C. Unfortunately, he does not discuss the selection of the ultimate objective of the system.

Morasky (1977:86) provides additional considerations to help decide on the group of N/P/C from which a system should derive its ultimate goal or objective. He indicates, along with systems theory,

that "the universe can be conceived of as a network of interacting, interconnected systems" and consequently, that "the environment of a system must be other systems with which it interacts." On the other hand, social systems being open, "they receive inputs and produce outputs thus, such a system essentially interacts with other systems in only two ways: "it can receive inputs from other systems or send outputs to other systems." In conclusion, "things called outputs do, in fact, leave the system" and "flow to receiving systems which are inextricably influenced by those outputs" therefore, the receiving system "should be the focus of the system goals." This rationale suggests to us that the ultimate objective of the management system should be derived from the Systems Related Environment N/P/C. Within the selected class of N/P/C from which the ultimate objectives will be derived, one of two sub-classes must be selected: Design or human. No ready answer seems to be available to help resolve this choice. In current practice, our management systems are probably divided between the two: Systems with a consumers' ethic and others with a narrow economic ethic. A variable to take into account here is the case where a system may be viewed as a support system to other systems: In these cases the system may be essentially oriented towards the solving or dealing with design types of N/P/C.

In regard to the next type of N/P/C, i.e., urgent versus non-urgent--it is obvious that a system has no choice. On one hand, urgent N/P/C must be dealt with, by definition, on the other hand, the system cannot use this class as the basis for its long-term operation--unless the system is specifically set up to handle a set of urgent N/P/C. The handling of urgent N/P/C could (should be) built into a

long-term operating system as a sub-system or as indicated in the following. In regard to the 'dealt with' and 'not dealt with' types of N/P/C, a choice is necessary for the proper formulation of the ultimate objective of the system. The inclusion of 'not dealt with' N/P/C as an area of action ('action space'--Faludi) may necessitate a reformulation of the overall system objective or the setting up of a new system with the purpose of dealing with these new areas of concern.

Insofar as geographical location is concerned, the ultimate system objective should be consistent with the target population (object) variable of the system design. This notion is further examined in chapter VIII.

How one derives the ultimate systems objective from the hierarchies of N/P/C is one aspect of the formulation of the objective. A second major aspect is the characteristic of the objective itself. Morasky (1977:86-87) suggests four ideal characteristics which should help to define an objective. Firstly the objective should be a manifest statement. Secondly, it should be "specific enough to permit objective interpretation." Thirdly, it should "focus on the receiving system," an aspect discussed above. Fourthly there should be a time dimension. These characteristics may apply to any level of objective within a system and, obviously, the more complex the system, the more difficult the characteristics to be applied at the highest level.

Who is involved in the formulation of the ultimate objective of the system is a third major aspect of this planning phase. In their presentation of how corporate performance goals are communicated, Lorange and Vancil (1977:76-77) assume that it is the president who

formulates the top corporate goal. As will be further documented in the next chapter--the corporate president is, however, not always alone to formulate the ultimate objective--he may be aided by the 'corporate planner' directly reporting to him. This role of the corporate planner is also congruent with Lorange and Vancil's general statement of the analytical role of the planner, in small companies, and of his catalytic role, in large companies. In the public field, Faludi (1973a:224-30, 237-40) argues that the role of the politician is to 'take' decisions: The decision 'making' process must be carried by both the 'planners' and the 'politician' who have equal status. He presents several reasons why the planner should not be viewed as the servant of his 'political master' where "politicians decide on ends, and (that) planners indicate the means for their attainment." Firstly, "political executives are subject to control by the legislature and, ultimately by the people," secondly, "politicians must often restrict themselves to amplifying decisions made either by themselves (or by their predecessors) or by higher authorities," thirdly, using Chadwick's argument, "indeed the enunciation of goals as such by planning's clients is so rare as to be virtually unknown," and fourthly, "Objectives describe a possible state of the environment in which one specific source of tension has been removed . . . thus implying much analytical and predictive skill for their proper formulation."

Along the formulation of the ultimate objective of the system, there is an operation which should be carried almost simultaneously. This is the discussion, presentation and recording of the norms and values, operational principles or assumptions which become evident as

this objective is selected and formulated. This information is related to the objectives derived from the various classes of N/P/C (systems related environment, overall environment and internal system) and also to the meaning of the terms used in the statement of the ultimate objective of the system. On this topic, Faludi (1973a:101-102) indicates that higher goals can be formulated upward to a point of impracticality: "It is only because of recognized limitations of time and knowledge that one has to accept some things as given: in any particular choice situation, certain assumptions need to be made which must not be questioned but only within the context of that choice."

As can be expected, the sub-systems of this planning phase are rather complex. The current objectives of the Related Environment's Systems should be known in order to avoid conflicts (Laszlo et al, 1977) or unnecessary duplication and to increase possibilities for cooperation; the so-called 'societal directions' as well as current 'societal proposals' (Marien, 1976) pertaining to the Overall Environment should be taken into account to avoid conflicts but also to seek congruency and opportunities; the internal system's present and potential capacities should ensure a realistic objective set out within limitations to be known; a process to ensure the updating of the meaning of the terms of the objective may be necessary to set up etc.

4. Generation of an Activity-Structure

The "formulation of a rational program" is the second of Faludi's (1973a:89) three step planning process. According to him, "when no routine solutions (automatic programs) are available to resolve problems then new programs must be formulated." The generation

of "possible courses of action" is also a specific planning phase for McLoughlin (1969:95, 98-99). The relationship between these notions of program generation and the notion of Activity-Structure is derived from the fact that each proposed program, course of action or activity involves (should) an objective. An Activity-Structure essentially consists of activity titles arranged hierarchically on the basis of the direction implied by each activity objective.

Inherent in the present discussion is the use of the term 'objective.' The literature reports various terms referring to 'objective' and consistency between sources is not always sought. Goals and targets are among those terms. For purpose of simplification and consistent with Crener and Monteil (1975), the term 'objective' is used here at each level of operation with an indication of its relative level. This leads to a second aspect of objectives that is their interrelations between levels. To this effect, Faludi (1973a) states that "the objective . . . relates to specific operations by which the goal or goals may be achieved." He further terms the selection of a particular objective 'to reach a goal' as: "the next lower planning process." McLoughlin (1969:104) reiterates this notion which he associates with Chapin's 'hierarchy of political decisions' and with Johnson et al's 'planning levels.' This notion of planning levels which assumes a hierarchy of objectives, where the lower levels contribute to the higher levels, is further discussed in the next chapter from an authority point of view.

The main question here is how the various activities (titles) and their corresponding objectives (below the system's ultimate objective) are arrived at? Faludi (1973a:89-92) uses the logic of the

'deductive model of explanation' to 'deduce' programs from (a) "general statements of what a decision-taker may or may not do, or expect other subjects to do" (this includes the legal powers to plan), (b) a descriptive statement showing "a future problematic world as it would be without any action taken" (the problem) and (c) a statement describing "the same world but without its problems" (the objective). From these he can "devise a set of intention concerning the type and intensity and the timing of action aimed at manipulating the control variables of a problem situation so as to achieve a set of objectives." He admits that in current practice "all that one can deduce are some indications of the area of choice," "the action space" (Faludi, 1973a: 92). During a particular experiment, Faludi did use a "morphological analysis as a method of generating all alternative strategies." This method essentially consists of breaking "a problem down into parameters (or decision areas), investigate alternative states which these parameters can take (or alternative decisions made in specific decision areas) and arrive at all conceivable alternatives through permutation" (1973a:267-68).

In regard to the generation of several alternative programs, Faludi acknowledges Braybrook and Lindbloom's criticisms, of 'rational-comprehensive' planning which suggests that the generation of all possible alternative programmes is impractical (1973a:107). This leads Faludi to present a series of approaches used to deal with this information-handling problem. Two of these approaches, applicable to the generation of programs, are: Etzioni's 'mixed scanning' and, 'creative planning.' The first approach mainly consists of formulating a program from a general area (view) and then of specifying the

components of the program until inconsistencies are found, then, one or more general levels are revised and specification continues (Faludi, 1973a:111-13). The second approach is described by Faludi as (a) involving as many individuals as possible in the process and (b) being open-minded towards new ideas (1973a:116-22).

McLoughlin (1969:232-34) supports the above approach of generating alternatives from the identified problems and the overall goals and objectives. He also acknowledges the impracticality of generating all possible alternatives: "the number of alternatives produced will depend upon a number of considerations, but the resources of time, money, manpower and data-processing equipment will be the main ones." He also adds, "The decision-maker often arbitrarily limits his own range of consideration in order to bring the problem of choice within a manageable range. Also . . . it is apparent that the range of choice is limited by the fact that possible courses of action outside the chooser's experience are discounted" (1969:98).

In order to generate alternative urban and regional systems, McLoughlin uses an approach which can be integrated to those stated above. He "requires a model of the system which will show changes of state through time under the influence of a range of 'policy variables.' These are matters which are under public control directly or indirectly and which can influence the system in major ways" (1969:99). Using various simulation processes, "bundles of assumptions" are expected to produce a 'family' of outcomes for the system under consideration. Those outcomes can be viewed or generated on a time scale (i.e., outcomes expected every five years) or instantaneously (i.e., Lowry's Model of Metropolis) (1969:235-55). It is assumed here that each

alternative underlies a series of objectives.

To derive alternative 'sub-objectives,' Ferreira (1968) also makes reference to already identified needs, problems and concerns. In addition, he uses a checklist of 'planning variables' which refer essentially to typical sectors or areas of human activities. In a similar way, Kahn (1969:133, 145) refers to 'functions' which need to be conceptualized. "Functions," he states, ". . . are the manifest grouping or types of activities within a service system or social institution, as conceptualized with reference to goals of the particular system." Reference is made here "to the components into which the system's 'job' is divided so that it may be accomplished." This is an approach related to the one used by Nadler (1970). First, a 'function' (akin to Faludi's 'action space') is determined and from that function 'work' is broken down into component parts through brainstorming techniques. As part of this creative thinking technique, the Ideal concept is used. This concept suggests that systems should be conceptualized from an 'ultimate ideal system' in order to arrive at a 'recommended system.' This concept is exemplified in the following figure (Nadler, 1970:510).

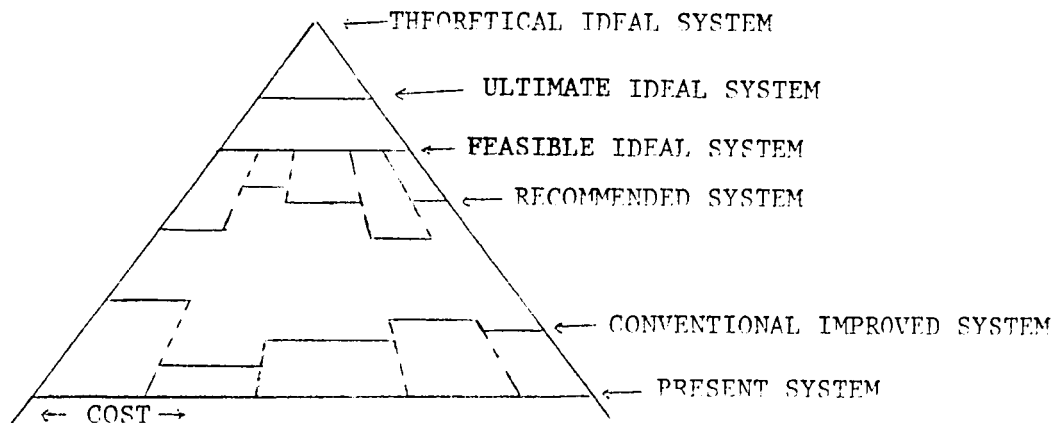


Figure 5:- Nadler's Levels of Ideal Systems

Although the above stated approaches to the generation of activity-structures provide a crucial assistance, there are a series of issues which remain unclear from a logical point of view. Firstly, it is not clear if the various needs, problems and concerns, identified at length previously, have been systematically dealt with in terms of solutions. Secondly, the relationship between the new activities arrived at and the on-going activities of a system are little discussed. Thirdly, what is the relationship, if any, between the hierarchies of N/P/C and the hierarchies of objectives? Without submitting a detailed procedure we would suggest the following additional notions based on Lemire's experience (1976a) to help resolve these three questions.

Firstly, only one (useful) level of activities and their related objectives should be derived directly from the ultimate objective of the managerial system. This can be done through the techniques proposed above.

Secondly, before moving to a next level of specificity of activities and objectives, the next planning phase (activity design) should be undertaken. This is like adopting the mixed scanning approach. Also, it coincides with the 'goal-setting' process established by Lorange and Vancil (1977) where either 'a set of action programs,' which directly relates to the corporate goal, is selected or 'a mutually agreeable set of divisional goals' are 'hammered out' between the corporate managers and the divisional manager. Although, this approach, of moving from one planning phase to the other, may be repeated, the first 'round' will provide a multiplicity of objectives since each of the activities proposed (this planning phase) when designed (next planning phase) will produce a

series of operations for each activity and each operation will be supported by one objective (as well as additional design variables such as target populations and implications). Further, this first round may already resolve a series of needs, problems or concerns related to the 'Internal System.' Indeed a typical aspect of a change in the Activity-Structure of a management system is a subsequent change in the organization structure which, in turn, implies a change in the allocation of responsibilities and of resources (see 'Implications' in chapter V).

Thirdly, the objective produced through the new Activity-Structure should be related to all of the same level objectives previously derived from the identified hierarchies of needs, problems and concerns. In doing this exercise, the previously formulated objectives may be viewed as a pool of ideas and as specified areas for programs or products. When this review is undertaken, all classes of N/P/C should be covered, giving priority to those of the 'System's Related Environment' class. Similarly, all the present activities of the system should be covered in order to integrate them, if they are maintained, into the new Activity-Structure.

Insofar as the sub-systems of this planning phase are concerned, four of them seem necessary. The first is concerned with the systematic formulation of objectives for each N/P/C identified in phase 2;¹ the second is concerned with the generation of new objectives and activities derived from the ultimate objective: This sub-system is

¹This sub-system implies the reformulation of objectives based on the redefinition of the needs, problems or concerns by the research system.

concerned not with the resolution of identified problems but with new 'opportunities'; the third is concerned with a review of the Activity-Structure based on the outputs of the two previous sub-systems and the fourth sub-system is concerned with a revision of the organization structure to best accommodate and help realize the activity structure. Two aspects to note about the second sub-system are its dealings with creative thinking techniques and the implied continuous recording of new program/product-ideas. As suggested above, these four sub-systems are intimately linked to the next phase of planning.

5. Formulation and Selection of Activity Design

In the previous phase of planning, a series of same level activities were generated to form an Activity-Structure. It was suggested then that a series of activities be 'designed' before finalizing this structure. This designing process essentially consists of applying the system 'design guidelines,' presented in part one of this thesis, to each activity. As indicated, each of these activity designs should document a series of variables. Each variation of each variable may then provide a relatively large list of alternatives and an opportunity for creative inputs by the participants. Depending on the context of this work as well as the level of generality of the activities (and objectives), each activity design may be stated with more or less detail and specificity. Also, this process entails the design of an implementation structure, i.e., authority and responsibilities to be exercised.

A second related step to undertake is the selection of the activity design. To this effect, Faludi (1973a:92-94, 270-71) suggests

two general approaches: Optimization techniques and "the rational planning process." The first approach refers mainly to the use of cost/benefit analyses while the second refers to 'mixed scanning,' an approach which, according to Faludi, is more applicable to qualitative data. According to Ferreira (1968), this second approach has also the advantages of saving time and of involving the decision-takers in the designing process. McLoughlin (1969:265-77) presents mainly quantitative methods for the selection of alternatives: The typical cost/benefit method; Lichfield's Planning Balance Sheet and Hill's Goals-Achievements Matrix. A positive aspect of Hill's method, stressed by McLoughlin, is the emphasis given to the weighting of 'objectives' which are used to evaluate 'plans': Those weights essentially force the decision-takers to establish priorities among their objectives. A factor, rarely mentioned specifically, but which should play a role in the selection of a program/product is the importance of the N/P/C (and of its related target population) underlying the activity objective under consideration.

Among the sub-sub-systems which may be understood as part of this planning sub-system, there is one related to the design of activities as well as the necessary decisions to be taken as designing takes place and one related to the prioritization of objectives and their related activities to include considerations of criteria, weights and scale measurement (Acar, 1973).

6. Design of Review Mechanisms

For Faludi, the final phase of planning is termed 'program implementation.' Under this heading, he presents two different concepts:

Feedback and control. Feedback is understood as the spending of some effort by the planning agency "to gain information about the results of implementing their programmes, comparing results with anticipation held previously and amending images accordingly" (Faludi, 1973a:279). He also specifies that those 'results' may be either 'intended' or 'unintended' and that the information pertaining to them may be obtained "by gauging relevant variables in the environment, using the same measurements as for the specification of objectives" through some 'information system' or 'social indicators' (if deemed possible) and/or through "a random sample of the population as a sounding board" (1973a:279-81). Because 'process planning' is implied through Faludi's guidelines ("the key feature of process planning is feedback"), then feedback information also necessitates open channels of communication (1973a:145). How much change should be made on the basis of feedback information is a question raised by Faludi (1973a:280).

Control is understood by Faludi as compliance to formulated programs (1973a:281-88). He uses Etzioni's categories of contextuating and of prescriptive control; the former being concerned with setting a framework within which the object of control is allowed to operate while the latter is concerned with determining every detail of behaviour.

Within those two poles of control, various types of power may be exercised, namely: Coercive, utilitarian and persuasive (1973a: 284-87). Faludi suggests that insofar as interagency planning is concerned, contextuating control is preferable while "prescriptive control . . . should only be exercised on lower levels and for routine tasks for which there are relatively firm images available." In terms

of the type of power to use to ensure compliance, Faludi admits that the 'development control unit' of his planning agency model uses coercive power which "may use or threaten to use force." He, however, recommends "the use of persuasive power and whenever possible the replacement of prescriptive control by contextualizing control," through an increased participation in planning (1973a:287, 290).

For McLoughlin (1969:95, 101-103, 279-96), feedback, control and review are continuous interrelated processes more or less part of the same planning phase. Feedback seems to refer to the process of paying 'regular and periodic attention' to the actual 'state' of the system being monitored, "and at certain intervals taking a larger and more thorough look at the situation . . ." It implies 'regular collection of statistics,' the use of 'improved forecasting methods' and 'local planning experience' (1969:280, 294). Such information is gathered in order to compare the actual state of the system with the one envisaged in the plan. This comparison as well as a comparison between proposals to affect changes in the system and the plan seem to be at the basis of control (1969:101, 285). As part of the control mechanism one would also find the 'blocking' of proposals for changes and the 'planner's brain' who looks at an 'accord' between the proposals and the 'general development plan.' The review then consists of changing the assumptions underlying a plan (and its model), its objectives and, if necessary, the plan itself. Feedback and control are monitored by the planner although "the decision to change the objectives would be a vital political decision . . ." (1969:103, 295).

The two above views of implementation, feedback, control and review point out several problems to avoid in the design of the review

mechanisms of a management system. Firstly, that control and its related concepts of compliance and power are significant aspects of the implementation systems as described above, but they are not basic elements of the planning or the research systems. Control or authority are provided through the organization structure from an implementation point of view, an aspect which the two previous authors seem to perceive as if ideally planners should altogether make plans and ensure their concrete implementation.¹ This issue suggests, however, the necessity for the 'implementation system' to be informed of the lack of compliance to a plan or lack of realism or inadequacy of a plan. And, this applies not only at the top of the implementation structure (hierarchy) but at all levels. Although planning must indicate the extent to which a proposal is consistent with the 'plan,' the decision to follow on this proposal (permit giving etc.) should be viewed as a decision-taking activity (part of the implementation system). Secondly, the implied notions, related to feedback, that planning must scan the environment and must evaluate the effects of the undertaking of its proposal go clearly against open systems concepts and objectivity. This is not to say that such information should not be made available to the planning system or to the implementation system. This point will be further examined in the next chapter.

The design of review mechanisms within a management system and subsequently the sub-system of this planning phase should include: (a) The set-up of a relatively independent research system with linkages to

¹Faludi's control device needs further reexamination. On one hand he disqualifies 'blueprint planning' in favour of 'process planning' and on the other hand, his control is based on 'formulated programs.'

the planning system and to the implementation system and (b) the set-up of a planning system with linkages to the implementation system.

7. Plan Formulation

"There is a growing feeling," states Faludi (1973a:131, 137), "that planning is not about the production of glossy plans and the unswerving execution of proposals they contain, which is what blueprint planning means. Rather, the current mood stresses the continuous nature of the planning enterprise or the process approach to planning." He explains "This blueprint mode of planning is . . . an approach whereby a planning agency operates a programme thought to attain its objectives with certainty." Given this rigid definition of 'blueprint planning' Faludi's negative diagnostic is not a total surprise. In spite of his favoring the process mode of planning, he nevertheless admits with Friedmann (1966; 1967) the need for "plans for several time horizons and different degrees of specificity from the most general, long-range type of 'goal planning' down to the actual budget." He further acknowledges that revisions to plans can be made and that the statutory requirement for public participation in planning may generate "some pressure for flexibility."

According to Manor and Sheffer (1977:210, 212-19), the present (1970's) conceptual confusion about planning results, in part, from the erosion of a fundamental postulate. This postulate is that "Planning is a specific kind of preparation which is based on setting up plans." They explain: "This process began with the observation that there are many types of plans; further, planning is more than simply the drawing up of formal plans and has been ultimately

forgotten entirely." This approach coincides with our design guidelines as suggested in chapter IV.

This planning phase or operation may be viewed as part of the activity design phase already presented (operations) yet, there might be some value to view this activity as a typical operation. The activity designs prepared previously were based on levels of objectives below the ultimate objective of the system. The designs were also based on selected numbers of objectives and activities but with no major attempt to integrate them into a whole. This becomes obvious when the overall organization structure is designed. This does not mean that the present operation (viewing the activities as a whole), should not be undertaken at the same time as the designing of specific activities, on the contrary. Further, the present overall integrated design, which would show the management system objective as the objective in the design, presents the 'complete' boundaries of the system, insofar as other systems are concerned. It helps distinguish this system from others. This overall management system design essentially refers to Dror's (1973:341-42) 'composite master plan,' to Lebreton and Henning's (1961:9) 'standing plan' and to Kahn's (1969: 132-66) policy. Since we have already discussed the 'design guidelines' at some length, the following will examine their consistency with Kahn's and Dror's notions of policy and master plans.

For Kahn (1969:130-31) there are at least six basic 'dimensions of policy formation' which are as follows:

- (a) Definition of the System to be planned: He suggests, here, that "one identifies and defines the segments of

the social system for which planning is to be undertaken and policy developed" and that the levels of intervention should be selected be they "national, state, local; individual, family, peer-group, community; income maintenance or social service . . ." This dimension resembles the 'introduction/context,' the 'target populations' and up to a point the 'objective' variables of the design guidelines.

- (b) 'Conceptualization of Functions': Here the author uses 'functions' as "the manifest grouping or type of activities within a service system or social institution, as conceptualized with reference to goals of the particular system." This dimension does appear similar to the sub-objectives and their related activities as described for the 'system design guidelines.'
- (c) 'Boundaries Decisions': The concern here seems to be with possible overlap between functions and with 'strategic ordering': "The crossing of boundaries from one intervention system into another should involve entering a territory with a unique perspective on some aspect of a client's needs or problem, and an identifiable armamentarium of intervention specifics in some way related to the perception of the potential client and to a cluster of available knowledge and skill." This rather abstract concept of boundaries, which seems to overlap with the 'conceptualization of functions' (above) and

the 'parameters for programming' (below), resembles the 'system design' variable of authority and responsibilities for each of the system's operations.

