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ABSTRACT

This study is designed to discover crucial societal problem areas in which the application of foundation resources might be beneficial. A resource allocation analysis technique yields information which is useful in general evaluation procedures. Development of a problem analysis technique interrelates apparent societal trends and changes in the human ecosystem with the various problems of society. Both approaches begin with attempts to list all relevant societal concerns. Several lists of sets of important problems represent the judgements of a wide variety of informed observers on specific problems that should be given increased attention and resources. A selected annotated bibliography is included. (Author/SHM)

CONTEMPORARY SOCIETAL PROBLEMS

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