- (d) 'Level of the Proposed Intervention': The main aspect presented here seems to regard the comprehensiveness of the intervention: "Planning may involve modest projects, more ambitious programs, or comprehensive change." This dimension could, in our view, be integrated to the other dimensions already stated above.
- (e) 'Parameters for Programming': This dimension "includes a series of general policy guidelines relevant to programming specifics." Relevant aspects include: "eligibility requirements, the form of benefits, techniques of financing, public voluntary balance, sectarian or non-sectarian services, distribution of responsibility among levels of government, amount of redistribution sought" etc. This general notion appears to deal with several system design variables such as: Target populations, resources, operations, authority and responsibilities, etc.
- (f) "The Price to be Paid': "Policy makers," states Kahn, "need to estimate the importance of the new policies and programs in the competition for scarce resources--and the priority to be accorded them. Policy includes some perspectives on the scale of resources and other elements

of costs to be assigned to the area in question." This notion is much akin to the 'budget' variable of the 'system design guidelines.'

For Dror (1973:332,341-42) "the form of the plan to be arrived at" is one of the four basic dimensions of planning and "the final phase of the planning process." This dimension is presented through four 'facets' as follows:

- (a) 'The Realism of the Plan': This facet refers to the notion that "there is a legitimate span of more or less realism aimed at in the preparation of a plan. Indeed, a certain utopian element may be essential for gaining the necessary support." This notion may be a qualitative aspect of the design guidelines and it fits well with the above-proposed Nadler's Ideal concept.
- (b) 'The Form of the Plan': Dror indicates that a plan may take several forms but that "The modern tendency seems to be in the direction of composite plans, including long-range and short-range time tables, financial and physical breakdown, contingency and predetermined elements, and so on." This multivariate plan appears consistent with the 'design guidelines' with its list of variables to be documented.
- (c) 'Degree of Details': Dror suggests that any plan could be more or less detailed but that "in general, the larger the time span to be covered by the plan, the more the

plan will include general frameworks and directions, leaving details for later or delegated planning." This facet is consistent with the notion that an overall, comprehensive design which includes and integrates more specific or sectorial designs may allow, the pursuit of designing activities through mixed scanning or other rounds of specification, as was previously suggested.

- (d) 'Single or Multi Direction Plan': The facet here is that a plan may provide only one proposal for the 'direction of action' as opposed to an alternate approach where the plan provides a range of directions for later selection. This is consistent with the use of several designs as part of a larger design or to the presentation of several overall designs with a combination of 'sub-designs.'

Overall, Kahn's breakdown of policy dimensions not only coincides, in most part, with our design variables, but they also suggest that the design guidelines may be used to formulate the famous elusive concept of 'policy,' (Jantch, 1970; MacRae, 1975; Wildawsky, 1973). Similarly, Dror's facets of a plan are consistent with our design guidelines. Insofar as sub-systems of this planning phase are concerned, their variations would depend essentially on the complexity of the mechanisms and process used to integrate the various sectorial designs into the overall design.

8. Conclusion

As we have indicated in the introduction of this chapter, the total planning process formulated is some type of ideal. The author's

own attempts to apply these procedural steps were contravened in a number of ways, including a continuous departure of some of the participants and the arrival of new ones; their lack of concern for planning, often viewed as extra work "in the way" of implementation; their impression that they were being manipulated through "academic exercises"; the need to sacrifice the planning logic to satisfy 'urgent' data requirements; the need to simplify procedures in order to be understood and not totally rejected and the desire of most to personally influence the top decision-taker with the least interference, especially from the one who would threaten to process such input through a priority exercise (the planner). It is obvious that the planning process must adapt to its environment. This is, in fact, one of the most complex challenges to be faced by the planner. This however stresses the need for planners to develop special communication, observational and interpretative skills. Drastic variations of the planning operations listed above may be affected by the contexts of private versus public planning, large versus small organizations, articulate versus analphabet participants, stable versus unstable organizations and environments as well as precedents.

To conclude, let us briefly note two complex issues tied to the above-stated operations. Firstly, the 'time needed' to systematically proceed with the various planning operations may not be available due to the urgency of the situations. Secondly, the various kinds of participatory processes which are assumed to take place as planning proceeds, although a major if not essential source of inputs, may be highly disruptive of the rational process. Although the first issue can be handled by 'short-cutting' the process, the second can, in our view, be handled only through more comprehensive planning. This second issue will be more fully presented in the next chapter.

CHAPTER VII

PLANNING AUTHORITY AND RESPONSIBILITIES

The notions of authority and responsibilities are essentially referring here to the general concepts of organization and of structure. The importance of the organization or structure for planning has been stressed by Dror (1973:341) as follows: "In both small- and large-scale, inner- and outer-directed planning, the organizational issues are most complex and the solutions adopted determine to a considerable degree the form taken by the planning process, and its success and failure in fulfilling its tasks." Faludi (1973a:59-60) also stressed the importance of a planning structure due to its influence and subsequently as a determining factor of the planning process itself. As he explained, "In a certain sense, organizations are even superior to individuals in decision-making . . . they command a better decision-making technology and larger resources than individuals Individuals may change, but agencies remain to some extent the same for as long as their structure remains unchanged. They may even exchange all their members and still carry on in much the same way."

Without any doubt the historical as well as the current context of planning within various types of organizations, such as private or public organizations, have and will lead to different types of structures for planning authorities and distribution of planning responsibilities within a total organization. To exemplify this notion,

the respondents to a national study of corporate planning indicated that the factors which have "an ultimate bearing on the organizational structure of planning include decentralization versus centralization of company operations, diversity of product lines, and relative competitiveness of the industry" (Caldwell, 1975:vi). In addition, the 'recent' development of specialized private firms or institutes and so-called 'think-thank' groups, providing advice on planning, plans, alternative futures, etc., on contract, are bound to bring about differences in the structure of planning authority and in the distribution of planning responsibilities. This is not to say, however, that some general characteristics and principles cannot be derived from an examination of current practices and theories.

In the following we will examine: (a) Current corporate planning organization, (b) current public planning organization and (c) a theoretical planning structure. Out of these we will derive guidelines for planning authority and responsibility of a management system planning sub-system.

1. Current Corporate Planning Organization

A survey of approximately 250 Canadian corporations representing a cross-section of industry by size, type, location and ownership shows that over three-quarters have a formal planning group or planning committee (Caldwell, 1975:5): "Of those organizations with no recognized planning function, most are small (total assets up to 350 millions) and medium size" (total assets up to 350 millions). The study also points out that in larger firms with no formal planning units, planning may be carried out by another functional group

(i.e., finance) or by an individual with other functions (i.e., president).

Although a unit with specialized staff is generally viewed as a requisite to corporations, the size of such units is rather small. In the above stated Canadian study, less than half reported having secretarial and clerical support staff within the planning group and only one quarter of the organizations reporting having three or more professional planners (Caldwell, 1975:7). In a study of forty major U.S. corporations (all of Fortune's five hundred in 1966), the reported number of staff in over three-fifths of the corporations was five or less (Ringhakk, Dawson, 1968).

The organizational position of the planning unit within the corporations where it applies is consistently reported as close to the top decision-making center (senior executives or president). The Canadian study indicates that in almost sixty percent of the cases, the planning group reports to the president while "in all cases, reporting is to a very senior official never more than one removed from the president or chief executive officer" (Caldwell, 1975:8). Consistent with this finding, the 1968 U.S. study, referred to above, reported that "Nearly all of the planners interviewed think the corporate planning department should have only staff responsibilities and authority for the development of plans . . ." (Ringhakk, Dawson, 1968: 27).

The responsibilities for planning within corporations are typically viewed as distributed throughout the organization starting from the top executive or the president level, where the planning unit has a coordination and integrative role, down to the operating levels.

In The Conference Board study, over seventy percent of the respondents reported that the chief executive officer is personally involved in setting corporate objectives and in reviewing the final plan. In about forty percent of the corporations, the chief executive also decides on alternatives, formulated strategies and provides ideas for the plan (Caldwell, 1975:9). It is further acknowledged that "in most companies the plan is prepared by the planning group and submitted to the chief executive officer for approval." Nevertheless, suggesting a planning role, below the senior executive, the study reports that "In most companies, the corporate planning function has evolved into a coordinating role where-by the plans of various departments or divisions are refined and merged into an overall corporate plan." The four most frequent responses provided by planners on the role of the planning unit is also indicative of this distribution of planning roles within the organization (Ringhakk, Dawson, 1968:27). In order, those were: "Stimulate and foster planning," "Work overall corporate plan and assist in strategic planning," "Aid in coordinating and reviewing planning effort throughout the corporation" and "Develop format and framework for formalized planning." Similarly, one of the major reported improvements needed in the corporate planning effort was started as: "Better integration of the planning effort throughout the corporation" (1968:29). Also the major change "expected in formal planning in the next decade" was reported as "Better understanding of planning and thereby greater acceptance and practice at all levels" (1968:31).

2. Current Public Planning Organization

The existence of a formal public unit for planning within the public sphere dates as far back as the existence of the profession. There is, however, a little problem with this notion. Various types of schools, i.e., from engineering to economics, agriculture to geography and from sociology to architecture can claim to have produced planners. One might even argue that the current schools of urban or regional planning (with an extension to urban studies) or 'urbanisme et aménagement' have been the latest academic producers of so-called planners. Yet, according to O'Harrow (1968), there were, in the U.S., five schools offering professional degrees in planning as far back as 1941. The detection of public planning organizations from their origins to today would be a tremendous task but the above suggests that various types of planners may have been at work for a long time in various types of settings. To simplify our presentation we will consider here two general types of public planning settings: (a) Local and sub-provincial, regional planning and (b) state or provincial and national planning.

a. Local and Regional Organization

According to Pickford (1968:527-31) there are four major patterns or organizations for local planning agencies in the U.S.: The independent planning commission with or without staff; the planning department; the community development department and the administrative planning agency. In smaller communities the planning commission may not afford any staff. In larger communities staff may be 'affordable'

and in this case they report directly to the commission which, in turn, advises the officials. In the case of the planning department, the planning staff report directly to their chief executive. In the case of the community development department, the planning staff report to the head of this department. This department usually integrates the so-called 'development agencies' (renewal, housing, etc.) with planning. The administrative planning agency has a status equal to executive, legislative and judicial aspects of governments: The planning body reports directly to the elected officials. In local and/or regional planning an agency of five professional staff members is judged as small, while a medium-size agency includes from five to ten staff and a large agency includes more than ten. This aspect of a planning unit obviously forces a particular organization structure on the unit itself and a particular structural relation with the remaining of the total local administration (Pickford, 1968:535-40).

The relatively large number of planners required for local and regional governments in comparison to private corporations may be explained by the responsibilities undertaken by the local/regional agency. Pickford (1968:526) classifies those responsibilities into the following: The establishment of community development objectives; the conduct of research on growth and development of the city; the making of development plans and programs; the increase of public understanding and acceptance of planning; the provision of technical service to other governmental agencies and private groups, the coordination of development activities affecting city growth and the administration of land use controls (zoning and subdivision regulations). Although Gerecke (1973) questioned the high level of administrative

tasks of the urban planners in Canada, one should note that, typically, planning at the local level has referred to physical and economic development and rarely do we find the planning of social services included in both the organization (structure) and the responsibilities for planning at that level.

b. Provincial, State, National Organization

Undoubtedly, there is not one government at the provincial, state or national level which is organized in a similar way either within a single nation or internationally. Yet, the existence of a political party, the relatively large size of the geographical area, the existence of lower levels of government, the relatively large size of the bureaucracy and the relatively large range of responsibility areas (such as international relations), typically involved at these higher levels of public administration, put those governments' organizations for planning in a position distinct from their local or regional (sub-provincial) counterparts. Short of presenting a representative sample of planning organizations at those levels, we will briefly present some aspects of the Government of Canada organization.

A review of the structure of the federal bureaucracy (Government of Canada, 1975a) immediately informs us of the existence of a multitude of planning/policy units. We can note that every department has several such units and, in addition, one can find a series of relatively autonomous commissions and councils which either include such units or are themselves considered a planning/policy body (Wilson, 1971; Aucoin, 1971). Further, some departments such as Ministries of State are, by legislation, viewed essentially as

'policy departments,' (Doern, 1974). In addition to the departments' commissions' and councils' planning units or capacities, one also finds three units, heavily engaged in planning matters: The Prime Minister's Office (P.M.O.), the Privy Council Office (P.C.O.) and the Cabinet (Doern, 1971:40). Referring to constitutional theory, Doern refers to the Prime Minister and the Cabinet as "collectively responsible to an elected Parliament both for new policy and . . . for ongoing policies . . ." A major role of the so-called Prime Minister's Office (P.M.O.) is to be concerned with relating the government programs to the inputs and policies of the Party. A major role of the Privy Council Office is to provide the technical support to a series of Cabinet Committees including the Priorities and Planning Committee. This committee is viewed as the most important of the various committees, in part because it is chaired by the Prime Minister himself (Doern, 1971:55). Further, this committee includes the President of the Treasury Board and the Minister of Finance. In addition, Doern sees two departments as having an overall policy role for the government: The Department of Finance and the Treasury Board. "Finance views matter in terms of their impact on the government's ability to extract resources and on the fiscal and economic consequences of government activity on the external society and economy, and the Treasury Board concerns itself with on-going resource allocations and with the internal financial-administrative impact of existing and proposed government activity and organization" (Doern, 1971:41).

The responsibilities for planning at the departmental level have been little investigated to this day. Nevertheless, an internal study of planners and of evaluators conducted by the Treasury Board

suggests that those units are engaged in the three following types of planning activities: 'Policy development,' 'policy fire fighting' and, mainly; 'program design' (Treasury Board, 1975). The distinction between the roles of the planners and the evaluators was, however, not clarified thus leaving the possibility that much planning work was indeed research work. In fact, the study indicated that most departments had no established planning processes. At the departmental level, the position of planning units was found initially at the 'corporate level' i.e., close to the Deputy Minister and was usually headed by an Assistant Deputy Minister. Near the Deputy Minister, staff group and single policy advisors were also found. Planning units were also found, 'down' the departments, at the program level. Insofar as the number of staff was concerned--the twenty-eight departments covered by the Treasury Board study showed an average of twenty-eight persons/year per unit for both planning and evaluation activities.

Up to this point we have shown that specialized planning units have been established in both the private and the public fields, that those units were placed very close to the 'top' decision-maker and that this seemed a necessary first step, that the private units appear smaller than the public ones, possibly due to the expected role of the public body but also due to research and sometimes heavy administrative responsibilities and, that planning responsibilities are distributed vertically within the organization starting from the top executive or legislator. In regard to this last point, the interrelation between the 'top' (formal) planning unit and the planning activities distributed down the organization does not appear clear in government and is stated as in need of improvement in the private sector.

3. Faludi's Model of Planning Structure

In the following we will present a theoretical framework which provides additional insight into the structure of planning activities within a formal organization. On the basis of the contribution of psychology and cybernetics, some authors (Marquis, 1971; Miller et al, 1960) have developed models of planning and organization and processes using a model of the human mind engaged in thinking and learning. The following essentially summarizes and comments on one of those author's relatively recent and comprehensive analogies.

Faludi's (1973a) model of a planning agency involves the following seven major components:

- (a) The environment which surrounds the system (agency) and provides information and resources to it.
- (b) The survey or research unit which gauges "the existing state of the environment and the effect of actions on it."
- (c) The planning or legislative committee which selects between alternatives on the basis of the information received from the 'development plan section.'
- (d) The development plan section (understood as a memory) which (a) preserves useful information, (b) forms representations of the world (images) and the forecast based thereon and (c) "enables the evaluation of alternative preferences against some higher

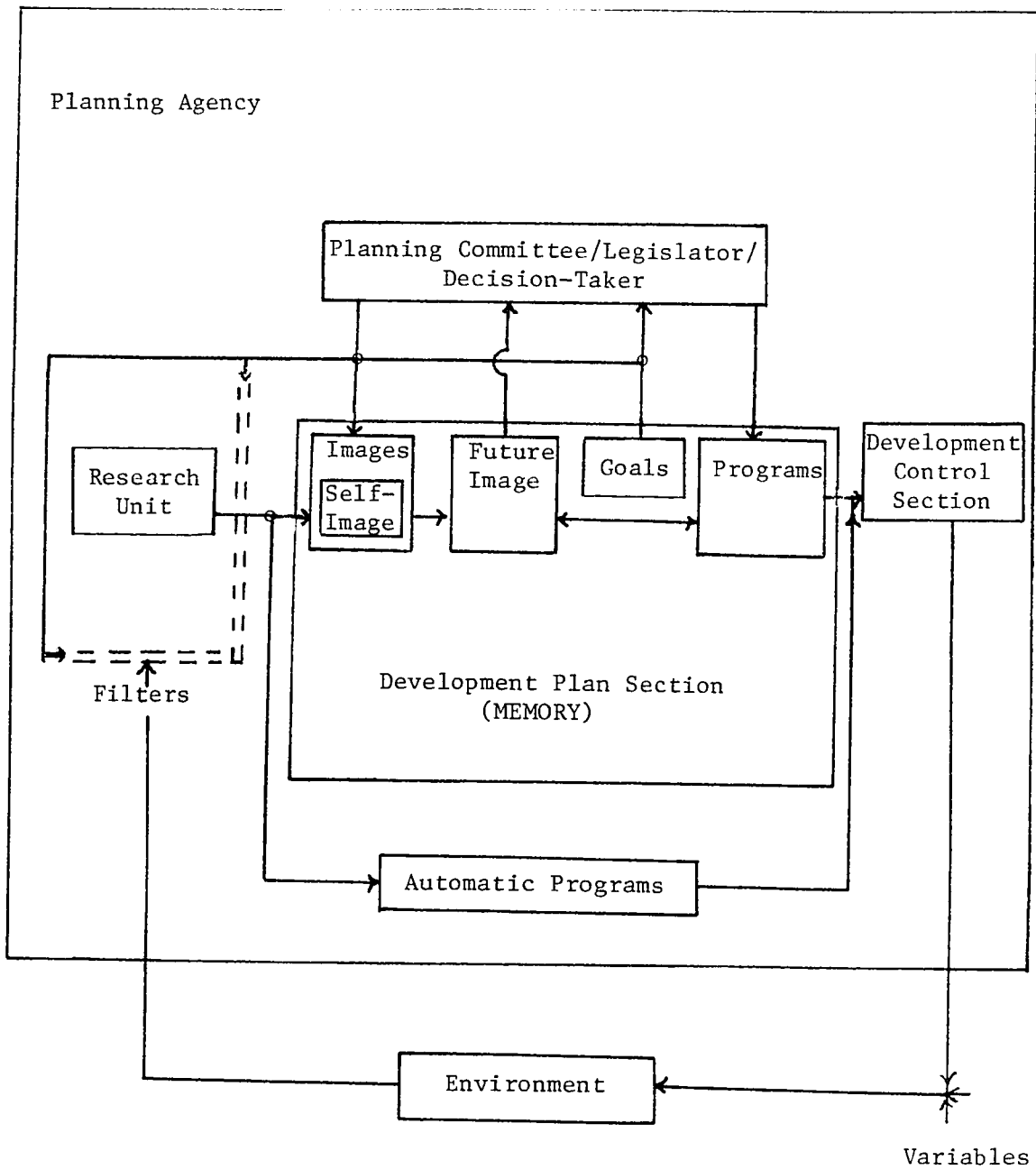


Figure 6:- Faludi's Model

criterion." This 'memory' includes general and specific goals, general, specific, current and future images, general and specific programs (or ideas "of which action to take and in which sequence to remedy undesirable effects or to achieve those which are desirable") and self-images representing the awareness of the agency's capacities, limitations and maturity processes.

- (e) The automatic programs which are programs moved "unconsciously" from the research section to the development control section. Also referred to as routine solutions to recurrent problems.
- (f) The development control section, understood as the effector, which produces changes in the environment on the basis of the information received from the planning committee.
- (g) The filters which are two mechanisms which modify information. One acts before the information is taken by the survey unit, representing the direction of any search for information, and the other acts where the information is moved from the survey unit to the development plan section. Both filters are acting on the basis of the goals of the system.

Faludi's model is, to a great extent, consistent with the findings presented so far in terms of systems concepts and planning

agencies' structures. There are, nevertheless, a few areas which appear problematic.

Firstly, the model presented is more akin to a general organization (which includes a planning unit) than to a specific planning agency. This might be symptomatic of the problems of current planning agencies as identified earlier (Gerecke, 1973). More specifically, this planning agency model includes and defines a decision-taking component, an implementation component (effectors) and evaluative components which are typically viewed as managerial functions distinct from planning (Miner, 1970). Obviously, a planning agency within an organization includes decision-takers, implementors and evaluators but in such a case the decision-taker is the head of planning, not a legislator (except in relatively rare cases: Ministers of Planning). This will be further examined below.

Secondly, the suggestion that the survey unit should be conditioned by the goals of the system, although partly necessary from a scarcity of resources point of view, conflicts with the notion of an open and learning system. Also, the suggestion that the goals of the system are the only major filter when information is moved from the survey unit to the development plan section does not take into account the creative inputs of the researchers. These two points have been extensively discussed by Churchman (1971) who argues about the necessity for independence of some research capacities. This does not, however, suggest that 'applied research' cannot be conditioned by the planning system. It is necessary that 'program evaluation' be undertaken with the goals of the organization in mind.

Thirdly, the analogy of the development plan section to a human memory although generally appropriate, is far from doing justice to the major and necessary creative and speculative role of this unit and its subsequent analogy to this productive aspect of the mind (Guilford, 1967:138-69, 213-14). The failure to take into account this formal role is exemplified by Faludi's (1973a:120) reduction of 'divergent thinking' production to mere informal relationships: "For planning agencies to engage in divergent thinking, they must activate the informal network of relations cutting across boundary and listen to relevant information which comes through its multiple channels." Furthermore, the suggestion (Faludi, 1973a:249) that those relationships should only be linked "to the world outside" only adds to what might be considered a rudimentary handling of the creative inputs of both inside and outside actors.

Fourthly, automatic programs should be seen as either on-going activities of a management system, as stored information on those on-going activities or, as already designed activities stored in the planning unit and which are not operational (on-going) but can be used by decision to do so. To relate those activities as outputs of the research unit appears misleading.

4. Guidelines for Planning Authority and Responsibilities

One general principle which can be derived from the above is that planning can be performed at various levels of a generalization-specification scale (stratified description hierarchy). Although those levels can hardly be clear-cut, there is a general agreement on

three types of planning along this scale: Conceptual, strategic and operational (Ozbekhan, 1973). Johnson et al (1963) defined these planning levels as (a) "master planning for the establishment of goals, objectives and broad policies," (b) "resource-allocation planning for the project and facilitating system" and (c) "operations planning for each of the project systems." This conceptualization of planning levels is consistent with with the previous notions of hierarchy of objectives and of activity-structure and it helps to establish the following aspects of planning authority and responsibilities.

a. Planning Authority

As suggested by the above-stated practices, levels of planning can be integrated to the 'traditional' organization structure where conceptual planning occurs at the top managerial levels, strategic planning at the middle managerial levels and operational planning at the lower managerial levels (Figure 7). Although planning can be 'fitted' into the usual authority structure of a decision-layer type of hierarchical organization, a planning structure can also be viewed as a parallel structure where the role of the actors is not the same as in the one which is needed to "get things accomplished" (the implementation structure). In the implementation structure, the role of the person 'above' is to direct and supervise the operations of the person 'below' on the basis of some guidelines or activity design provided from above. In a simple planning structure, there is no one 'above' or 'below.' (In a simple structure, there is only one 'planning unit' and the major role is one of process, not of content.)

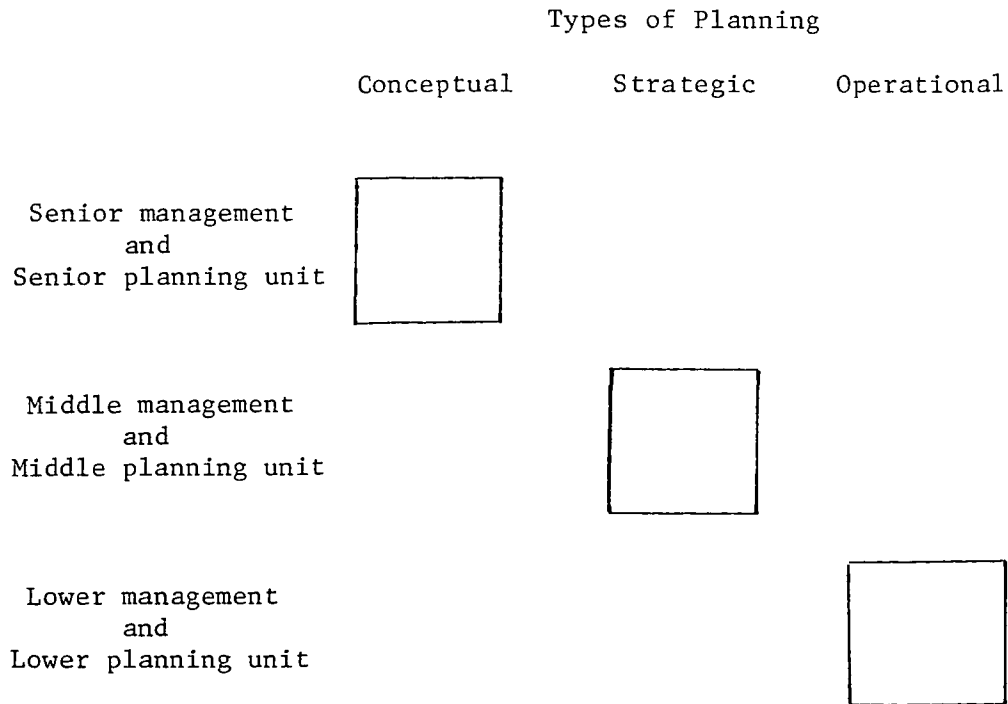


Figure 7:- Levels of Management and Types of Planning

The two basic principles underlying this view of planning are firstly that the planning function is distributed throughout any organization and secondly that planning is a synergistic process. The principle that planning activities are, and should be, distributed throughout an organization has been derived from current practice. In a similar way, Rondinelli reports Walker's study of thirty-seven cities which concluded that "planning board members were no more competent than city councilmen" on planning matters and consequently that "planning viewed as a function of government should be part of the executive function itself." The principle that planning activities should be viewed as a synergistic process is a major proposal of Rondinelli's reorientation of 'traditional' urban and regional planning theory and

practice. "Planning," he states, "in essence, is a continuing process of innovation, mobilization, and utilization of policy-influencing resources and resolution of the political conflict inherent in social change" (Rondinelli, 1975:26-27). He later states, "policy-making is synergistic--the process of interaction produces policies different from those espoused by any single participant in the policy-making process"(1975:249). Along this same line of thinking, he indicates that policy-making is not an intellectual process but a political one, and that "policy is initiated, enacted, implemented, and evaluated through a complex set of 'horizontal interaction . . .'" Although Rondinelli's views are derived in most part from theories and practices of conflict resolution, similar views are also held by proponents of cooperation (International Cooperative Alliance) and of synergism (Craig, Craig, 1974).

The two structures of planning and implementation can be respectively depicted as in figures 8 and 9. These two structures assume at least two roles for the people in organizations: An implementation role and a planning role. It is to handle the planning role of people in organizations that a planning system is set up and it is to ensure the maintenance and the improvement of that system that at least one unit must be held responsible for planning. Again, as suggested by current practices, the initial position or the position of the senior planning unit (in complex planning structures) should be as close as possible to the top implementor, i.e., the top manager and should thus be mainly concerned with conceptual planning.

The relationship between the implementation structure and the planning structure, from a planning standpoint, refers essentially to:

(a) Proposed changes to existing activities and (b) proposed new activities or (c) conscious conservation of existing activities. This is briefly included in figure 10 where the planning unit plays a coordinating and channeling role.

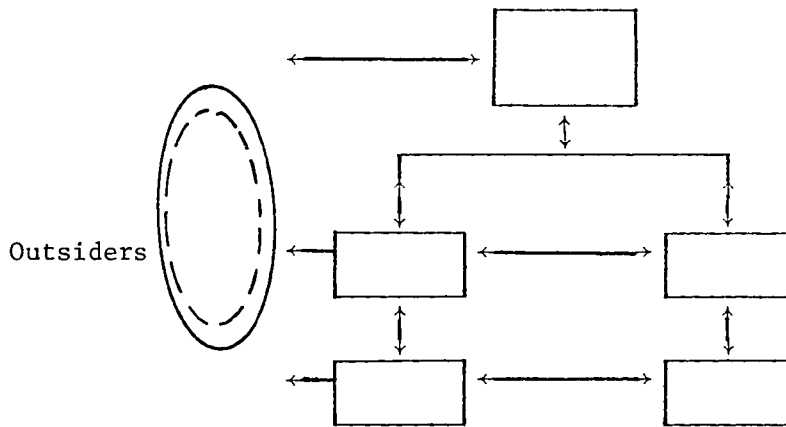


Figure 8:- Planning Structure

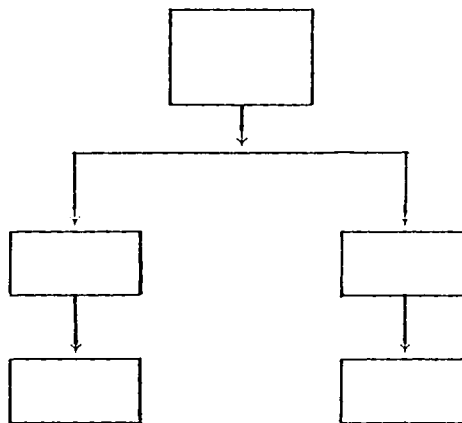


Figure 9:- Implementation Structure

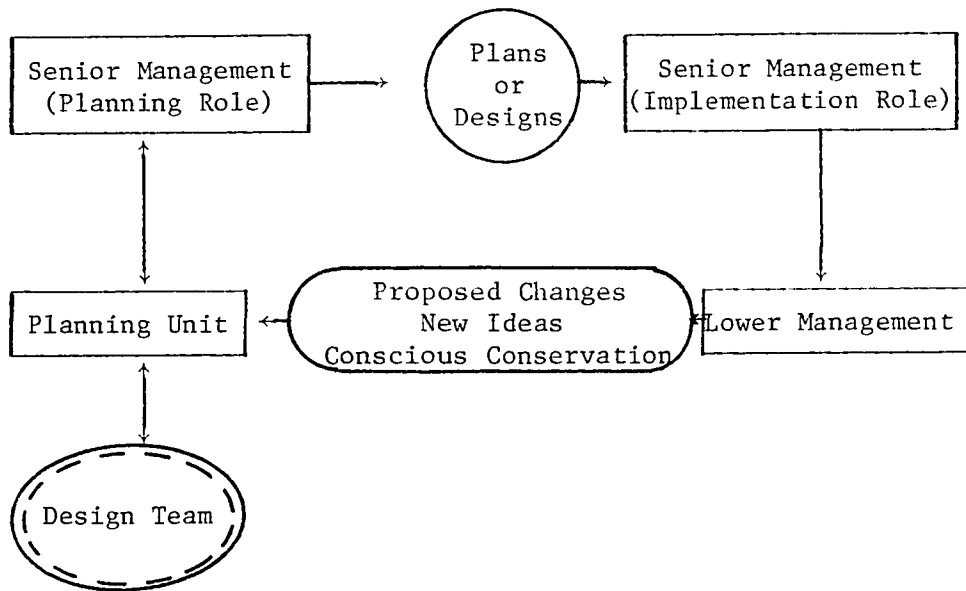


Figure 10:- Planning and Implementation Relationship

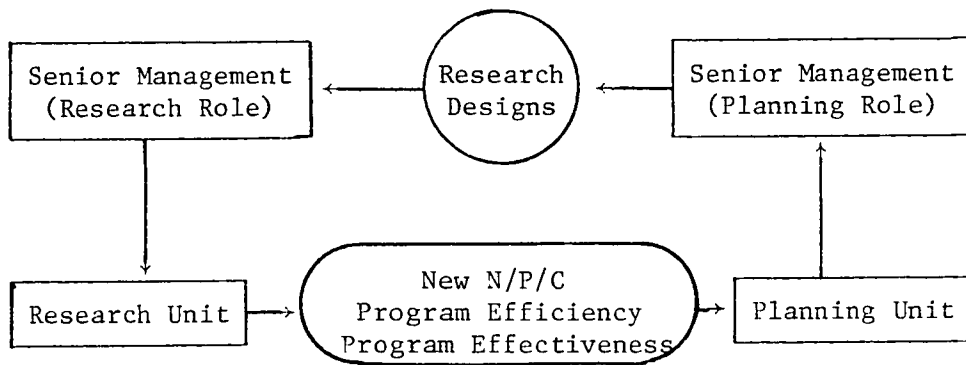


Figure 11:- Planning and Research Relationship

The relationship between the planning structure, from a planning standpoint, and the research structure refers essentially to (a) the

identification and/or redefinition of needs, problems and concerns, (b) the provision of feedback on the efficiency and on (c) the effectiveness of programs/products. The relative independence of the research unit, as pointed out earlier, makes it necessary to interact directly with senior management and not only with the planning unit. This is briefly described in figure 11 above. It may, however, be convenient to associate the two organizational units, due to their implied small sizes, under a common head (i.e. Research and Planning Director).

So far, the planning unit has been viewed as a unique coordinating mechanism for the planning system (i.e., simple planning structure). To add flexibility and comprehensiveness and to favor a decentralization of planning, lower planning units may be set up interacting with the senior one and reporting to its own management level. In addition, temporary planning units may also be set up. These are referred to here as 'design teams.' Such teams would include not only people of the 'organization,' as in planning units, but also people from 'the outside' (specialists and consumers). This is further elaborated below. At this point, we can describe the flow of planning information between the three management sub-systems (planning, implementation, research) as in figure 12.

Although this model is different from the one presented by Hermansen (1969:121-23) the coordinating role of the planning unit is about the same. In his model, the information-output is supplied by the research unit, by the political process (in our model, top implementors) and by long-term strategies (in our model, a more general design). In his model, 'planning information processing' is slightly

different from ours due to a different breakdown of planning operations; yet our notion of plans, of selection and of goals are similar. His planning operations of 'forecasting' and 'model building' overlap, in our view, with the research system and could fit our planning system if these operations were directly applied to the objective of the management system concerned. His planning outputs for operational planning, namely "recommendations for decisions about actions to be taken," "decision functions/criteria/to be used . . . for implementing control action" and "forecasts of variables entering decision bases" are integrated into our concept of 'systems design.' A systems design, set of them or element thereof, along with criteria for selection, are typical planning outputs of the planning system described in this thesis.

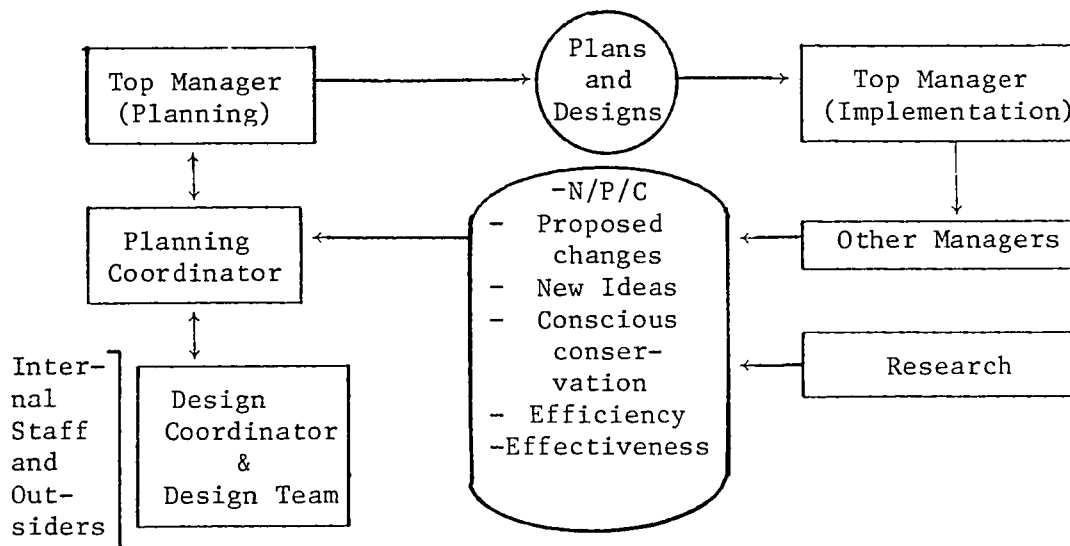


Figure 12:- Planning Information Flow and Structure

To best understand the various structures and types of authority suggested above, we will now examine the roles and responsibilities involved. To simplify this presentation, we find it necessary to distinguish between the planning responsibilities exercised within a management system and those related to 'outside' planning systems.

b. Planning Responsibilities Within
a Management System

As indicated in the previous section, every individual within a management system can play a planning role. Nevertheless, the nature of this role will vary according to circumstances, needs and levels within the bureaucratic structure. The following describes, in conformity with the planning functions identified in the previous chapter, the planning responsibilities of various typical groups or individuals in a management system.

1. The politician/president/chairman:

The general planning role is to ensure that there is available a complete, up-dated and official (approved by self) plan for the management system. This assumes that he/she has approved the various elements (documented design variables) of the Plan.

2. The senior executive:

His/her planning roles include the following: Ensure consistency between the major aspects of all design variables contained in the Plan; ensure that the Plan is continuously being completed and updated; ensure that the main responsibilities to implement the Plan are appropriately distributed; decide with the politician/president/

chairman on the following: Priority of major N/P/C, philosophical approach and overall objective, major program/product--idea(s) to be designed and, the highest level activity-structure; decide on major review mechanisms and/or procedures; appoint design coordinators related to senior planning units and appoint the senior planner (or Research and Planning Director).

3. Senior research and planning director:

- (a) Ensure the most appropriate distribution of responsibilities to implement planning activities;
- (b) recommend design coordinators;
- (c) ensure that a new program/products design or that changes in the orientations of existing programs/systems are presented to senior executive;
- (d) report to senior executive on progress or design work performed by design teams and on progress of planning activities;
- (e) Ensure integration of the planning system with the research system and the implementation system.

4. Senior planner/planning coordinator:

- (a) Assist in the development of program/system plans and planning processes;
- (b) maintain a bank of current program/system plans and proposed ideas or changes;

- (c) provide liaison among design teams;
- (d) provide background information to appointed design co-ordinators;
- (e) report progress on design work performed by design teams to Director of Research and Planning;
- (f) Participate in design work related to the following areas of planning: Philosophical approaches to general problem-solving, hierarchy of N/P/C, program objective, activity-structure, design guidelines and planning program/systems.

These functions of the planner, who is viewed as only one of the actors within a planning system, can be understood to include any or a mix of the following style of planning identified by Rondinelli (1975:56): (a) 'Innovative planning' where the emphasis is on anticipating and seeking change, exploring and exploiting opportunities for new policy directions, crystallizing dissatisfactions with current conditions, and searching better alternatives; (b) 'advocacy planning' where the emphasis is representing a policy position or the perceptions of a particular interest group, formulating coalition building strategies, presenting positions to decision-makers, exerting influence through psychological field manipulation and symbolic stimuli, using processes of intermediation (use of third parties) etc.; (c) 'adjunctive planning' where the emphasis is on the provision of 'objective' data and analysis to participants; (d) 'allocative planning' where the emphasis is on balancing economic, political,

social, physical and other criteria to allocate or distribute resources; (e) 'coordinated planning' where the emphasis is on reducing the lag and lead time for policy enactment and implementation, on creating inducements and processes of compensation of reciprocity, on facilitating and encouraging bargaining and negotiation among organizations and geographical areas to allow coordination, on mediating conflicting demands, etc.; (f) 'administrative and technical planning' where the emphasis is on effective institutionalization and organization of enacted plans and policies and on designing basic management systems and processes for policy implementation; (g) 'functional planning' where the emphasis is on specific project planning, etc. Overall, the planner must understand and may suggest any or a mix of interaction processes in policy-making as shown in table 1.

TABLE 1

RONDINELLI'S TYPES OF INTERACTION
PROCESSES IN POLICY-MAKING

Information, dissemination education and propaganda	Bargaining and negotiation
Field manipulation	Intermediation
Persuasion and advice	Coalition building
Modeling and demonstration	Cooptation
Tacit coordination	Incentive and inducement
Adaptive adjustment	Subsidization
Obtaining mutual consent	Probes, threats and punishments
Reciprocal exchange	Authoritative prescription
Mediation of rewards	Pre-emption
Reinforcement and shaping	Command
	Coercion and force

5. Design team:¹

- (a) The purpose of a design team is to plan (design) new activities or new orientations to on-going activities of the management system.
- (b) The design team includes one appointed design coordinator and any number of management systems staff as required. Outside specialists and/or consumers may contribute to the design work. Each member of the team is considered as having the same status as the others during the design work. Each design team should include, as early as possible in the designing work, the individual(s) who will be expected to implement the design. This person (referred to as the implementor) will require, due to expertise, that a margin of discretion be left to him/her in terms of detailed planning. The implementor could become the coordinator of the design team.
- (c) Duration: A design exists until the design is formally agreed upon or is definitely rejected by the senior executive. The team may be reconvened at a later date to make changes in the design or a new team may be formed. The team may work continuously or from time to time depending on the constraints provided by the senior executive.

¹Much of this concept is derived from the public participation in decision-making literature (below) and from such sources as McCaye, J. C., Beyond Motivation (New York: Jeffrey Norton, 1973).

- (d) Work of Team: The method of designing, the depth of the design and the content of the design will vary with each case and will be dependent on the constraints set by the senior executive and the needs of the design.

6. Design coordinator:

- (a) A design coordinator is a staff person appointed by the senior executive.
- (b) The role of design coordinator is one of process. He/she is to ensure participation of the members of the team in terms of (a) maximization of creative outputs, (b) uses of a (or several) designing method(s), and (c) presentation to senior executive of design.
- (c) Administrative tasks related to this role are: Coordination of attendance, meeting settings, progress report on design work to planning coordinator, preparation of design budgets (when applicable), inviting/receiving/ updating new participants, providing a copy of final design to planning coordinator.

7. Program/system manager:

- (a) A program/system manager is the implementor of a program/system or the supervisor of such implementation. In general, the 'planning' role of a program/system manager is as follows:

1. Participate in the design work of the program/
system that he/she will implement or supervise;
2. participate in exercises to develop conceptual
frameworks for innovative planning;
3. propose necessary changes in the program/system
design assigned to his/her responsibilities;
4. advise on N/P/C.

c. Planning Responsibilities
Related to Outside Systems

There are four different but interrelated types of linkages which could be set up between a planning system and outside planning systems. Those linkages permit one to identify some planning responsibilities of the planning system concerned with outside systems. Those types of linkages are as follows: (a) Between government systems and corporate systems, (b) between government systems of various levels, (c) between government systems of the same level and (d) between government systems and the general public or private agencies. Linkages between corporate systems and the general public or private agencies can, in our view, be derived from the fourth type above, while linkages between private agencies can be derived from the third type or the second, depending on the structure of the agencies concerned. Insofar as linkages between corporations are concerned, the relationships are viewed as essentially in terms of methodological inputs and outputs through professional planning associations (Lemire, Lotherington, 1976). In this regard, Reed (1977:7) acknowledges that

"corporate planning is decentralized to each company, and is competitive with planning by many other companies; this is the ultimate discipline and corrective." The following will thus briefly present a review of the above four types of planning responsibilities.

1. Government and corporate systems:

In his review of national planning, Reed (1977:5-8, 18-20) proposes the concept of a 'planful society' where national (government) planning is characterized by decentralization, flexibility, multiple alternatives and diffusion of information. Mainly related to this last characteristic, he proposes two planning responsibilities which pertain to corporate systems. Firstly, that government should provide "for more and better information on the key problems" confronting society and secondly, that government should more clearly "articulate goals and priorities." He explains "At the national government level, when such goals can be articulated by the President and generally endorsed by the electorate, they can serve as the 'strategic context' within which the decentralized planning of public and private organizations can be carried out."

Reed's notions are consistent with Etzioni's 'contextual planning' concept and the above stated notion of 'conceptual planning' being handled by higher levels of management--the nation being viewed as a management system. Further, the emphasis on 'Key' problems is consistent with the previous chapter's notion of prioritization of needs, problems and concerns.

In regard to the management system concerned, the planning responsibility of the politician/president/chairman is essentially to

distribute the Plan, at least in its general form ('policy'). The frequency for the distribution of such types of information does often coincide with the typical major 'speech' of the year. The same approach could be used at lower levels of governments.

The planning responsibility of the public planning system is then to bring the corporate representatives into the public 'design teams.' This allows the participation of the corporate system in the formulation of the public plan(s).

2. Government systems of same level:

In his review of communication networks between groups, Flament (1965) identified five types: (a) réseau centralisé, (b) réseau en Y, (c) réseau en chaîne, (d) réseau circulaire et (e) réseau complet (see figure 13). We can assume here that the five centers in each network could be considered as separate management systems (Gabbour, Cartwright, 1974) or as planning systems belonging to separate management systems or, more specifically, as planning units of different departments.

We assume here then (as was suggested by the discussion of target population) that it is the main responsibility of a planning system to promote the objective of its management system. Given this, it is the responsibility of a planning system to establish a 'centralized network' pertaining to events, decisions, programs, products of its concern as indicated in figure 14. If all planning systems, however, undertake this responsibility, we obtain, in regard to several events pertaining to each planning system, a 'completed' network where all systems are interrelated but from different points

of view (figure 15).

The responsibility of a planning system to interrelate with outside systems includes two activities. One is the 'pull' of information from other systems so as to improve the quality of information needed by the concerned management system, the other is the 'push' of information to other systems so as to 'bend' the other management system decisions in favour of the concerned management system (Laframboise, 1976).

Who will participate in the interaction between the systems will depend on the decisions to be reached, the event under consideration, etc. A simple bureaucratic rule, however, is that interaction should occur between people of the same or closely related levels: Politician to politician, senior executive to senior executive, planning unit to planning unit, etc. Again, every system may establish a 'design team' to examine a special issue and to initiate the design of new programs or products. Such a team, as indicated above, may however include people of any level and a mix of organizations.

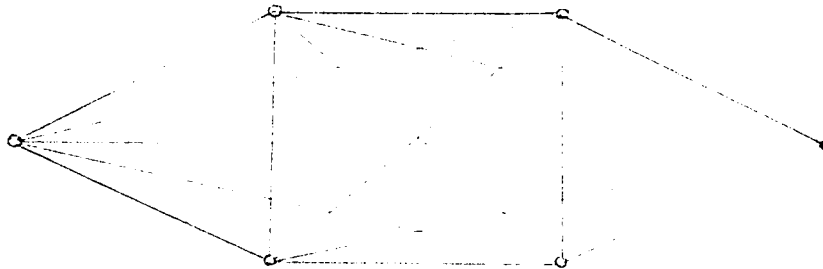


Figure 13:- Complete Network

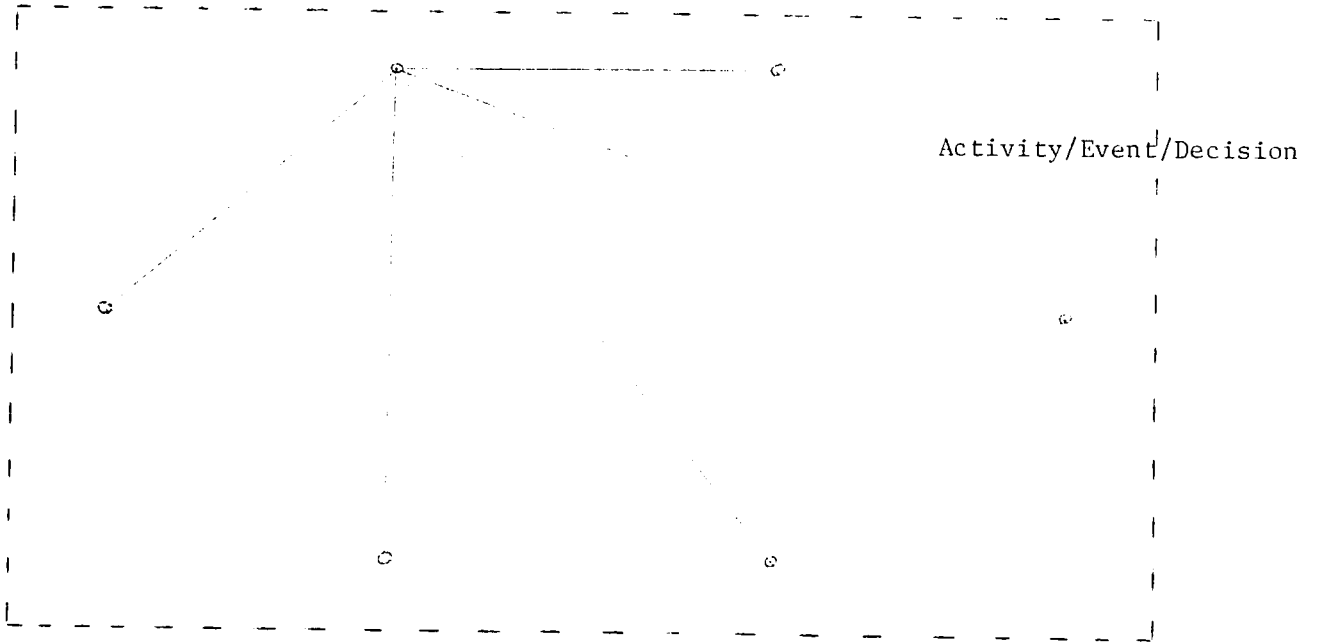


Figure 14:- Centralized Network and Selected Activity

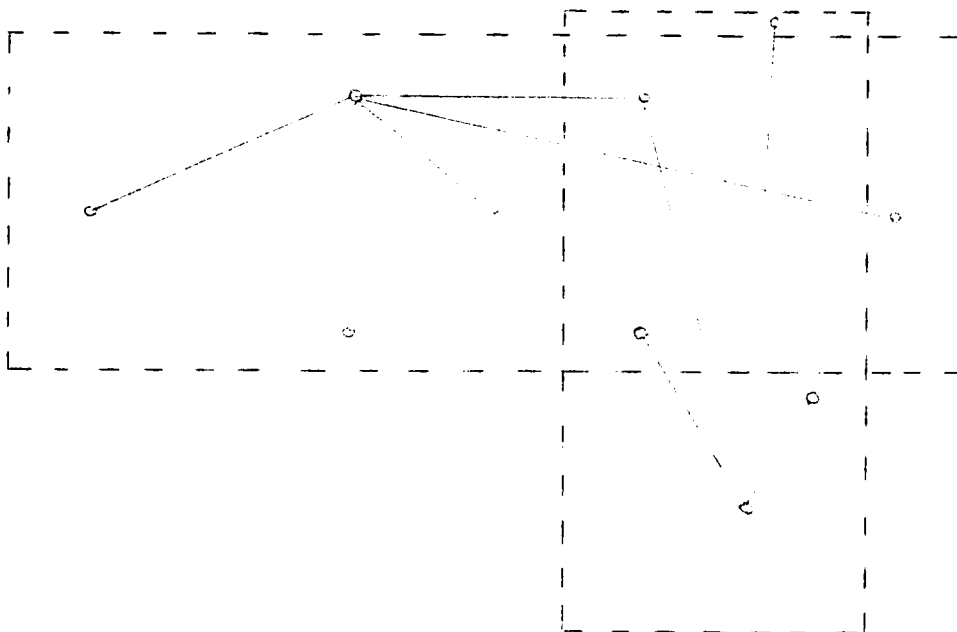


Figure 15:- Two Centralized Networks and Two Selected Activities

3. Government systems of different levels:

As indicated in the above chapter (IV) on regional development, 'decentralization' is viewed as a necessary approach to planning. This, incidentally, does not mean the sectorization of activities to be planned between levels of government but the use of a different type of planning as indicated at the beginning of this section.

The suggestions made by Hearle, Wen, Lefebvre and others (chapter IV) can, in our view, be integrated to a national planning system. In this model an interactive planning process monitored by the planning units of various levels of government would be on-going and would regularly--or as necessary--produce various types of plans applicable at each level of government. This is generally described in figure 16.

In this system the general planning role of the politician is to ensure consistency between his level (sectorial) plan(s) and his immediate lower level (sectorial counterpart) plan(s). This obviously implies interaction between politicians, interaction between senior executives and between planning units. As the planning process proceeds, the politicians play a major decision role in accepting and rejecting plans at their levels.

4. Government systems and public participation:

The need to involve the public or the citizens in public planning can probably be derived from a series of factors: The democratic tradition and ideal of shared power, increased education from both the formal and the informal system, increased leisure time

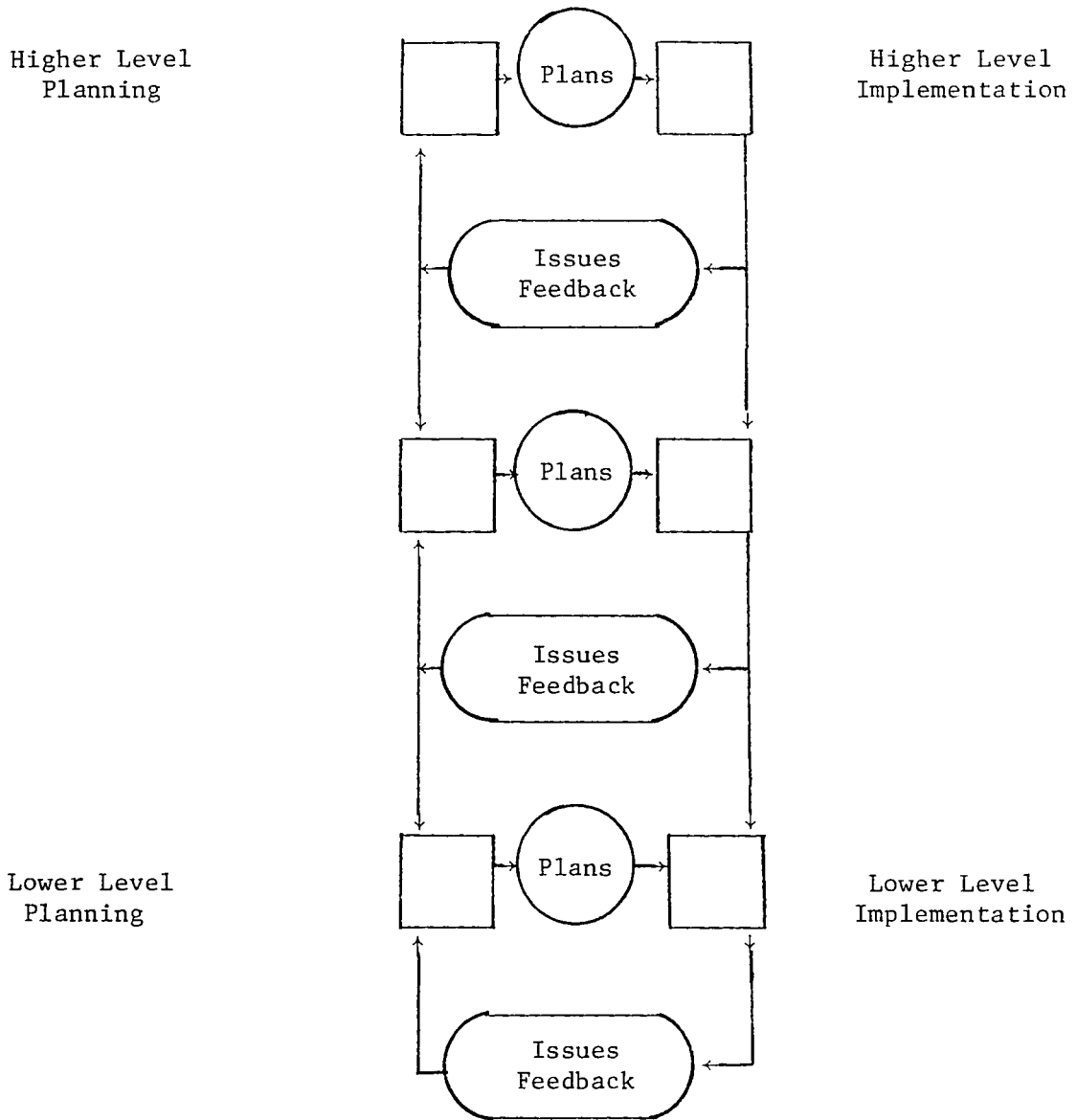


Figure 16:- Multi-level Planning Information Flow

allowing greater self-education and new types of activities, the belief that people respect more those laws on which they have been consulted, they identify strongly with programmes they have helped to plan and they perform better in projects they have assisted in setting up,

and the administrators' needs for information and support from the citizen (Bregha, 1973:1-3, 12). In addition, one factor which leads in Bregha's words to the necessity for a 'participation policy' or to an organized way to handle participation is that "the push towards greater citizen involvement may, indeed, create periods of anarchy and a series of destructive confrontations" (Bregha, 1973:39).

In order to satisfy the need for citizen participation, Bregha (1973:38) suggested the following policy guidelines:

- (a) Citizen involvement in institutional decision-making and institutional change will be encouraged through the maximum use of the appropriate participatory technique;
- (b) in planning processes affecting the quality of life of of a community or a specific group, joint planning will be gradually introduced;
- (c) in order to permit maximum mobilization of citizen resources and to achieve decentralized decision-making, the technique of delegated authority will be put gradually into effect wherever the effectiveness of government services or programmes can be so enhanced;
- (d) citizens will be brought into the evaluation of services and programmes with clearly stated channels of feedback into policy formulation;

- (e) technical and material assistance will be made available to citizen groups characterized by democratic internal structures utilizing self-help approaches where their stated aims reflect a concern with social development in (the area concerned);
- (f) All forms of available technical or material assistance will be widely publicized, their accessibility made known and the ways through which to engage in negotiations as to the nature and extent of such support clearly stated.

To help operationalize the above policy, Bregha proposed four participatory techniques: (a) Information-feedback, (b) consultation, (c) joint planning, and (d) delegated authority. This classification is very similar to the one that Jowell (1975) derived from his review of experiments and literature in Europe and North America. According to this researcher, the four main 'functions' of participatory techniques are: (a) Communication, (b) representation, (c) activation, and (d) delegation. For the purpose of this brief presentation, we will integrate both frameworks as follows: (a) Information, (b) consultation, (c) joint planning, and (d) delegated planning.

The information aspect of participation in planning can be defined as the provision of information on the development of the planning exercise to all the participants. This may refer to information on methodology (analysis) as well as on outcomes (proposal). The problem here is obviously the communication of often complex procedures in a language that all the participants will understand. Possibly,

for this reason, Jowell (1975:14-15) indicates as "the first stage of the dialogue," the presentation of proposals, thus leaving aside, up to a point, the methodology used to arrive at them.

The consultation aspect of participation in planning can be defined as the collection of representative views on the planning items under consideration. This general approach to participation offers several difficulties. Firstly, there is the problem of representativeness and, secondly, there is the problem of depth. The popular approach of public hearings, meetings, forums, etc. have a tendency to attract middle class, educated, articulated and often only organized individuals or groups. And, this applies when those meetings are public (often the consultation is on an informal--"who you know basis") and well publicized. Against this approach Jowell (1975:15-17) argues for the use of sample surveys which provide for representativeness, depth and "quantifiable public feedback." Tied to this approach is the one of a panel-survey which provides a small representative sample to be followed up over time.

The following policy guidelines for consultations were proposed by the National Advisory Council on Voluntary Action (1977:279-81) to the Government of Canada:

"The subject matter to be addressed in the consultation must be clearly and precisely defined."

"Those persons who will be affected by the matter under consideration must be identified accurately and systematically and all information on the subject matter must be distributed to them."

"The goals and terms of reference of the consultation must be clearly and explicitly stated."

"The people consulted must be kept informed of developments during and after the consultation process."

"The people consulted must be provided with a reasonable explanation why government chose a particular policy alternative."

The joint planning approach can be defined as the provision to both officials and citizens of equal planning capacities. A series of problems are inherent to this approach. Firstly, there must be representatives of the citizen. This can be resolved, according to Bregha, by preceding the exercise with negotiations among the citizens to select appropriate representatives. Secondly, the citizens' representative(s) is faced with a lack of 'planning knowledge.' This can be resolved according to both Jowell and Bregha by providing planning expertise to the citizens or by changing the role of the planner into a consultant to the citizens. On this last point, problems may, however, arise if the planner is caught in a conflict between the citizens and 'authority.'

In any case, the two-way educative process which develops is often perceived as being time-consuming and as offering grounds for status quo (no change). Further, a factor little discussed in those exercises is the effect of changes in the main actors along this process of mutual understanding.

The most radical approach to participation in planning can be termed 'delegated planning' (Lemire: 1973). This can be defined as

the transfer of planning authorities and responsibilities to another group. At least three problems are inherent to this approach. Firstly there is the delineation of the authorities and responsibilities. To resolve this issue, Bregha (1973:26) suggests the following guidelines for neighbourhood projects: "where (a) there is an element of self-help or mutual aid, (b) the level of expertise is widely available, (c) the administration of facilities can be entrusted to a group of users, (d) the service, programme or activity can be offered in relatively small quantities so that the participants are effectively able to partake both in their use and in their control." Secondly, citizens' groups may become too dependent on government resources including directives and staff. In response to this, Bregha suggests that the government should "facilitate experimentation and innovation for a sufficiently long period of time" and that funding although high at the start might be reduced to a minimum following the 'demonstration period.' Thirdly, there is the problem of accountability. Bregha maintains that community groups provided with delegated (planning) authority must be held accountable for financial resources, 'programme outcome' and 'social outcome.' However, he assumes that the government would then provide the necessary consulting services to help those groups develop the necessary abilities.

The above stated approaches to the involvement of the public in government decision-making and consequently to the governmental/planning system imply various roles and responsibilities for the actors concerned. Through his 'six-sided triangle' concept (figure 17), Lash (1976:11-13) suggests two roles for each of the three main

planning actors which he identified. Each role essentially refers to the initiation and maintenance of good human relations with one other actor. This coincides with one aspect of our concept of planning which is interactive participation.

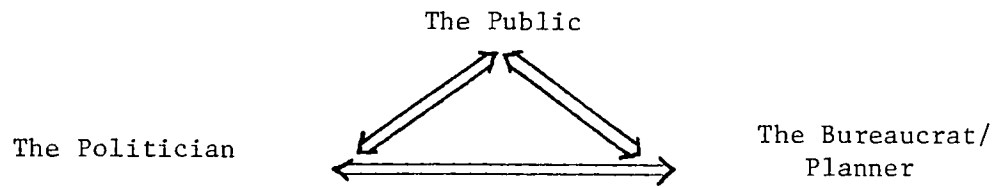


Figure 17:- Lash's Six-sided Triangle

CHAPTER VIII

IMPLICATIONS FOR REGIONAL PLANNING

So far this thesis has presented a general model for the design of a planning system along with the notion that planning systems can communicate with each other and with decision-takers through a communication tool referred to as 'system design guidelines.' What, then, are the implications of this presentation for regional planning theories and practice?

Before proceeding with a list of implications, it might be useful to first delineate what is meant here by 'regional planning.' Space and spatial relations is the essential concern of 'regional planning.' According to Friedmann (1975:791, 803), "Regional planning is fundamentally concerned with the 'where' of economic development . . . the ordering of economic activities and human settlements in physical space." Similarly, McLoughlin (1969:128, 133, 166) indicated that urban and regional planning "seeks to regulate and control systems" defined as "interacting located activities" or as "activities in spaces linked by communications in channels." This author defined space as "that which accomodates or may accomodate activities. It thus comprises the surface of the earth, including water surfaces, the air space above the earth and space underneath the surface."

In regard to the specialized domains of planning related to those spatial concerns, there might be a debate which refers

essentially to a definition of regional type of planning. According to Friedmann (see above) economic development is, along with the spatial concern, the fundamental issue of regional planning. Similarly, Glasson (1974:173) views regional planning as concerned with the development of regions where the first argument is economic. A more comprehensive approach is taken by Hufschmidt (1969:29-31) who views the domain of regional planning as traditionally involving natural resources planning, urban and metropolitan area planning and economic development planning and, recently, as involving environmental planning, regional science and operations research, and finally, community and human resources planning. For the purpose of our presentation, this rather holistic view is ideal but the economic development aspect, which seems to be a major area of specialization, will be particularly examined. Also, it is necessary to view here regional planning as a guide to the development (used in its implementation sense) of teleological systems in specific spaces. Although it is understood that regional planning applies to both public and private systems (governments, corporations, voluntary and cooperative agencies), the public context will be here the primary concern.

There are undoubtedly several ways through which we can present the implications of our planning system design and its related design guidelines for regional planning. The approach which is taken here is to examine how regional planning has used some of the system design variables as part of its theories and practices and to suggest some improvements or clarifications which, in our view, would increase the effectiveness of this macro-type of planning. Efforts to link regional planning and regional science to management in

general or managerial planning in particular have already been called forth. Friedmann (1975:803), for example, asked: "To what extent have the theories (of regional planning) influenced the actual practice of planning?" His reply: "The answer is probably not much." On the other hand, referring to the conflicts "between the mass of goals and objectives" of regional and national planning, Glasson (1974:175) states: "The effective integration of these various goals and objectives is a particularly difficult problem, but it is hoped that the development of techniques such as Planning-Programming-Budgeting Systems will facilitate the task." In the same context, Kuklinsky (1975:441) requested that "We have to take into account that all global or sectoral policies and plans have spatial implications which sometimes have a stronger impact on the spatial pattern of human activities than do explicit regional, urban and environmental policies and plans." In the following we will examine selected system design variables applied to Canadian cities and to Canada as a nation and examine the implications of the planning system design, presented in this thesis, to the field of knowledge considered as 'regional planning.' The current "explosion of information" (Cohen, 1969) makes it necessary however to be incomplete.

1. Regional Needs, Problems and Concerns

The need to formulate public policies and to undertake public programs for regional (area) development can be stated from various points of view. Nevertheless, whether one uses an international, a national or a more local perspective, ultimately two reasons are common: (a) the free market forces in industrial locations decisions

do not work satisfactorily and, (b) it is necessary to rationalize, from a total area point of view, the utilization of the area's scarce resources. Other reasons, typical of the type of area under scrutiny, are also provided.

From a national system point of view, regional differences in income and in employment are viewed as additional and as typical foci of concern (Waterston, 1969:15-26; Francis, Pillai, 1976:32-36). From an urban system point of view, problems are numerous (environmental deterioration, social unrest, congestion, pollution, housing decay, poverty, insufficient financing, etc.), but they are generally faulted on the current process of urbanization (Lithwick, 1970). The interdependency of these problems in all sectors and at all levels is another aspect stressed by Lithwick (1972:21-23) and Hodge (1977). In fact, the expression 'regional problems' makes direct reference to this interconnectedness of problems within a particular area.

A first suggestion that is made in this thesis, in regard to such a situation as above, is to either attempt to prioritize the problems being considered or to articulate a problem statement which supersedes the others. Lithwick's concern for the current process of urbanization is an example of the latter. If the national problem of low income regions and of low employment regions cannot be prioritized, it is suggested that a new statement of the problem be investigated. An overall statement of the national problem such as the inadequacy of the current process of economic development within and between regions is one example. It is along this line that we interpret Matthews' (1977:141) statement of the problem of regional development as "not one of urbanization or of industrialization but one of regional

self-sufficiency." This researcher, however, offered less hope than we would on the development of individuals' entrepreneurship, an aspect of human behavior which we stressed through the notions of participation and creativity.

A second suggestion that is made in this thesis is that we should distinguish between the Population N/P/C and those of the Delivery Systems. In regard to this latter type, we would propose a general typology which seems to include some of the typical regional planning problems as identified by Martin (1960). This typology is derived from a system's approach to an area government processing of needs, problems and concerns, as illustrated in figure 18.

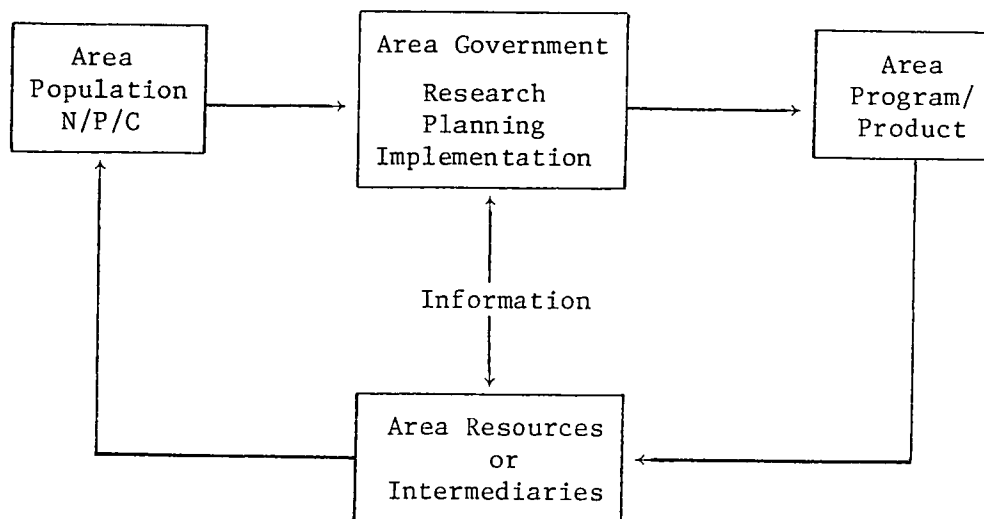


Figure 18:- Area Government Processing of N/P/C

1. Area Population N/P/C and
Responsibility Center (Gov't.)

- (a) Inadequate perception of the N/P/C by Responsibility Center.
- (b) Insensitive Accountable Responsibility Centers to area N/P/C.
- (c) Interrelated area N/P/C being processed separately by several area Responsibility Centers (either in the same area or in other areas either at the same level or at different levels).

2. Relation between Area N/P/C
and Area Program

The area program may directly benefit to more than for those aimed at related area N/P/C, thus spending more than necessary.

3. Relation between N/P/C
and Area Resources

The N/P/C brought in from Area A are about Area A resources.

4. Relation between Area Program
and Responsibility Center

- (a) Responsibility Centers cannot legally undertake an area program.
- (b) Responsibility Centers can legally undertake a program but only on a limited area thus limiting or making

impossible specific programs.

- (c) Ineffective Area Programs create artificial and unnecessary Responsibility Center.
- (d) Interrelated Area Programs distributed by too many Area Responsibility Centers. Also, which level of Responsibility Center should handle which Program?

5. Area Resources and Responsibility Centers

- (a) Responsibility Centers tied to legal areas may be resistant to changing their boundary lines.
- (b) At what level of Responsibility should taxes (resource) be collected?

6. Relation between Area Program and Area Resources

- (a) Area Program A may require unavailable resources from area A.
- (b) Area Program A may drain resources from other area(s).
- (c) Area Program may grow beyond capacity (available Area Resources such as finances, competencies) of Responsibility Center.

In so far as the contribution which this thesis attempts to make in the domain of planning, the organizational problems 1(a), 1(c) and 4(d) above are the objects of concern. It might be stressed here

that problem 1(a) is of particular importance for the education of planners. As we have identified in this thesis, the examination of 'needs, problems and concerns' of the Population and of Delivery Systems in planning seems to have been pushed under the treatment of objectives, an interrelated but significantly different aspect. The skills and aptitudes required to identify those, particularly in terms of psychological, sociological and organizational data, do not seem fully recognized. Also, the way the needs, problems and concerns are claimed to be related to objectives is less than fully treated especially when sub-objectives and sub-programs are concerned. The current economic and physical solutions proposed to resolve our regional problems are probably not foreign to the above two points.

2. Regional Development Objective(s)

If one looks at the national (Canadian) system, we find that before 1969 there was a "lack of clearly stated objectives" regarding the reduction of differences in income and in employment across Canada (Brewis, 1969:242-43). In 1968-69 a specific department of the federal government was created with the objective of assisting "in the stimulation and dispersion of economic growth--and the development of the conditions to sustain it--across Canada so as to bring employment and earnings opportunities in the slow growth regions as close as possible to those in the rest of the country, without generating an unacceptable reduction in the rate of national economic growth" (Francis, Pillai, 1976:130).

A first question which can be raised here is: To what higher national objective is this regional objective contributing? An answer

to this question has already been provided as follows: "One of the traditional principles of federalism in Canada has been that the economic strength of the nation as a whole should be used to the advantage of the economically weaker regions of the country" (Dree, 1975-76:1). The higher goal is thus social justice or equity (Economic Council of Canada, 1974).

A second question is: Is the objective of regional development, stated in terms of regional economic growth, a realistic one? Here we must take into account the contradictory statements regarding the realization of this objective such as those reported by Brewis through his evaluation (1976:170-75) and by Matthews through his application of the theory of dependency to Canadian Regional Development Strategy (1977:131-43). Further, in light of the social, environmental and economic implications of the measures taken for increasing economic growth (see below), one may question if this approach is appropriate to realize the higher goals of well-being and social justice (Economic Council of Canada, 1974).

A third question is: Is the objective of regional development contradicting other government objectives? For example, what is the use of parks, the needs for energy conservation, the requirement for recreation areas? If not, can other government objectives be 'bent' to accommodate the regional development one? Besides the obvious programs such as transport, agriculture, tourism, harbours, mines (Dree, 1976:110), what about housing, urban affairs, welfare, corporate affairs? A related issue is that if regional development has a well-being and/or a social justice goal, what is the relationship between the manpower, labour and social development planners and those

involved in regional development?

At the urban level, the question of the objectives of the city (viewed as a social system) may be similar to what we know of the objective at the national level. According to Schneider (1977:71) "Planners operate without a conception of an ideal city." Commenting on the "unintended metropolis," Ward (1976:39) states "If we begin with the idea of city-building with some human design, with some trace of a 'directing force of society'--it must be said that, for most of this century, the old hammer blows of unintended change have continued to rain down heavily upon developed settlements." In regard to the relationship between the cities' and the nation's goals, Lithwick (1972:30-31) concluded to his study that "There has never been a clear set of urban objectives that derive from and contribute to the nation's goals."

An overall question with regard to government objectives is what is the top one? And, how to formulate it? For the Canadian system--at the federal level--Mintzberg (1974) proposed a hierarchy of objectives based on the hierarchy of needs developed by Maslow but the debate on the national goal(s) is still on-going with little apparent success and not much participation (Laszlo et al, 1977:14-16).

To the question: "What kind of Canada do we want?" Oberlander (1976:1) implies two assumptions. Firstly, that "We might be able to conceptualize our future" and secondly that "We might be able to achieve an agreed-upon future." These two assumptions stress, for us, the need to establish planning systems at various levels of the Canadian management system as well as the necessary implementation

systems. Further, we have indicated in this thesis that the methods proposed, in current regional planning methodologies, to generate or to channel creative inputs or solutions to problems do not seem to have taken much account of creative thinking techniques on one hand (a problem which permeates the whole school system, Lemire, 1972) and of in-house and out-of-house participatory processes on the other hand.

3. Regional Development Target Population and Intermediary Targets

a. Target Population

As suggested by the above statement of N/P/C, the target population of national regional development refers to groups of people, geographically clustered, which are described in terms of relatively low income and/or under or unemployed. Regard to this population and planning approach suggests the need to characterize it. Here we encounter some problems when we consider the Canadian context.

Firstly a problem of definition lies with the notions of 'purchasing power' and 'personal income.' A relatively low income is based on a comparison between two levels of income. Consequently, should we use gross income or disposable income after taxes? As indicates Brewis (1969), "Less income tax is paid by residents in the poorer provinces on the average, and as a result, net disposable incomes show a smaller regional variation than do gross incomes." In addition, a distinction between real and nominal incomes may be necessary. As states Brewis, "The view is sometimes expressed that it is cheaper to live in some parts of the country than in others, and that comparisons of money incomes fail to reflect differences in purchasing

power" (Brewis, 1969:18-20; Statistiques Canada, 1977).

From an urban system point of view, people in large metropolitan areas represent, as a whole, a target population. The multitude and interdependence of problems which seem to plague this population have already been documented. Further, studies to the effect that those problems will increase is suggested by the trends in population movements towards concentration in those areas on one hand and by the types of solutions or lack there of presently provided (Oberlander, 1976; Morrisson, 1975:240; Lithwick, 1970). The question here is which intermediary target should be affected to change the trends? We suggested that the 'politician' should be included.

Secondly, one may argue that the problem of regional disparity will be more acute in areas where we find the largest number of unemployed or of families with low incomes. The calculation of such disparities becomes both an ethical and a political issue when we find that the absolute number is larger in some metropolitan centers than in some provinces in Canada (Brewis, 1969:27) while, in percentage of the total population, the number is smaller.

b. Intermediary Targets

Intermediary targets have been defined in various ways within the context of national economic development. In general, however, they have been defined as components of selected regions. Those regions have been defined (Glasson, 1974:169-71; Kuklinsky, 1970:269-70) as: (a) underdeveloped: regions which are still heavily dependent on primary occupations which may be suffering from a series of problems such as low income elasticity of demand, low levels of

productivity, exhaustion of natural resources, outdated technology, etc.; (b) depressed: regions with a declining or stagnating industrial structure which may be accompanied by an aging infrastructure and work force; (c) pressured: regions developing at a high rate causing rise in cost of limited resources, congestion, need for heavy public infrastructure and reduction in quality of life (noise, pollution, etc.). A problem of definition resides here with the set up of the boundaries for a particular region. As indicates Brewis: "By varying the boundaries, it is possible to either reveal or conceal evidence of distress" (Brewis, 1969:43-44). Tied to this issue is the one of defining not only the area with the problem but also the area with the solution(s) or potentials to resolve the problems (Brewis, 1969:47-50). This leads to the definition of a 'planning region' to be discussed below.

The components of a selected region (whether a 'problem region' or a 'planning region') which are acted upon in regional planning are derived, in part, from the rationale presented by Lefebvre (1975): "Resource and labour are not always mobile and large pockets of unemployment and poverty persist in less developed regions. . . . Since the primary means for improving inter-personal equity consists of increasing rate of employment, this problem comes down to the question of how the demand for labour can be increased in regions of unemployment." On this basis, economic growth specialists have identified such intermediary targets as growth poles and centers (Friedmann, 1973; Pred, 1973; Chorley, 1973; Moseley, 1974; Thomas, 1974), selected industrial sectors and complexes (Isard, 1975:437-43; Streit, 1969; Czamanski, 1974), areas of potential growth (Brewis,

1969:48), migrating population (Gertler, Crowley, 1977:439-43), selected government programs (Gertler, Crowley, 1977:164, 440), etc. In addition, one of the most comprehensive concepts which permits one to specify or to generate intermediary targets is 'growth forces.' Insofar as Canada is concerned, Ray and Villeneuve (1975), Kuklinsky (1975:117-18), and, in a related way, Gertler (1977) have identified five forces which can be 'stimulated' or 'dampened' in order to distribute population growth across Canada and, in doing so, reduce the problems associated with the three types of problem areas identified above. Those forces, also identified as 'dimensions of regionalism,' are termed: Urban-rural, metropolitan, heartland-hinterland, east-west, English-French and U.S. control of manufacturing. According to those researchers "policies to deal with regional problems should not be restricted to designated areas. Instead, they should be applied nation-wide, graduated regionally, according to the net strength of the growth forces . . ." Such policies do require an integrated planning approach--vertically and horizontally. This, in turn, requires a particular organization for the management of systems (further discussed below).

4. Implications of Regional Development

The least that can be expected of a planner is not to create more serious problems than the ones planned to be resolved. Yet management systems and their programs have effects some of which are planned while others are unplanned and sometimes detrimental. The following presents selected negative implications related to the undertaking of, or lack of planning from an economic, social and

environmental point of view.

a. Economic Effects

Implicit to the stages theory of regional development is a radical change of the industrial structure of a region: To favour the concentration into a limited number of bigger and stronger firms there is a closure of a number of firms within a particular industry (Glasson, 1974:86).

Favoured by the inability of a poor region to perceive economic opportunities and the inadequacy of a region's socio-political structure, the development of a center may spread its effects to the periphery but according to the theories of Hirschman, Friedmann and Myrdal, those may be offset by backwash effects such as selective out-migration of capital and skilled labour from the poor region (periphery) to the rich (center), (Glasson, 1974:98; Mosely, 1973).

A change from the primary sector to a tertiary sector of the economy brings new conditions of work. Those conditions include a greater need for skilled labour and an increase in automation. Those two conditions tend to create unemployment--a problem which public regional planners often attempt to alleviate.

b. Social Effects

On the basis of recent reports (Castells, 1972; Ezop-Québec, 1972) on downtown urban-renewal strategies, Ray and Villeneuve (1975: 115) conclude that such an approach to development "as it is practiced in North America, is seldom beneficial to the local population, especially when redevelopers are large multinational corporations."

The development of secondary and tertiary sectors of the economy typically involves migratory movements from small to bigger centers and from rural areas to urban areas. On the original location, changes in life-styles are bound to occur and similarly in the new settlements (Gillie, 1967:33-34). The following types of costs have been identified (Glasson, 1974:176-77): Transportation and accommodation costs as well as psychological costs¹ to the migrant; negative multiplier effects on consumption and personal contribution and possible waste of social capital (school, house, hospital, etc.) within the region of departure; costs to the receiving region such as congestion, demand for public services, increase in laborer supply (the increase in labour might create new jobs from the increased consumption--but how many?).

Isard (1975:463) reported the following cultural and social problems which appeared to be generated by the successful economic development of Puerto-Rico in the 50's: Persistent unemployment; increasing urbanization; increasing discrepancies in per capita income; increasing disparities in social welfare, and in what was perceived to be the attainment of the good life; increasing inequity between the urbanized and rural sectors and populations; increasing traffic congestion; psychic disutility from too rapid a rate of economic growth; increasing geographic concentration of power and wealth; too rapid an 'automobilization'; breakdown of the nuclear family unit; destruction of important social bonds, linkages and community cohesiveness; overall decline of family subsistence farming; loss of

¹Moving has a major weight on the Holmes scale of stress (1973). When the individual reaches three hundred points, mental breakdown is probable.

identity; increasing dependence on a single external power, the mainland U.S.; reduction in the choice of options in decision-making; greater economic vulnerability; language and cultural pollutions; and breakdown of traditional ways.

c. Environmental Effects

In his discussion of natural resources planning, Burton (1969: 150) argues that 'considerable overinvestment' has occurred "to change nature to suit man rather than to adjust society to natural conditions." Referring to an evaluative study, this author indicates how "heavy concentration on flood control measures (to the neglect of adjustments to floods that would require changes in society) has failed to arrest the rising toll of flood damage and may even serve to encourage the more rapid growth of flood damage potential."

Economic growth necessitates the transformation of resources-- some of them renewable, others, such as fossil fuels (petroleum, coal, natural gas), minerals and metals and gasses are not. According to some researchers, the depletion of those resources may soon have drastic consequences for humanity (Mesarovic, Pestell, 1974).

Arable land is being used for urban sprawl and growth-oriented developments. In 1972-73 there were, in most countries, no well-defined land use politics protecting agricultural land from other uses. Although maintained by a 'green revolution,' food production may become a critical issue if fertilizers (derived from petroleum) and machines fail to be available due to unavailability of petroleum and natural gas (Craig, Craig, 1975:69-85).

In his recent review of the Canadian urban surroundings, Gertler (Gertler, Crowley, 1977:275) concluded: "The over-riding fact about the natural environment of the urban fringe, is that it is both highly perishable and under pressure. The spread of human settlement into the urban field has not been sufficiently selective. The view of land as a commodity has predominated over the concept of land as a resource. Consequently, the toll in terms of irretrievable environmental losses has been heavy."

d. Economic/Social/Environmental

National economic growth and related regional models have used as a basis, 'gross' benefits; so far the social and environmental costs have not been deduced. What are then the net benefits upon which decisions should be taken? (Gray et al, 1975:91-93).

The technological aspect of an economy is generally viewed as a positive factor of development and growth. What are then the net positive aspects of 'planned product obsolescence' which promote consumerism, depletion of resources and 'counter productivity'?

According to Lithwick (1970:13-38), it is the current process of urbanization which creates, primarily, the current set of inter-dependent 'urban problems.' Those problems include: Urban poverty, housing costs, transportation congestion, environmental decay (visual, noise and water pollution, solid waste disposal), social unrest, municipal fiscal squeeze, etc. This process presently occurs under the eyes of regional and urban planners and decision-takers.

In order to avoid these negative implications of regional economic development, our planning system suggests the need to engage

in transactions with other planning systems, namely those involved in social and environmental planning, in order to poll information on the consequences of planned actions. Further, it is suggested that higher level objectives be continuously examined to ensure that the lower level objectives remain appropriate. If social justice is recognized as the higher objective, then regional planners should investigate such concepts. Many resources are scarce. The challenge to the planner's imagination is to suggest less 'expensive' ways (in a wide economic sense) to reach the ultimate goal.

5. Regional Activities or Operational Sub-Systems

The planning approach adopted in this thesis permits one to examine the notion of resources allocation within and between operational sub-systems. Since this is a rather complex issue, it is necessary to better understand the notion of operational sub-systems as it relates to 'regional planning' before examining the question of resources allocation.

a. Operational Sub-Systems and Regions

Activities areas may be related to the decision-layer hierarchy (used to describe operational sub-systems in chapter IV), in two different ways. (In both cases, however, we are concerned with managerial types of systems where the system has an explicit objective, where there is a center responsible for its realization and where each sub-system must contribute to the system's objective. We are thus concerned with corporations, governments, agencies or formal organizations in general and with the location or spatial requirements of

their activities.)

In the first case, activities are viewed as sequential. Here location theory suggests that to reduce its costs, an organization may decide to locate its activities at either the site of its required resources or at the site of its market. In such instances, all operational sub-systems are located at the same site. Nevertheless, an organization may be responsible for a multi-stage process of transformation which may be advantageous to distribute between the resources' origin and the market. Each of those locations then becomes the site of one or more operational sub-system of a sequential type. In the second case, activities are viewed as simultaneous: activities of different types occur at the same time. Each of those activities may or may not be located at the same site. Although various operational sub-systems do not necessarily require sites with major differences in location, it is convenient to distinguish between operations if they are on separate sites. It is obvious from this discussion that a regional set of activities may be considered as a managerial system only insofar as they are 'subordinated' to or overseen by a specific responsibility center.

Areas (sites) of activities may also be related to the stratified description hierarchy in three ways. In the first case, an activity area may be contained in a larger activity area: Areas are thus described in terms of size and superimposition. This typology ('superimposed areas') generally includes the following areas: International, world regions, nation, sub-national (groups of provinces), provincial, sub-provincial, metropolitan, city, village or

neighbourhood, parcel, household and individual space.¹ In the second case, the areas within a larger territory are described according to selected criteria ('selected areas'). A case in point is Stamp and Beaver's (Glasson, 1974:21) classification of Britain into nineteen agricultural regions and thirteen superimposed industrial regions. In the third case, the areas are specified according to a range of activity sectors, levels of sectorial specialization within each area and their interrelations ('interactive ordered areas').

This last classification of areas is also referred to as 'functional' by Glasson. According to him, such a series of activity areas refer to Howard's 'nodal region' concept, Geddes' 'city-region,' Christaller and Lösch's 'hierarchy of central places' etc. (Glasson, 1974: 20-40). It is also in this way that we understand Berry's notion of a city as a system (Berry, 1964). An example is presented in the proposed Quebec Government Health System (Castonguay et al, 1970:40-57). The system comprises three types of health centers (centre hospitalier universitaire, centre communautaire de santé et centre local de santé). Each center deals with a type of health service from a very specialized one at the 'centre hospitalier universitaire' to the general services at the 'centre local de santé.' The highly specialized center is unique in a particular region and is situated in the most urbanized area, the most general services are spread over the total territory and are of easy access to most people. Typically, the 'low' level areas include low order of activities such as agriculture (or such as the 'centre local de santé' in the Quebec Health System)

¹This latest type of space is discussed particularly in chapter X, "Distances in Man" (Hall, 1969) and in Mehrabian (1976).

while the 'high' level areas include high order of activities such as tertiary activities (or such as the 'centre hospitalier universitaire').

It should be noted that 'interactive ordered areas' may be implicit in a classification according to the decision-layer hierarchy but it is not necessarily the case. An activity located at the periphery of a city does not necessarily contribute to an activity objective situated in that city (or vice versa) unless planned or expected to do so by a responsibility center. In fact, the contrary occurs when the headquarters of manufacturing plants within a city are situated in the suburbs.

Activity areas, classified according to the two general types of hierarchies, are depicted in figure 19, following.

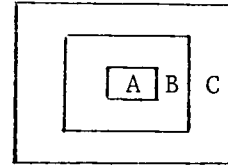
b. Resource Allocation

Although maintenance or conservation of systems is part of the planner's role in resource allocation, we will center here on change. The planner's tasks in resource allocation, which relate to change, consist of proposing the following: (a) use or shift of resources between the sub-systems or out of the system; (b) new sequencing or prioritization between the sub-systems, and (c) creation of new sub-systems.

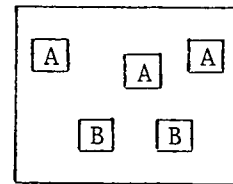
In the following presentation, we will assume (a) that the sub-systems already exist with their respective resources allocated, (b) that the notion of 'exploitation of resources,' sometimes referred to as a resource allocation task, is implied in each of the three above mentioned tasks, (c) that the adaptation of the 'structured field of forces' or as Gillie (1967:42) states, "the controlling and

1. Stratified Description Hierarchy

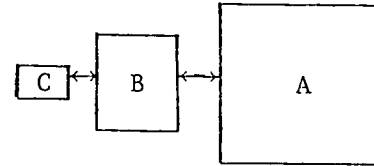
- (a) Superimposed
(Areas A, B, C)



- (b) Selected Areas
(Types A and B)



- (c) Interactive Ordered Areas
(3 levels of services,
A, B, C)



2. Decision Layer Hierarchy

- Sites of 2 levels of authority
(A, B)

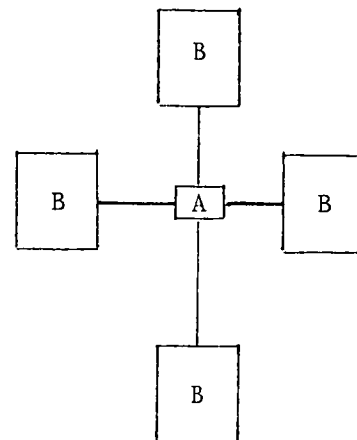


Figure 19:- Activity Areas According to the Stratified Description and the Decision Layer Hierarchies

directing of spontaneous forces" can, in our view, be best discussed in the context of the distribution of planning and implementation authorities and responsibilities (see above), and (d) that the above definition of resource allocation implies both the 'allocative' (regulatory) and the 'innovative' (development) concepts of Friedmann (1967).

1. Shift or use of resources:

It is understood here that resources have been 'imported' or can be 'used' by a responsible system and that both can be viewed from a good market and public perspective. The role of the planner here is thus to propose either a shift of the resources from one sub-system to another or a new use of the available resources. In doing so, planners are willfully influencing the sequence and the priorities of individual systems operations or sub-systems (an aspect of life not always appreciated by both private interests and lower levels of government).

The fact that current or new use of land conditions current and future systems' uses has already been documented. To rationalize the need for large concentrations of office jobs, the New-York Regional Plan Association (Tankel, 1969:230) selected and listed in order of importance a series of activities viewed as 'region-shapers.' Those were: (a) non-residence based jobs (tertiary jobs), (b) regional retail (stores, higher education, hospitals, etc.), and (c) regional transportation systems. The first two were to be brought together and linkages to regional residential areas were to be provided. In their study of the Washington transportation system, Wingo and Perloff (1961) have indicated how such a system influences other

systems to the point of being referred to as a 'spatial organizer.' As is also suggested through the stages theory of growth and industrial structure analysis (Glasson, 1974:86), the pursuit of regional economic growth may necessitate concentration of regional activities within a limited number of industries or firms (secondary and tertiary) as well as specific groupings of complementary industries. This attraction of additional as well as new types of activities may also bring about the closure of small establishments (due to competitive effects) as well as the closure of establishments for which there is no further demand.

As indicated above ('Resources Required'), various modes and channels of transportation/communication can be used to move resources into a system. There is no reason to believe that the same means do not apply to the movement of resources between sub-systems which are spatially separated. Nevertheless, one should add that the resources within a managerial system are easier to move because there is only one responsibility center involved with the sub-systems (given the same accessibility factors such as distance, size of organizations, levels of cooperation, etc.). The movement of resources out of the system typically requires the use of the market mechanism to sell or exchange the resources with other systems.

A change in the use of resources implies either a shift of activities in space or the creation of new activities (sub-systems). Insofar as shifts of activities are concerned, both location theory and central place theory (Berry, 1967; Heilburn, 1974; Glasson, 1974: 125-42) suggest ways to locate different types of activities according to criteria of efficiency. From the point of view of the public

planner, a new 'use of land' might need to be encouraged (for example to generate economic growth) or restricted due to incompatibility with proposed or adjacent uses (such as when zoning is applied). The notion of new sub-systems is discussed below.

2. Sequencing or prioritization
of sub-systems:

Regional planners have been concerned with the current and future location of activities (public and private) in order to propose, when necessary, their 'best' location from an efficiency and effectiveness point of view. The coordination of the planning, as well as the implementation, of various systems' operations on particular locations, so that one system does not 'negatively' affect other systems, is also a major issue of regional planning. This was particularly stressed by Fisher (1969:13) when he referred to the "billion dollar mistakes now being made because these great programs of interstate highways, open space and urban renewal are simply not inter-related effectively. The programs are out of phase and sequence. . .". One way to resolve this issue was proposed by Khodzhaev and Khorev (Kuklinsky, 1975:219-30) through their concept of a 'Unified Settlement System.' Firstly, those researchers acknowledge that "under the concept of the U.S.S., the relative importance of separate urbanizing factors with regard to the development of a given settlement is altered." They assume that "Educational establishments, internal transports, a zone of recreation and even a complex of institutions maintaining the important inter-urban services, can all act as an urbanizing base town-forming for various types of settlement within the system." Consequently they argue, the planner should act on the

'intensity' of the various 'inter-settlements links' to promote "a change in the role of the separate factors in the whole system."

Essentially, these researchers assume that a city is a managerial system and they suggest (a) the need to decide on the urbanization base (sub-system of priority) and (b) the way to direct the 'role' (sequence) of various sub-systems. Gertler's proposal to foster the growth of some places, to restrain the growth of others and to stabilize the growth of a third group, is consistent with this managerial approach (Gertler, 1977:432-34).

Indeed, if we accept the fact that a system's establishment on a site will affect the establishment of future systems, it appears crucial to decide about which system should first be established or, when all systems are already established, what priority will be given to the succeeding systems or the growth of current systems.

3. Creation of new sub-systems:

New sub-systems may be created parallel to simultaneously contributing sub-systems or as part of a sequence of existing sub-systems. The suggestion to construct a road system (infrastructure) in order to develop a national market in a developing economy may be viewed as the creation of another sub-system of a marketing sequence. Innovations, as indicated Thomas (1974:58-66), may increase the efficiency, the productivity and also the number of industries or firms. Innovations may thus be viewed at the origin of both the creation of a new parallel sub-system or the setting up of a new step in a set of sequential sub-systems. (The birth of innovations, their diffusion and adoption are a major concern of regional planning,

Friedmann, 1975:793-94).

Stöhr's typology of strategies for urban development (1974:11), i.e., new towns in peripheral undeveloped regions, new or intermediate size towns in peripheral lagging regions, satellite towns at intermediate distance from large metropolitan centers, new urban centers at the immediate fringe of major metropolitan centers and downtown urban renewal or 'intown' new towns, present an array of new systems or sub-systems.

A typology of hierarchies was proposed in this thesis which help to situate the various notions of systems which are being used in regional planning. Along this line, it became obvious that the generally used notion of 'system of cities' does not usually fit the notion of a 'management system': One referring to a natural-economic set of linkages, the other to a set of human activities oriented by formulated objectives. Knowledge of the first type of system is, however, seen as a necessary research input to the planning system. Another aspect of the types of hierarchies presented refers to levels of authority implicit in levels of government as well as the respective planning responsibilities of each level. A major implication of this view is that major sectors of government should be found at all levels. This is not only a functional requirement for a planning and an implementation system, it is also consistent with the notion that problems, needs and concerns are interrelated.

6. Regional Authority and Responsibility

The two notions of authority and responsibility assume power, influence or control over resources and activities which are situated

in space. Consequently, authority and responsibility involve what we might refer to as a 'management area.' Within the boundaries of this area, the authority and responsibility of various systems are exercised. Regional planning has thus been concerned with at least three general issues related to 'management areas,' particularly the public ones: (a) the delineation or definition of the public management area, (b) the distribution of authority and responsibility, and (c) the interaction between the management systems.

a. Delineation or Definition of the Public Management Area

A series of principles have been presented (Smith, 1965; Fawcett, 1961) to help delineate or define areas for public planning and/or administration purposes. Some of those are as follows:

- (1) The area must be large enough to economically support a team of administrators.
- (2) The area must include the main transportation/communication network to its hinterland.
- (3) The area must include the main centres of activities.
- (4) The area must include the main sources of manpower.
- (5) The area must include related topographical factors.
- (6) The area must include a consistent regional consciousness, identity, tradition, etc.

- (7) The area should be large enough to avoid being dominated by other areas and vice versa.
- (8) The area boundaries should not interfere with the 'ordinary' movement and activities of people and its 'economic activities.'
- (9) The area should be constituted to provide an effective 'debate' which would help to realize society's values of liberty and welfare. Thus, it should be large enough to include a diversity of interests and small enough to ensure an effective democratic process (Ylvisaker, 1959).
- (10) A region should be delineated for a planning process on the basis of the objective of the exercise (Mass, 1969: 18-19). As indicates Richardson (1969:109), economic "planning regions . . . may be badly delineated if their boundaries do not conform to the boundaries of natural economic regions."
- (11) The smaller the region, the better the allocation according to preferences; the larger the region the more spillovers of benefits and costs are internalized thus creating a greater equity among regions (Heald, 1975).

On the basis of some of those principles, several researchers have developed the notion of a 'planning region.' Referring to the work of Boudeville, Keeble and Klassen, Glasson (1974:23) defines planning region as "geographical regions suitable for the designing

and the implementation of development plans for dealing with the regional problems . . ." According to Gertler (1965), we must distinguish between four types of planning regions: The city-region or urban-centered region, the river valley or watershed region, the broad economic region and the frontier region.

The city-region was viewed by both Gertler and Friedmann as the most urgent type of region to consider in order to achieve a most efficient use of resources. This type of region is defined by Gertler as "formed by the geographic concentration of people and by the relationship, involving personal contact, established between a major urban-center (or a group of functionally complementary centers) and the surrounding country, towns and villages."

On the other hand, Friedmann (1965) defines the city-region according to three basic requirements: (a) Transportation facilities to link the city core to its surroundings or periphery, (b) spaces which are or may be developed to assist in the economic growth of the region, (c) community life or social integration of the various neighbourhoods, villages, suburbs, "and areas reserved for recreation and agricultural use."

The managerial importance of the delineation of the planning region is implicit in the general definition provided by Glasson. The correlation between the planning area and the administration area is "obviously important if the regional plan is to be implemented" (Glasson, 1974:32; Henderson, 1969:300). Insofar as Canada is concerned, regional planning should question the boundaries of the various provinces and within them the various types of regions in terms of the various criteria proposed. Assuming, however, that the

existing entities are more or less adequate, the questions which remain are (a) the determination of the types of authority and the characteristics of the responsibilities which should be distributed to the various superimposed management systems which oversee the various superimposed areas, and, (b) how those systems should interact with each other.

(Several techniques (Glasson, 1974:24-32) have been developed to help determine the boundaries of an area: Weighted index number method; factor analysis; flow analysis; gravitational analysis.)

b. Distribution of Authority and Responsibilities

Within the same sector (public or private, departmental or corporate), deconcentration and decentralization are probably the two best known spatial concepts related to change or transfer of authority and responsibilities.

Deconcentration may be defined as the spatial distribution of responsibilities, for resource transformation and allocation, within the same decision system or the same political level. The setting up of a department's (or of a corporation's) regional office is a typical case of deconcentration (Bowland, 1967). A typical problem of such change is not to move to the deconcentrated unit the authority (moral and/or financial) necessary to support the responsibilities.

Decentralization, on the other hand, may be defined as the spatial distribution of responsibilities, for resource transformations and allocation between two decision systems or political levels. The responsibilities of a lower level of government are increased or, in the case of centralization, the responsibilities of a higher level are

increased.

When responsibilities are viewed from a national perspective, the national interest may be better protected. If those responsibilities are transferred to a regional level, the regional interest may have priority to a national one. For example, the maximization of regional growth rates may impede the maximization of a national growth rate which could be obtained from one of a series of regions (Henderson, 1969:306-7). Similar to deconcentration, decentralization of responsibilities with little authority, as in the case of Canadian federal policies to leave the detailed urban development in the hands of local governments while those governments have little financial sources to either plan or develop on the basis of the policy, is a source of problems (Wheaton, 1969:238-40; Lithwick, 1972; Goldrick, 1971). As indicates Heald (1975), decentralization and equalization must work together. (In the public sector, centralization and decentralization of responsibilities essentially occur through legislations and constitutions.)

The question is what principle should be used to decide on centralization versus decentralization as will be reflected in legislations and constitutions. We have argued in this thesis that higher level systems should engage more in conceptual planning than in operational planning and that consequently decisions should be less of an operational matter as we move up the systems. A corollary of this is that whenever there is a need to deconcentrate, there is a need to decentralize. The argument that a national interest would not be protected is defeated here by the fact that lower level systems (provinces) are viewed here as implementation systems under the

jurisdiction of the national implementation system (federal).

How should we then interpret the radical change in the responsibilities of local and provincial governments (Blumenfeld, 1972; Dupré, 1959; Government of Canada, 1940) which has occurred in Canada with the setting up of sub-provincial regional governments and the formulation of related legislations (typically referred to as 'planning acts')? (Similar developments have occurred in other countries, Glasson, 1974:258-61).

Gertler formulated some principles upon which regional planning legislation could be founded: "provincial initiative in defining and establishing the boundaries of regional, planning authorities; representation on the regional planning of both constituent municipalities and relevant provincial department; preparation and adoption of a regional plan by the regional planning authority; and the creation of a regional planning system, coordinated at the provincial level (Gertler, 1965). Insofar as those principles are concerned, there seems to be no problem. Nevertheless, when we examine Beecroft's (1965) ten main subjects to be handled at the regional level by this type of government (all the means of transport of people and goods and the control of traffic; water conservation and distribution; disposal of sewage and industrial and other waste; promotion and location of industry; provision and appropriate distribution of such basic community service as schools and hospitals; preparation of programs for housing and renewal; provision of open space for recreation and leisure-time activity; adjustment of basic conflicts between 'urban' and 'nonurban' uses of lands; regulation of land use as one of the essential means to assure a sound development of all the

above-mentioned functions), one may question if local governments' responsibilities have not simply been centralized (Ostram et al, 1961).

c. Interaction between the Public Management Systems

Insofar as program implementation (from top down) is concerned, we have suggested that there is a need to use compliance mechanisms which are in line with human activities. This then requires a greater use of educational materials and techniques than of regulatory enactment. This, in turn, implies a greater distribution of information on research findings and on so-called demonstration projects.

Insofar as planning systems are concerned, we have proposed firstly a common lateral and vertical communication tool, understood as 'system design guidelines,' to transfer planning information from one system to another. For every program a series of variables are documented into a plan or program design (Lemire, 1977). Those variables are listed in chapter IV. Secondly, guidelines on the role of planning systems are proposed whereby the planning systems of various public agencies should communicate freely (interactively) with each other with only one constraint: Individuals involved must assume a similar position within their respective agencies. Planning systems are viewed as a major participatory mechanism for management systems.

There is one simple but fundamental assumption that is made when we discuss the planners' proposals for (a) change, (b) redesign, (c) maintenance, (d) elimination; it is that the system considered is a unified system. More specifically, the assumption is that over a particular territory there is an overall management system which delegates to lower

management systems responsibilities to accomplish certain tasks within that same territory and so on down to individuals. The corollaries of this are: (a) That the same sectors of responsibilities are undertaken from top to bottom, (b) that the responsibilities of various levels vary, within each sector, only in terms of the specificity of the guidelines for action, and (c) that every level system has a definite authority over the next lower level system. It is thus suggested here that the assumption of a unified system be further investigated as one way to resolve the current constitutional problems in Canada (Johnson, 1977).

7. Conclusion

In this chapter, we briefly discussed the definition of regional planning. It became obvious that there is no full agreement on such a definition. While some authors link regional planning directly to regional economic development, others suggest a more comprehensive view. Although this thesis situates itself along the latter view, this final chapter of the thesis has particularly examined the regional economic development aspect.

In regard to the Canadian scene, it appears as if the regional needs, problems or concerns have not yet either been adequately prioritized or formulated on one hand, or we have not yet clearly distinguished between the needs or problems of the population and those of the delivery systems on the other hand. This, in our view, is bound to generate objectives, policies and programs which do not resolve or deal with the needs or problems which ultimately we would like to see resolved or dealt with.

The regional objective(s) in Canada appears difficult to formulate. Although the objective of increasing the economic growth of selected regions appears a logical one, it does not seem to resolve the problems and some have documented that the means used to reach this objective have created additional problems. The suggestion here is that either the regional economic development objective or the next lower level objectives should be reformulated. To do this, the assistance of social, political, psychological and corporate planners should be sought and the planning system design, presented in this thesis, should be used.

We have suggested that Canada as a whole is a region which can correspond to a management system and that its sub-regions can also correspond to lower level management systems. Each of these management systems are centers of responsibility where ultimately the lowest level centers refer to individuals. In this context, our view is that we cannot divorce sectors of activities between these levels of management if we want to plan in a unified way and if we want to resolve or deal with interdependent needs, problems and concerns.

GENERAL CONCLUSION

In the first part of the thesis, we have developed a framework to help design organizational systems for management purposes. Common variables, which make up various types of organizations seeking to reach an objective, were identified. In the second part of the thesis we essentially applied this framework, understood as a set of guidelines, to a typical planning system. A general planning system was thus described but with an emphasis on three aspects: Planning operations, planning authority and responsibilities, and, implications for regional planning. In doing so we have also emphasized similarities between planning systems, the use of system's hierarchies in planning, the integration of creativity and wholeness in system design and planning, the role of the participants in a planning system, the role of planning as a major participatory mechanism for policy-making and the role of planning units in interorganizational relationships (vertically and horizontally). The concepts and principles or guidelines proposed in this thesis have several implications for the future.

1. Implicit in this thesis is a definition of regional planning as the planning or voluntary non-planning of all the human activities within a particular region and not, as is often the case, the strict study of roads and industrial locations from a narrow economic point of view. Further, the concept of region used here is one which includes personal spaces as well as international spaces. This approach to

regional planning holds, in our view, great potentialities for an expansion of regional planning curriculum and training. So far, the general area of public planning, at various levels of government, does not seem to have fully permeated the teaching of urban and regional planning, which in Canada refers more to planning responsibilities of cities and metropolitan governments than to provincial and national and even international bodies. It is thus not surprising that physical construction has been a primary concern, in planning schools, over social construction; two sectors which have been in many ways separated by levels of government.

2. In our view, neither the system design guidelines nor their application to a planning system represent a final answer to the orderly and creative planning of organizations' activities. On the basis of new information, those two components will continuously evolve or change. This thesis may, however, provide an overall framework to help collect and integrate this new information or data on planning and planning systems. While regional planning provides to managements a series of rationales and findings on the causes and effects (and dynamics or interaction) of strategies and developments related to the physical distribution of human activities and their requirements, organizational planning helps to integrate and to direct this information for the realization of the ultimate goal of human systems. The application of the system design variables and the concept of a planning system design, presented in this thesis, may help to develop a classification of spatial planning contributions. In fact, the organization of readings in regional planning textbooks (e.g.,

Friedmann and Alonso, 1975:xx) is sometimes quite arbitrary, based essentially on the grouping of existing contributions and/or according to the 'research and theory' relationships typical of academic themes.

3. We have indicated in chapter I both the scarce availability of evaluative data on planning as well as the difficulty to evaluate such phenomena. It is hoped that this thesis presented a framework specific enough to help compare and describe current planning systems and assess their component parts as well as their environmental effects. Further, one underlying assumption of this thesis is that the individual's creativity and inputs can be adequately processed through a planning system of the type described here. To find out if this assumption can be verified it will be necessary to set up 'field experiments' where such a planning system is tested in specific real-life situations.

4. It was indicated in the last two chapters of this thesis that regional planning can occur at various levels of a hierarchy of management systems and that to be useful, in this context, the implementation system must be conceived in sectors which are found at all levels. This has major implications for the formulation of constitutional principles in Canada. Consequently, the relationship between systems planning and national constitutions should be further examined.

5. In regard to the so-called 'less developed countries,' the planning system model presented in this thesis does not prescribe any specific approach except for one simple principle which applies to any planning situation: This is that the planning process may be initiated at any stage depending on the circumstances. Here, the various options

of developing regional planning units (most, if not all countries already have a central planning unit), developing specific projects through the most effective departments, coordinating public investments and budgetary procedures, etc. (Waterston, 1969), depend on understanding the stages of planning already undertaken, their success or causes of abortion as well as an understanding of the situation as a whole. This latest understanding may be acquired through the panoply of social sciences tools from ethnomethodology to sociometry.

6. Although regional planning may have specialized (Page, 1969:244) to its detriment on physical and economic aspects of human activities, the concern about space favours a metadisciplinarity (Alonso, 1975) which increases its scope and, subsequently, its potential usefulness. On the other hand, because regional planning is heavily oriented towards public planning and because it is interested in all human activities, it may be considered as a leading actor for the planning of society as a whole (Council of Europe, 1968), along with social systems planning.

7. Work on the fast evolving fields of ecology and socio-biology need to be further perused in regard to their contributions to the design of planning systems. Additional work on the applications of general system theory must also be pursued to derive more appropriate guidelines for the design of human systems. Also, work on consciousness and intuitive ways of thinking are deemed to reduce the mechanistic orientation of several of our planning methods and systems.

ANNEX A

ANNEX A.

MAJOR SEQUENTIAL OPERATIONS FOR RESEARCH,
PLANNING AND IMPLEMENTATION

The two diagrams A and B (essentially the same) show through two styles of presentation, the interaction between the three change mechanisms and the general programming or programs implementation functions.¹ The emphasis is, however, on the planning, research and evaluation² functions. To describe the interaction among the three 'change mechanisms' we will use the Diagram B due to its specificity.

Diagram B shows eighteen general operations. In current day-to-day operations, these more or less occur at the same time. However, there is a sequential ideal ordering which leads to integration of functions prior to Budget approvals and Implementation.

Operation 1
Perception of Needs/Problems/Concerns

Any administrative responsibility center as well as any (Canadian) may identify needs/problems/concerns related to ORG-X. As much as possible, these should be documented in terms of validity of

¹The term 'program' refers as well to sub-programs, projects, sub-projects, etc.

²Here, evaluation research is separated from population need identification research. In the core of the thesis, both were assumed to be part of the same system.

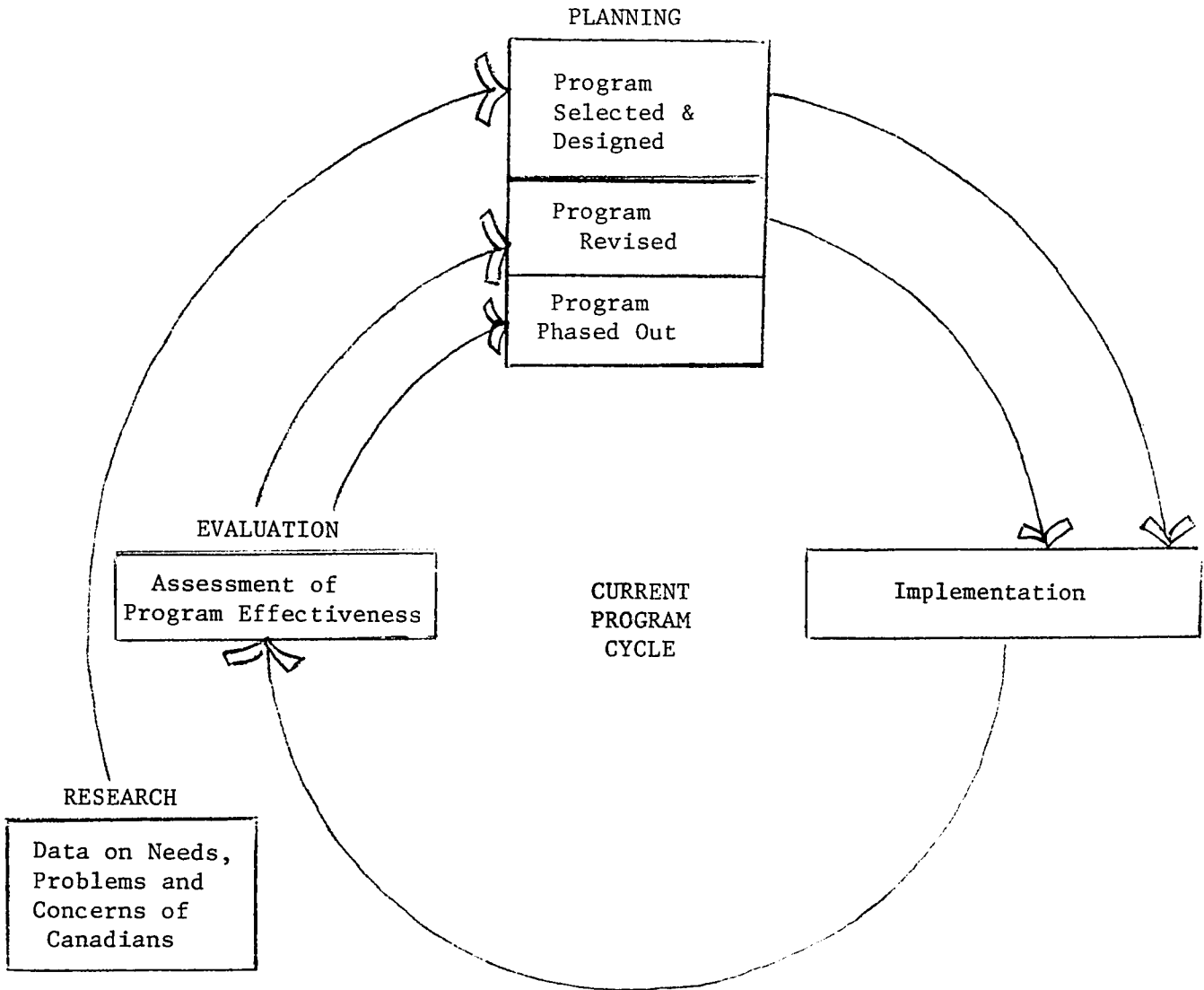


Figure 20:- Program Change and Conservation Mechanisms¹

¹Prepared with the assistance of Ms. Anita Salmon.

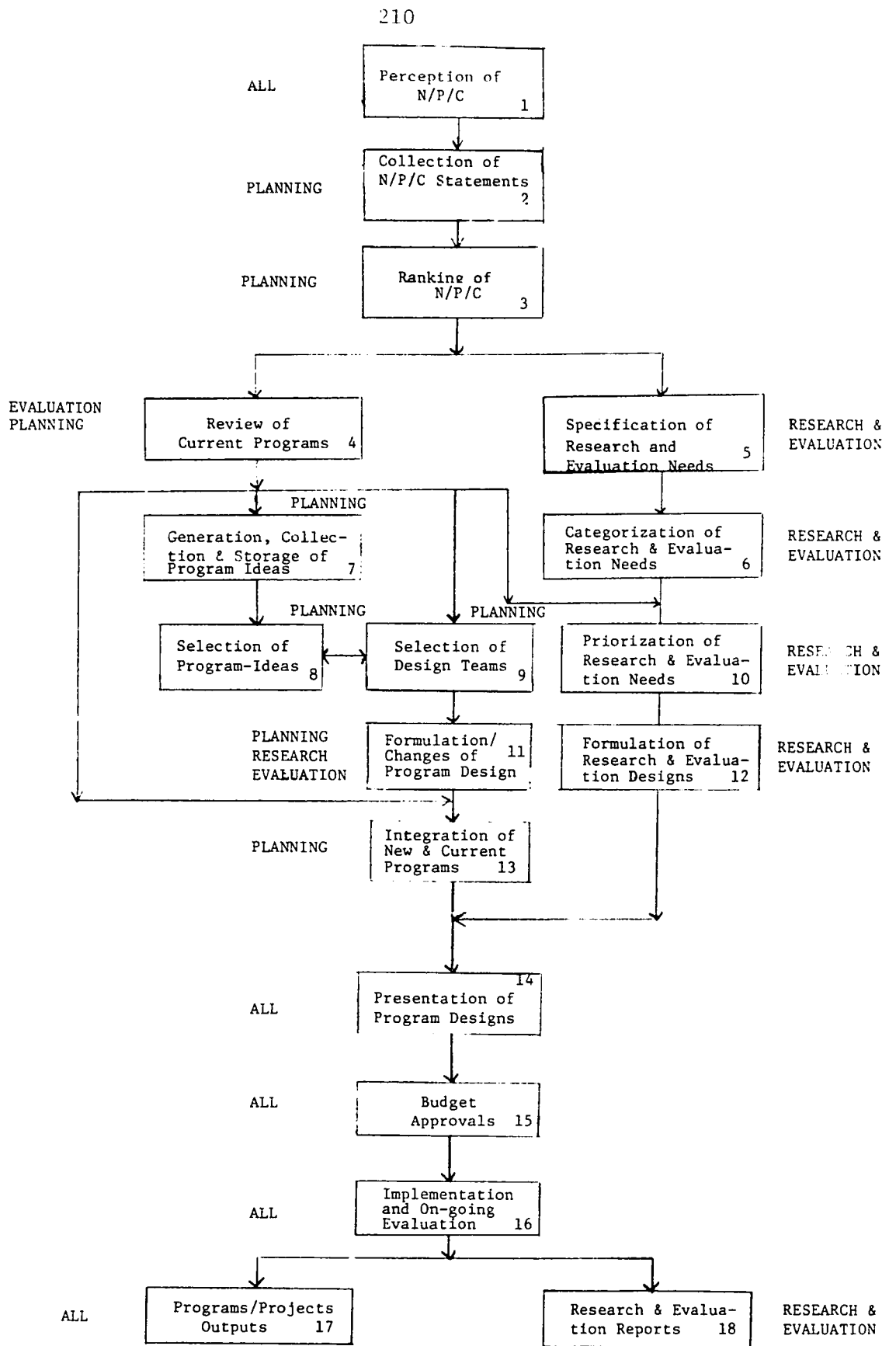


Figure 21:- General Planning, Research, Evaluation Operations

the N/P/C statement and in terms of reliability of source(s): To do this, existing research and evaluation systems play a major role. The documentation of N/P/C is then fed into Operation 2.

Operation 2
Collection of N/P/C Statements

It is the role of the Planning System to continuously update the Review of N/P/C. Newly identified N/P/C must be added or integrated to the existing listing of N/P/C, or they may modify or specify existing statements. Those statements are generally classified into N/P/C related to the (Canadian) population and N/P/C related to Delivery Systems.

Operation 3
Ranking of Needs/Problems/Concerns

It is the Planning role of the organization management to rank identified N/P/C and to review such ranking. To perform this role, criteria and weights are used.

Operation 4
Review of Current Programs

The current programs must be reviewed on a regular basis and each time it is necessary to do so. Such review includes the following:

- (a) Examination and decision on changes or maintenance of existing programs, projects, systems and their interrelation (Classification):
- (b) examination and decision on need for new programs; examination and decision on priority of programs, projects, etc.; and
- (c) examination and decision on objectives. These operations will be based on (a) reports on the efficiency and effectiveness of programs (Operation 18)

and (b) new statements of N/P/C and their ranking (Operations 2, 3). These procedures will be coordinated through the Evaluation and Planning Systems (where all individuals in the organization have a role to play).

Operation 5
Specification of Research and Evaluation Needs

On the basis of 'unclear' statements of needs/problems/concerns (Operation 2), the data needs of program designers (Operation 11), or the 'necessity' for built-in evaluation (Operation 11), statements of needs/problems/concerns must be translated by the Research or Evaluation Systems into 'researchable' hypotheses or study objectives.

Operation 6
Categorization of Research or Evaluation Needs

For administrative purposes, specified Research or Evaluation needs (Operation 5) may be channelled through either one or another Research subprogram or Evaluation sub-system (in-house, out-of-house, etc.).

Operation 7
Generation, Collection and Storage of Program-Ideas

The Planning System attempts to encourage the generation and the collection of ideas which will improve our resolution of the prioritized needs/problems/concerns in the most efficient and effective manner.

Furthermore, cancelled/terminated program/project designs are recorded to avoid wheel reinvention at a later date.

Operation 8
Selection of Program-Ideas

Based on the data obtained from Operation 7, program-ideas may be selected (through the Planning System) in order to arrive at new programs changes in existing programs or a proposal to maintain existing programs.

Operation 9
Selection of Design Teams

The need to modify existing programs or to design new ones may necessitate the setting up of so-called design teams. This is done through the Planning System.

Operation 10
Priorization of Research and Evaluation Needs

Research and Evaluation needs (Operation 6) are prioritized separately from programs due to their overall difference. However, some of the criteria that are used, such as the organization priorities (Operation 4), apply as well to programs as to research and evaluation activities.

Operation 11
Formulation/Changes of Program Designs

On the basis of the program-ideas selected (Operation 8), or on the basis of the changes needed in existing programs (Operation 4), the Planning System requires that programs be documented in such a way that they may be easily integrated. In formulating a design--the Research and Evaluation Systems may provide a data base or findings

pertaining to the program-idea being dealt with. Further, through the Evaluation System, a built-in evaluation mechanism must be formulated as part of the program design.

Operation 12
Formulation of Research and Evaluation Designs

Due to the specific nature of research and evaluation, a formal process of design based on the prioritized needs (Operation 10) is required.

Operation 13
Integration of New and Current Programs

The formulation of new programs or the changes in existing programs (Operation 11), may have an impact on other existing programs and their classification. The classification of programs as well as the designs of existing programs must be reconsidered. These procedures are operated through the Planning System.

Operation 14
Presentation of Designs

Prior to budget approval and allocation, all designs should be formally presented and reviewed. In government, two of these exercises occur at the Program Forecast period (December) and Main Estimates period (August).

Operation 15
Budget Approvals

In terms of our two major budgetary exercises, designs must be approved at specified times.

Operation 16
Implementation and On-going Evaluation

This is the execution phase of approved designs: Designs are used here as a major guide to real-time action. This implies that the built-in evaluation mechanisms are at work from the day the program starts being implemented.

Operation 17
Programs/Projects Outputs

The output is what is immediately produced by the program. It could be a number of sessions, a number of facilities, a number of publications, etc. The program output is a consequence of the implementation of Operation 16.

Operation 18
Evaluation and Research Reports

The immediate outputs of the evaluation and research systems are reports. Those reports provide the information necessary to modify, maintain or initiate programs. They represent feeding mechanisms into Operation 1 of the sequence of operations. Unless those reports are used, they have little value for the planning and programming functions.

REFERENCES

REFERENCES

- Acar, W. (1973). "An Integrated Approach to Multidimensional Evaluation and Cost/Effectiveness Analysis," Proceedings of the First Annual Conference of the Canadian Association of Administrative Sciences. Kingston, Ontario: School of Business, Queen's University, pp. 4-1, 4-18.
- Ackoff, R. L. (1953). The Design of Social Research. Chicago: University of Chicago.
- _____. (1971). "Towards a System of Systems Concepts," Management Science, vol. 17, no. 11.
- Albarn, K. et al. (1974). The Language of Pattern. London: Thames and Hudson.
- Alonso, W. (1975). "Location Theory," in Friedmann, J., Alonso, W. (eds.): Regional Policy. Cambridge, Mass.: MIT Press.
- _____. (1975). "Metadisciplinarity." Mimeo. Berkeley: Univ. of California.
- Anderson, W. (1964). "Federalism," in Gould, J., Kolb, W. L. (eds.): A Dictionary of the Social Sciences. New York: The Free Press.
- Asimow, M. (1962). Introduction to Design. New York: Prentice-Hall.
- Aucoin, P. (1971). "The Role of Functional Advisory Councils," in Doern, G. B., Aucoin, P. (eds.): The Structures of Policy-Making in Canada. Toronto: MacMillan.
- Balinger, L. B., Vroman, T. F. (1965). Design: Sources and Resources. New York: Reinhold Pub. Co., pp. 27-29.
- Banfield, E. C. (1964). "Planning," in Gould, J., Kolb, W. L. (eds.): A Dictionary of the Social Sciences. New York: The Free Press.
- Barnard, C. J. (1966). "A Theory of Cooperation and Organization," in Rubenstein, A. H., Haberstroh, C. J. (eds.): Some Theories of Organization. Homewood, Ill.: R. D. Irwin, Dorsey Press, pp. 96-98.
- Barry, B. (1973). The Liberal Theory of Justice. Oxford, Clarendon.
- Bateson, G. (1972). Steps to an Ecology of Mind. New York: Ballantine.
- Beecroft, E. (1965). "Agenda for Regional Government," in Gertler, L. O. (ed.): Regional Development. Toronto: Government of Ontario, Department of Economics and Development.
- Beer, S. (1969). "The Aborting Corporate Plan--A Cybernetic Account of the Interface Between Planning and Action," in Jantsch, F. (ed.): Perspectives of Planning. Paris: O.E.C.D.

- Berry, J. L. (1964). "Cities as Systems within Systems of Cities," in Friedmann, J., Alonso, W. (eds.): Regional Development and Planning. Cambridge, Mass.: MIT Press.
- _____. (1967). Geography of Market Centres and Retail Distribution. Englewood Cliffs, N.J.: Prentice Hall.
- Bertalanffy, L. von (1975). General System Theory. New York: Braziller.
- Bevlin, M. E. (1970). Design Through Discovery. Toronto: Holt, Rinehart.
- Bish, R. L., Nourse, H. O. (1975). Urban Economics and Policy Analysis. Toronto: McGraw-Hill.
- Black, A. (1968). "The Comprehensive Plan," in Goodman, W. I., Freund, E. C. (eds.): Principles and Practice of Urban Planning. Washington, D. C.: International City Managers' Association.
- Blau, P. M. (1956). Bureaucracy in Modern Society. New York: Random House.
- Blau, P. M., Scott, W. R. (1962). Formal Organizations. San Francisco: Chandler.
- Bluet, J. C. (1968). "Le Planning-Programming-Budgeting System," Metra, 7.
- Blumenfeld, H. (1972). "The Role of the Federal Government in Urban Affairs," in Feldman, L. D., Goldrick, M. D. (eds.): Politics and Government of Urban Canada. Toronto: Methuen, 1972.
- Bolan, R. S. (1969). "Community Decision Behaviour: The Culture of Planning," Journal of the American Institute of Planners, 35.
- Boulding, K. E. (1956). "Leveral Systems Theory--The Skeleton of Science," Management Science, vol. 2, no. 3, pp. 197-208.
- Bourne, L. S. (1975). Urban Systems: Strategies for Regulation. Oxford: Clarendon Press.
- Bowland, J. G. (1967). "Geographical Decentralization in Canadian Public Service," Canadian Public Administration, Fall.
- Branch, M. C. (1978). "Critical Unresolved Problems of Urban Planning Analysis," Journal of the American Institute of Planners, vol. 44, no. 1, pp. 58-59.
- Bregha, F. J. (1973). Public Participation in Planning, Policy and Programme. Toronto: Ministry of Culture and Recreation.
- Brewis, T. H. (1969). Regional Economic Policies in Canada. Toronto: MacMillan Co.
- Broadbent, G. H. (1966). "Creativity," in Gregory, S. A., The Design Method. New York: Plummom Press.

- Buck, R. W. (1970). "Shift and Share Analysis; A Guide to Regional Policy," Regional Studies, vol. 4, no. 4, pp. 445-50.
- Burton, I. (1969). "Natural Resources Planning: Theory and Practice," in Hufschmidt, M. M. (ed.): Regional Planning: Challenge and Prospects. New York: Praeger, p. 150.
- Caldwell, G. T. (1975). Corporate Planning in Canada: An Overview. Ottawa: Conference Board in Canada.
- Carlson, D. (1962). Modern Management. Paris: O.E.C.D.
- Castells, M. (1972). La Question Urbaine. Paris: François Maspero.
- Castonguay, C. et al. (1970). "Commission d'Enquête sur la Santé et le Bien-Etre Social, La Santé," La Régime de la Santé, vol. IV, tome 2. Québec: Gouv. du Québec, pp. 40-57.
- Catanese, A. J., Steiss, A. W. (1970). Systemic Planning: Theory and Applications. Lexington, Mass: Heath.
- Checkland, P. B. (1971). "A Systems Map of the Universe," Journal of Systems Engineering, vol. 2, no. 2, pp. 107-14.
- _____. (1972). "Towards a Systems-Based Methodology for Real-World Problem-Solving," Journal of Systems Engineering, vol. 3, no. 2, pp. 97-116.
- Chermayeff, I. et al. (1973). The Design Necessity. Cambridge, Mass.: MIT Press.
- Chorley, R. J. (ed.). (1973). Directions in Geography. London: Methuen.
- Churchman, C. W. (1968). The Systems Approach. New York: Dell Pub.
- _____. (1971). The Design of Inquiring Systems: Basic Concepts of Systems and Organization. New York: Basic Books.
- Cohen, W. (1969). "Education and Learning," in Gross, B. M. (ed.): Social Intelligence for America's Future. Boston: Allyn and Bacon.
- Coleman, J. C. (1960). Personality Dynamics and Effective Behavior. Chicago: Scott, Foresman & Co.
- Coser, L. (1956). The Functions of Social Conflict. New York: Free Press.
- Council of Europe. (1968). Regional Planning. Strasbourg: Consultative Assembly.
- Cowan, P. (1973). The Future of Planning. London: Heinemann.
- Craig, J. H., Craig, M. (1974). Synergic Power, Beyond Domination and Permissiveness. Berkeley, Calif.: Proactive Press.

- Crener, M., Monteil, B. (1975). Principes de Management. Montréal: Presses de l'Univ. du Québec.
- Czamanski, S. (1974). Study of Clustering of Industries. Halifax: Institute of Public Affairs.
- Dahl, R. A., Lindbloom, C. E. (1953). Politics, Economics and Welfare. New York: Harper & Row.
- Dakin, J. (1960). "Thoughts on Theory-Method in the Planning Process," Plan, vol. 1, no. 3.
- _____. (1973). Telecommunications and the Planning of Greater Metropolitan Regions. Toronto: Univ. of Toronto Press.
- Deasy, C. M. (1974). Design for Human Affairs. Toronto: Willey, pp. 126-41.
- Declerck, R. P. (1974). "Psycho-sociologie de la Gestion Strategique," dans Crener, M., Dubois, J. M. (eds.): Planifier l'Entreprise. Belgique: Marabout, pp. 324-25, 333-37.
- Declerck, R. P., Boudeville, J. (1973). "Gestion Strategique et Culture de l'Entreprise," Hommes et Techniques, 348 (Oct.), pp. 738, 741.
- Diesing, P. (1962). Reason in Society: Five Types of Decisions and their Social Conditions. Urbana: Univ. of Illinois Press.
- Dix, A. C., et al. (1972). "Start-Up and Evolution of Formal Planning Systems," in Ewing, D. W. (ed.): Long Range Planning for Management. New York: Harper & Row, p. 71.
- Doern, G. B. (1971). "The Development of Policy Organizations in the Executive Arena," in Doern, G. B., Aucoin, P. (eds.): The Structures of Policy-Making in Canada. Toronto: MacMillan.
- _____. (1974). "Horizontal and Vertical Portfolios in Governments," in Doern, G. B., Wilson, V. S. (eds.): Issues in Canadian Public Policies. Toronto: MacMillan.
- Doern, G. B., Aucoin, P. (eds.). (1971). The Structure of Policy-Making in Canada. Toronto: MacMillan.
- Doern, G. B., Wilson, V. S. (eds.). (1974). Issues in Canadian Public Policies. Toronto: MacMillan.
- D.R.E.E. (1971-72). Annual Report. Ottawa: Information Canada, 1973.
- _____. (1975-76). Annual Report. Ottawa: Min. of Sup. & Ser., 1977.
- Driver, B. L. (ed.). (1970). Elements of Outdoor Recreation Planning. Ann Arbor, Mich.: Univ. of Michigan Press.
- Dror, Y. (1971). Ventures in Policy Sciences. New York: American Elsevier.
- _____. (1973). "The Planning Process: A Facet Design," in Faludi, A. (ed.): A Reader in Planning Theory. Toronto: Pergamon Press.

- Drucker, P. F. (1954). The Practice of Management. New York: Harper.
- Dupré, J. S. (1959). "Applied Areal Analysis: The Case of Canada," in Maass, A. (ed.): Area and Power: A Theory of Local Government. Ill.: Free Press.
- Economic Council of Canada. (1974). 11th Annual Review. Economic Targets and Social Indicators. Ottawa: Information Canada, pp. 8-9.
- Edel, O. H. (1967). Introduction to Creative Design. New York: Prentice-Hall.
- Emery, F. E., Trist, E. L. (1975). Towards a Social Ecology. New York: Plenum.
- Emery, F. E. (ed.) (1969). Systems Thinking: Selected Readings. Harmondsworth, Middlesex: Penguin.
- Ewing, D. W. (ed.). (1972). Long-Range Planning for Management. New York: Harper & Row.
- Ezop-Québec. (1972). Une Ville à Vendre. Montréal: Conseil des Oeuvres et du Bien-être, 4 vols.
- Faludi, A. (1973a). Planning Theory. Toronto: Pergamon Press.
- _____. (ed.). (1973b). A Reader in Planning Theory. Toronto: Pergamon Press.
- Fawcett, C. B. (1961). Provinces of England. Rev. ed. London.
- Feldman, L. D., Goldrick, M. D. (eds.). (1972). Politics and Government or Urban Canada. Toronto: Methuen.
- Ferreira, F. W. (1968). "Signification intégrée du développement," Développement et Civilisation. Paris: I.R.F.E.D.
- Fisher, J. L. (1969). "Determining the Public Interest," in Hufschmidt, M. M. (ed.): Regional Planning: Challenge and Prospects. New York: Praeger, p. 13.
- Flament, C. (1965). Réseaux de Communication et Structures de Groupe. Paris: Dumod.
- Forrester, J. W. (1968). Principles of Systems. Cambridge, Mass.: Wright-Allen Press, 1968, pp. 10-11.
- Francis, J. P., Pillai, N. G. (1976). "Regional Development: Some Issues and Conceptual Problems," in Schramm, G. (ed.): Regional Poverty and Change. Ottawa: Minister of Supply and Services.
- Frankl, V. E. (1963). Man's Search for Meaning, An Introduction to Logotherapy. New York: Washington Square Press.

- Friedmann, J. (1965). "The Concept of a Planning Region," in Gertler, L. O. (ed.): Regional Development. Toronto: Government of Ontario, Department of Economics and Development.
- _____. (1966-67). "Planning as a Vocation," Plan Canada, vols. 6 & 7.
- _____. (1973). "A Conceptual Model for the Analysis of Planning Behaviour," Administrative Science Quarterly, vol. 12, no. 2, 1967. (Reprint in Faludi, 1973b).
- _____. (1975). "Regional Development Planning: The Progress of a Decade," in Friedmann, J., Alonso, W. (eds.): Regional Policy. Cambridge, Mass.: MIT Press.
- Friedmann, J., Alonso, W. (eds.). (1964). Regional Development and Planning. Cambridge, Mass.: MIT Press.
- Friedmann, J., Alonso, W. (eds.). (1975). Regional Policy. Cambridge, Mass.: MIT Press.
- Friedrich, C. J. (1964). "Authority," in Gould, J., Kolb, W. L. (eds.): A Dictionary of the Social Sciences. New York: Free Press.
- Friend, J. K. et al. (1974). Public Planning: The Intercorporate Dimension. London: Tavistock Publications, pp. 39, 56.
- Friend, J. K., Jessop, W. N. (1969). Local Government and Strategic Choices: an operational research approach to the processes of public planning. London: Tavistock Publications, pp. 130-35.
- Fuller, R. B. (1967). "Conceptualité des Structures Fondamentales," dans Kepis, G. (ed.): La Structure dans les Arts et dans les Sciences. Bruxelles: La Connaissance.
- Gabbour, I., Cartwright, T. J. (1974). Les Relations entre Organismes: Facteurs Stratégiques en Planification Urbaine. Université de Montréal: Centre de Recherches et d'Innovation Urbaine.
- Galbraith, K. (1973). Economics and the Public Purpose. Scarborough, Ontario: New American Library.
- Galloway, G. (1941). Planning for America. New York: Henry Holt.
- Gans, H. J. (1973). More Equality. New York: Pantheon.
- Gerecke, K. (1973). "An Evaluation of Canadian Urban Planning." Occasional Paper no. 10. Waterloo, University of Waterloo.
- Gertler, L. O. (1965). "Regional Planning and Development," in Gertler, L. O. (ed.): Regional Development. Toronto: Government of Ontario, Department of Economics and Development.
- Gertler, L. O., Crowley, R. W. (1977). Changing Canadian Cities: The Next 25 Years. Toronto: McLelland, Stewart.
- Gilfillan, S. C. (1953). The Sociology of Invention. Cambridge, Mass.: MIT Press.

- Gillie, F. F. (1967). Basic Thinking in Regional Planning. Paris: Mouton, p. 42.
- Glass, R. (1973). "The Evaluation of Planning: Some Sociological Considerations," in Faludi, A. (ed.): A Reader in Planning Theory. Toronto: Pergamon.
- Glasson, J. (1974). Introduction to Regional Planning. London: Hutchinson Educational.
- Glegg, G. L. (1973). The Science of Design. Cambridge, Mass.: Cambridge Univ. Press.
- Glickson, A. (1956). "Recreational Land Use," in Thomas, W. (ed.): Man's Role in Changing the Face of the Earth. Chicago, Ill.: Univ. of Chicago Press.
- Goldrick, M. D. (1971). "Present Issues in the Growth of Cities," Canadian Public Administration, vol. 14, no. 3.
- Goodman, W. I., Freund, E. C. (eds.). (1968). Principles and Practice of Urban Planning. Washington, D.C.: I.C.M.A.
- Gorb, P. (1976). "Pioneer Class of 76: Opening Shots in the Design Management Campaign," Design, vol. 335.
- Gould, J., Kolb, W. L. (eds.). (1964). A Dictionary of the Social Sciences. New York: The Free Press.
- Government of Canada. (1940). Report of the Royal Commission on Dominion-Provincial Relations. Ottawa: King's Printer.
- _____. (1975a). The Organization of the Government of Canada. Ottawa: Information Canada.
- _____. (1975b). Report of the Auditor-General of Canada to the House of Commons, Supplement. Ottawa: Information Canada.
- Government of Ontario. (1968). Effective Management Through P.P.B.S. Toronto: Treasury Board of Ontario.
- Gray, D. D. et al. (1975). Growth and Its Implications for the Future. Branford, Conn.: The Dinosaur Press.
- Gregory, S. A. (1966). The Design Method. New York: Plummom Press.
- Gross, B. M. (ed.). (1969). Social Intelligence for America's Future. Boston, Mass.: Allyn & Bacon.
- Guilford, J. P. (1967). The Nature of Human Intelligence. New York: McGraw Hill.
- Guilford, J. P. et al. (1968). "Solving Social Problems Creatively," Journal of Creative Behaviour 2, p. 3.

- Hall, A. D. (1962). A Methodology for Systems Engineering. Toronto: Van Nostrand.
- Hall, E. T. (1969). "Distances in Man," in Hall, E. T. (ed.): The Hidden Dimension, vol. 4. Anchor Books.
- Hartle, D. G. (1972). "A Proposed System of Program and Policy Evaluation," Conference of the Institute of Public Administration. Fredericton.
- Heald, D. A. (1975). "Financial Devolution," New Westminster Bank Quarterly Review, vol. 5.
- Heilburn, J. (1974). Urban Economics and Public Policy. New York: St.-Martin's.
- Heilleiner, F. M., Stöhr, W. (1972). Colloquium on Regional Aspects of Development: Spatial Aspects of the Development Process, vol. II. London, Ontario: International Geographical Union.
- Henry, N. (1975). Public Administration and Public Affairs. New Jersey: Prentice-Hall.
- Hermansen, T. (1969). "Information Systems for Regional Development Control," Papers of the Regional Science Association, vol. XXII, pp. 121-28.
- Hodge, G. (1977). "Charting the Delivery of Regional Policy in Post-Industrial Canada." Mimeo paper for the Colloquium on Regional Development in Transition. Queen's University, February 1977.
- Holmes, T. H., Masuda, M. (1973). "Life Change and Illness Susceptibility," in Scott, J. P., Senay, E. C. (eds.): Separation and Depression: Clinical and Research Aspects. Washington, D.C.: Amer. Ass. for the Adv. of Sciences 94.
- Homans, G. C. (1961). Social Behavior. New York: Harcourt, Brace, World.
- Hoover, E. M. (1963). The Location of Economic Activities. New York: McGraw-Hill.
- Howlett, M. J. (1975). "Strategic Planning in State Government," Managerial Planning, vol. 24, no. 3.
- Hufschmidt, M. M. (ed.). (1969). "A New Look at Regional Planning," in Hufschmidt, M. M. (ed.): Regional Planning: Challenge and Prospects. New York: Praeger.
- Humble, J. W. (1970). Management by Objectives in Action. Toronto: McGraw-Hill.

- International Cooperative Alliance, Japanese Cooperative Movement. (1974). Role of Cooperation in Social and Economic Development, Proceedings of a Regional Conference. Tokyo, Japan.
- International Cooperative Alliance. (Bi-mth.) Review of International Cooperation. London: I.C.A.
- International Labour Office. (1970). Introduction to Work Study. Geneva: I.L.O.
- Isard, W. (1975). Introduction to Regional Study. New Jersey: Prentice Hall, pp. 67-69, 113-17, 463.
- Itten, J. (1975). Design and Form. New York: Nan Nostrand Reinhold.
- Jantsch, E. (ed.). (1969). Perspectives of Planning. Paris: O.E.C.D.
- Jantsch, E. (1970). "From Forecasting and Planning to Policy Sciences," Policy Sciences I.
- Javits, J. (1976). "The Need for Economic Planning," in Javits, J. (ed.): Managerial Planning, vol. 24, no. 6.
- Johnson, N. (1977). In Search of the Constitution. Toronto: Pergamon Press.
- Johnson, R. A. et al. (1973). The Theory and Management of Systems. Toronto: McGraw-Hill.
- Jones, C. O. (1970). An Introduction to the Study of Public Policy. Belmont, Calif.: Wadsworth.
- Jowell, R. (1975). A Review of Public Involvement in Planning. Terrace, London: Social and Community Planning Research.
- Kahn, A. J. (1969). The Theory and Practice of Social Planning. New York: Russel Sage Foundation.
- Kast, F. E., Rosenzweig, J. E. (1972). "General Systems Theory: Applications for Organization and Management," Academy of Management Journal 15, p. 463.
- Katz, D., Kahn, R. L. (1966). The Social Psychology of Organizations. New York: Wiley.
- Kepis, G. (ed.). (1967). La Structure Dans Les Arts et Dans Les Sciences. Bruxelles: La Connaissance.
- Kernaghan, W. D. K., Willms, A. M. (eds.). (1971). Public Administration in Canada: Selected Readings. Toronto: Methuen.

- Khodzhaev, D. G., Khorev, B. S. (1975). "The Concept of a Unified Settlement System and the Planned Control of the Growth of Towns in the U.S.S.R.," in Kuklinsky, A. R. (ed.): Regional Development and Planning: International Perspectives. Netherlands: A. W. Sijthoff Pub.
- Klir, G. J. (1969). An Approach to General Systems Theory. New York: N. Nost.
- _____. (1972). Trends in General Systems Theory. Toronto: Wiley-Interscience.
- Kluckhohn, C. (1951). "Values and Value-Orientations in Theory of Action: An Exploration in Definition and Classification," in Parsons, T., Shils, E. (eds.): Toward A General Theory of Action. Cambridge, Mass.: Harvard Univ. Press.
- Kornai, J. (1971). Anti-Equilibrium: On Economic Systems Theory and the Task of Research. Amsterdam: North Holland Pub. Co.
- Kuklinsky, A. R. (1970). "Regional Development, Regional Policies and Regional Planning: Problems and Issues," Regional Studies, vol. 4., pp. 269-70.
- _____. (1975). "The Spatial Dimension in Policy and Planning," in Kuklinsky, A. R. (ed.): Regional Development and Planning: International Perspectives. Netherlands: A. W. Sijthoff Pub.
- Laframboise, H. (1976). "Here Come the Program Benders," Optimum, vol. 7, no. 1.
- Lash, H. (1976). Une Planification Humaine. Ottawa: Government of Canada, Ministry of State for Urban Affairs.
- Laszlo, E. (1972). Introduction to Systems Philosophy. New York: Harper & Row (Torchbooks).
- Laszlo, E. et al. (1977). Goals for Mankind: A Report to the Club of Rome on the New Horizons of Global Community. New York: E. P. Dutton.
- Lebret, L. J. (1961). Dynamique Concrete du Développement. Paris: Editions Ouvrières.
- Lebreton, P. P., Henning, D. A. (1961). Planning Theory. New York: Prentice-Hall.
- Lefebvre, L. (1975). "National Planning and Regional Decentralization," in Kuklinsky, A. R. (ed.): Regional Development and Planning: International Perspectives. Netherlands: A. W. Sijthoff Pub.

- Lemire, J.-M. (1972). "Creativity and School: A Social Problem," Alberta Journal of Educational Research, vol. XVIII, no. 4.
- _____. (1973). "Community Schools: The Alberta Experience," Community Planning Review, vol. 23, no. 7.
- _____. (1976a). Report of Attendance to Fifth International Conference on Planning, International Affiliation of Planning Societies. Ottawa: Department of National Health and Welfare.
- _____. (1976b). "The Development of a F.A.S. Plan: Project Progress Report," Proceedings of a System's Planning Colloquium for Fitness, Recreation and Amateur Sport. Ottawa: Dept. of National Health and Welfare.
- _____. (1977). "Program Design Guidelines," Canadian Public Administration, vol. 20, no. 4.
- Lemire, J.-M., Lotherington, H. (1976). "Compendium of Planning Organizations Related to Canada," (draft). Ottawa: Government of Canada, Department of National Health and Welfare.
- Lemire, J.-M., Rehill, D. H. (1974). "Model of a Social Research Function for Social Programming Organizations," Canadian Public Administration, vol. 17, no. 1.
- Lithwick, N. H. (1970). Urban Canada: Problems and Prospects. Ottawa: Central Mortgage and Housing Corporation.
- Lithwick, N. H., C.M.H.C. (1972). "An Introduction to the Problems of Urban Canada," in Feldman, L. D., Goldrick, M. D. (eds.): Politics and Government of Urban Canada. Toronto: Methaen.
- Lorange, P., Vancil, R. F. (1976). "How to Design a Strategic Planning System," Harvard Business Review (September-October).
- Lorange, P., Vancil, R. F. (1977). Strategic Planning System. New York: Prentice-Hall.
- Lowry, I. S. (1964). A Model of Metropolis. Santa Monica, California.
- Lyden, F. J., Miller, E. G. (1968). Planning, Programming and Budgeting: A Systems Approach to Management. Chicago: Markham.
- Lynen, J. F. (1969). The Design of the Present. London: Yale Univ. Press.
- Maass, A. (ed.). (1959). Area and Power: A Theory of Local Government. Ill.: Free Press.
- MacMahon, A. W. (1955). Federalism Mature and Emergent. New York: Double Day.

- MacRae, D. (1975). "Policy Analysis as an Applied Social Science Discipline," Administration and Society, vol. 6, no. 4.
- Manor, Y., Sheffer, G. (1977). "Can Planning Be Salvaged," Public Administration, vol. 55 (Summer).
- Marien, M. (1976). Societal Directions and Alternatives. New York: Lafayette: Information for Policy Design.
- Martin, R. C. (1960). River Bassin Administration and the Delaware. New York: Syracuse Univ. Press.
- Marquis, S. (1970). "Steps in the Planning Process," in Driver, B. L. (ed.): Elements of Outdoor Recreation Planning. Ann Arbor: Univ. of Michigan Press.
- Maslow, A. H. (1954). Motivation and Personality. New York: Harper & Brothers.
- Mass, A. A. (1969). "Emphasizing Objectives in Planning," in Huffschtmidt, M. M. (ed.): Regional Planning: Challenge and Prospects. New York: Praeger.
- Matthews, R. (1977). "Canadian Regional Development Strategy: A Dependency Theory," PlanCanada, vol. 17, no. 2.
- Mayntz, R. (1964). "The Study of Organizations: A Trend Report and Bibliography," Current Sociology, vol. XIII, no. 3.
- McCaye, J. C. (1973). Beyond Motivation. New York: Jeffrey Norton Pub.
- McCrone, G. (1967). "The Application of Regional Accounting in the U.K.," Regional Studies, vol. I, no. 1.
- McLoughlin, J. B. (1969). Urban and Regional Planning: A Systems Approach. London: Faber and Faber.
- McLuhan, H. M. (1967). The Medium is the Message. New York: Random House.
- Mehrabian, A. (1976). Public Places and Private Spaces. New York: Basic Books.
- Melcher, A. J. (1975). General Systems and Organization Theory: Methodological Aspects. Ohio: Kent State Univ. Press, p. 5.
- Merton, R. K. (1967). On Theoretical Sociology. New York: Free Press.
- Mesarovic, M. D., et al. (1970). Theory of Hierarchical, Multilevel, Systems. New York: Academic Press.
- Mesarovic, M., Pestel, E. (1974). Mankind at the Turning Point. New Jersey: New American Library.

- Mikulecky, T. J. (1974). Human Services Integration. Washington, D.C.: American Society for Public Administration, pp. 2-3.
- Miller, G. A., et al. (1960). Plans and the Structure of Behavior. New York: Holt, Rinehart, Winston.
- Miller, S. M., Robby, P. A. (1970). The Future of Inequality. New York: Basic Books.
- Miner, J. B. (1971). Management Theory. Toronto: Collin-MacMillan.
- Mintzberg, H. (1974). "A National Goals Hierarchy," Optimum, vol. 5, no. 1.
- Morasky, R. L. (1977). "Defining Goals--A Systems Approach," Long Range Planning, vol. 10, no. 2.
- Morrisson, P. A. (1975). "Population Movements and the Shape of Growth: Implications for Public Policy," in Fried, J., (ed.): Regional Policy. Cambridge, Mass.: MIT Press.
- Moseley, M. J. (1973). "The Impact of Growth Centers in Rural Regions," Regional Studies, vol. 7, no. 1.
- _____. (1974). Growth Centers in Spatial Planning. Toronto: Pergamon Press.
- Moser, C. A. (1958). Survey Methods in Social Investigation. London: Heinemann, 1958.
- Mueller, R. E. (1967). The Science of Art. New York: John Day Corp.
- Nadler, G. (1967). "An Investigation of Design Methodology," Management Science, vol. 13, no. 10.
- _____. (1970). Work Design: A Systems Concept. Homewood, Ill.: Irwin. [(Nadler, G. (1973) (J. T. Lehmann). La Conception des systèmes: L'approche du système idéal. London: Vander.)], p. 510.
- National Advisory Council on Voluntary Action to the Government of Canada. (1977). People in Action. Ottawa: Government of Canada, Secretary of State.
- Naylor, T. H. (1976). "Elements of a Planning and Modelling System," AFIPS Conference Proceedings, vol. 45.
- Nervi, P. L. (1967). "Sur le Design," in Kepis, G., (ed.): La Structure Dans Les Arts et Dans Les Sciences. Bruxelles: La Connaissance, p. 105.

- Newman, M. (1969). "Regional Planning: The Appalachian Program, in Hufschmidt, M. M., (ed.): Regional Planning: Challenge and Prospects. New York: Praeger.
- Nichols, G. E. (1976). "Four Systems Analysis Tools," Journal of Systems Management (April).
- Novick, D. (1965). Program Budgeting. Cambridge, Mass.: Harvard Univ. Press.
- Oberlander, H. P. (1976). Canada: An Urban Agenda. Ottawa: Community Planning Piers.
- Odiorne, G. (1965). Management by Objectives. New York: Pitman.
- Odum, H. T. (1971). Environment, Power and Society. New York: Wiley.
- O'Harrow, D. (1968). "Preface," in Goodman, W. I., Freund, E. C., (eds.): Principles and Practice of Urban Planning. Wash., D.C.: I.C.M.A.
- Olson, M. (1970). The Logic of Collective Action: Theory of Group and Public Goods. New York: Schocken.
- Ostrom, U., et al. (1961). "The Organization of Government in Metropolitan Areas: A Theoretical Inquiry," American Political Science Review, vol. LV.
- Ozbekhan, H. (1973). "The Emerging Methodology of Planning," mimeo. Philadelphia: University of Pennsylvania.
- Page, D. A. (1969). "Comprehensive Urban Planning: Diagnosis and Prescription," in Hufschmidt, M. M., (ed.): Regional Planning: Challenge and Prospects. New York: Praeger.
- Parsons, T., Shils, E. (eds). (1951). Toward a General Theory of Action. Cambridge, Mass.: Harvard Univ. Press.
- Patric, G. (1973). Design et Environment. Paris: Casterman.
- Perks, W. T. (1971). "Basic Components of the Planning Process," Plan, vol. 11, no. 2.
- Perlmutter, H. V. (1965). Towards a Theory and Practice of Social Architecture: The Building of Indispensable Institutions. London: Tavistock Pub.
- Perloff, H.S. (ed.) (1975) Agenda for the New Urban Era: Second Generation National Policy. American Society of Planning Officials.
- Peterfreund, A. D. (1975). Great Traditions in Ethics. New York: Van Nostrand.

- Pickford, J. H. (1968). "The Local Planning Agency: Organization and Structure," in Goodman, W. I., Freund, E. C., (eds.): Principles and Practice of Urban Planning. Washington, D.C.: I.C.M.A., pp. 526-31, 535-40.
- Potvin, G. (1975). "General Systems Theory Applied to Regional Planning," Course, University of Ottawa, Fall 1975.
- Pred, A. (1976). "The Interurban Transmission of Growth in Advanced Economies: Empirical Findings Versus Regional-Planning Assumptions," Regional Studies, vol. 10, no. 2.
- Pressman, J., Wildawsky, A. (1973). Implementation. Berkeley, Calif.: Univ. of California, pp. ix, 167-75.
- Pye, D. (1964). The Nature of Design. London: Studio Urista.
- Ray, D. M., Villeneuve, P. Y. (1975). "Population Growth and Distribution in Canada: Problems, Process and Policies," in Kuklinski, A. R., (ed.): Regional Development and Planning: International Perspectives. Netherlands: A. W. Sijthoff Pub.
- Redford, E. S. (1957). Ideal and Practice in Public Administration. Birmingham: University of Alabama Press.
- Reed, C. E. (1977). "Toward a Planful Society," Planning Review, vol. 5, no. 1.
- Rhead, G. W. (1965). The Principles of Design. London: Batsford.
- Richardson, H. W. (1969). Elements of Regional Economics. Markham: Penguin.
- Ringhakk, K., Dawson, R. W. (1968). Organized Planning in 40 Major U.S. Corporations. Stanford Research Institute.
- Ritchie, B., Labrèque, R. J. (1975). "Marketing Research and Public Policy: Functional Perspective," Journal of Marketing, vol. 39.
- Rondinelli, D. A. (1975). Urban and Regional Development Planning: Policy and Administration. New York: Cornell University Press.
- Rosnay, J. de. (1975). Le Macroscopie. Paris: Edition Seuil.
- Ross, J. E., Kami, M. J. (1973). Corporation in Crisis: Why the Mighty Fall. New Jersey: Prentice-Hall.
- Rubenstein, A. H., Haberstroh, C. J. (eds.). (1966). Some Theories of Organization. Homewood, Ill.: R. D. Irwin, Dorsey Press.

- Schleicher, C. P. (1964). "Constitution," in Gould, J., Kolb, W. L. (eds.): A Dictionary of the Social Sciences. New York: The Free Press.
- Schneider, K. R. (1977). "Planning without Vision--Roots of the Urban Disaster," Long Range Planning, vol. 10, no. 3.
- Schramm, G. (ed.). (1976). Regional Poverty and Change. Ottawa: Minister of Supply and Services.
- Scott, W. G. (1961). "Organization Theory: An Overview and an Appraisal," Journal of the Academy of Management (April).
- Selltiz, C., et al. (1959). Research Methods in Social Relations. Toronto: Holt-Rinehart, Winston.
- Sheito, R. G., Thollon, J. (1972). "Le P.P.B.S. et la Prise de Décision," Commerce, vol. 74, no. 2, pp. 24-28.
- Simon, H. A. (1945). Administrative Behavior. New York: Macmillan, p. 5.
- Simmons, W. W. (1977). "The Planning Executive of Century III--A Futuristic Profile," Managerial Planning, vol. 25, no. 4, p. 20.
- Smith, B. C. (1965). Regionalism 3: The New Regional Machinery. Acton Society Trust.
- Smith, C. G., (ed.). (1971). Conflict Resolution. Notre-Dame, Ind.: University of Notre-Dame Press.
- Statistiques Canada. (1977). Le Revenu des familles au Canada, Catalogue 99-729, Ottawa: Statistiques Canada. See also, Comptes Nationaux, Revenus et Dépenses, Bulletin 13-502, Ottawa: Statistiques Canada.
- Stöhr, W. B. (1974). Interurban Systems and Regional Economic Development. Resource Paper no. 26. Washington, D.C.: Association of American Geographers, Commission on College Geography.
- Streit, M. E. (1969). "Spatial Associations and Economic Linkages Between Industries," Journal of Regional Science, vol. 9, no. 2.
- Tankel, S. B. (1969). "Regional Activities as a Key to Regional Planning," in Hufschmidt, M. M., (ed.): Regional Planning: Challenge and Prospects. New York: Praeger, p. 230.
- Terry, G. R. (1968). Principles of Management. Homewood, Ill.: Richard D. Irwin, pp. 162-72, 252-55, 353, 711.
- Thayer, F. C. (1972). "Regional Administration: The Failure of Traditional Theory in the United States and Canada," Canadian Public Administration, (Fall).

- Thomas, M. D. (1974). "Comments on H. Gauthier's Paper: Economic Growth and Growth Poles: A Search for Geographic Theory," in Heilleiner, F. M., Stöhr, W., (eds.): Colloquium on Regional Aspects of Development: Spatial Aspects of the Development Process, vol. 11. London, Ontario: International Geographical Union.
- _____. (1974). "Structural Change and Regional Industrial Development," in Heilleiner, F. M., Stöhr, W., (eds.): Spatial Aspects of the Development Process, Vol. 11. Proceedings of the Commission on Regional Aspects of Development of the International Geographical Union (1972), I.G.U.
- Thomas, W. (1956). Man's Role in Changing the Face of the Earth. Chicago, Ill.: University of Chicago Press.
- Torrance, E. P. (1966). Torrance Tests of Creative Thinking. New Jersey: Personnel Press.
- Treasury Board. (1975). Report on Departmental Planning and Evaluation Group in the Federal Government. Ottawa: Treasury Board of Canada, Planning Branch, Organization Division.
- Turnbull, G. C. (1976). Expenditures, Staff, and Salaries of Planning Agencies. ASPO Report 317, Planning Advisory Service.
- Tyler, E. (1976). "Existential Planning: Planning for Human Development," Proceedings of a Systems Planning Colloquium for Fitness, Recreation and Amateur Sport. Ottawa: Planning Section, Fitness and Amateur Sport, Department of National Health and Welfare.
- Vickers, G. (1973). Making Institutions Work. New York: Wiley.
- Voich, D., Wren, D. A. (1968). Principles of Management: A Systems Approach. New York: Ronald Press.
- Ward, A. (1970). "Notes on a Therapeutic Environment," in Moore, G. T., (ed.): Emerging Methods in Environment Design and Planning. Cambridge, Mass.: MIT Press.
- Ward, B. (1976). The Home of Man. Toronto: McLelland & Stewart.
- Waterston, A. (1969). Development Planning: Lessons of Experience. Baltimore, Maryland: The John Hopkins Press.
- Weber, M. (1947). The Theory of Social and Economic Organization. Translated by Henderson, A. M., and Parsons, T. New York: Oxford Univ. Press.
- Wen, G. (1975). "Ten Year's Effort in Promoting Regional Development," in Kuklinsky, A. R., (ed.): Regional Development and Planning: International Perspectives. Netherlands: A. W. Sijthoff Pub.

- Wheaton, W. L. C. (1969). "The Federal Role as an Incentive to Local Development," in Hufschmidt, M. M., (ed.): Regional Planning: Challenge and Prospects. New York: Praeger.
- Whyte, L. L. (1967). "Atomisme, Structure et Forme," dans Kepis, G., (ed.): La Structure Dans Les Arts et Dans Les Sciences. Bruxelles: La Connaissance.
- Wildawsky, A. (1973). "If Planning is Everything . . .," Policy Sciences 4.
- William, S. H. (1950). "The Role of Design," Planning, pp. 64-67.
- Williams, R. M. (1969). "Individual and Group Values," in Gross, B. M., (ed.): Social Intelligence for America's Future. Boston: Allyn and Bacon, pp. 169, 171.
- Willms, A. M. (1971). "The Theory of Planning," in Kernaghan, W. D. K., Willms, A. M., (eds.): Public Administration in Canada: Selected Readings. Toronto: Methuen.
- Wilson, E. O. (1975). Sociobiology: The New Synthesis. Cambridge, Mass.: Belknap Press of Harvard University.
- Wilson, V. S. (1971). "The Role of Royal Commissions and Task Forces," in Doern, G. B., Aucoin, P., (eds.): The Structures of Policy-Making in Canada. Toronto: MacMillan.
- Wingo, L., Perloff, H. S. (1961). "The Washington Transportation Plan: Technics or Politics," Papers and Proceedings of the Regional Association, vol. 7.
- Ylvisaker, P. (1959). "Some Criteria for a 'Proper' Areal Division of Governmental Powers," in Mass, A., (ed.): Area and Power: A Theory of Local Government. Ill.: Free Press.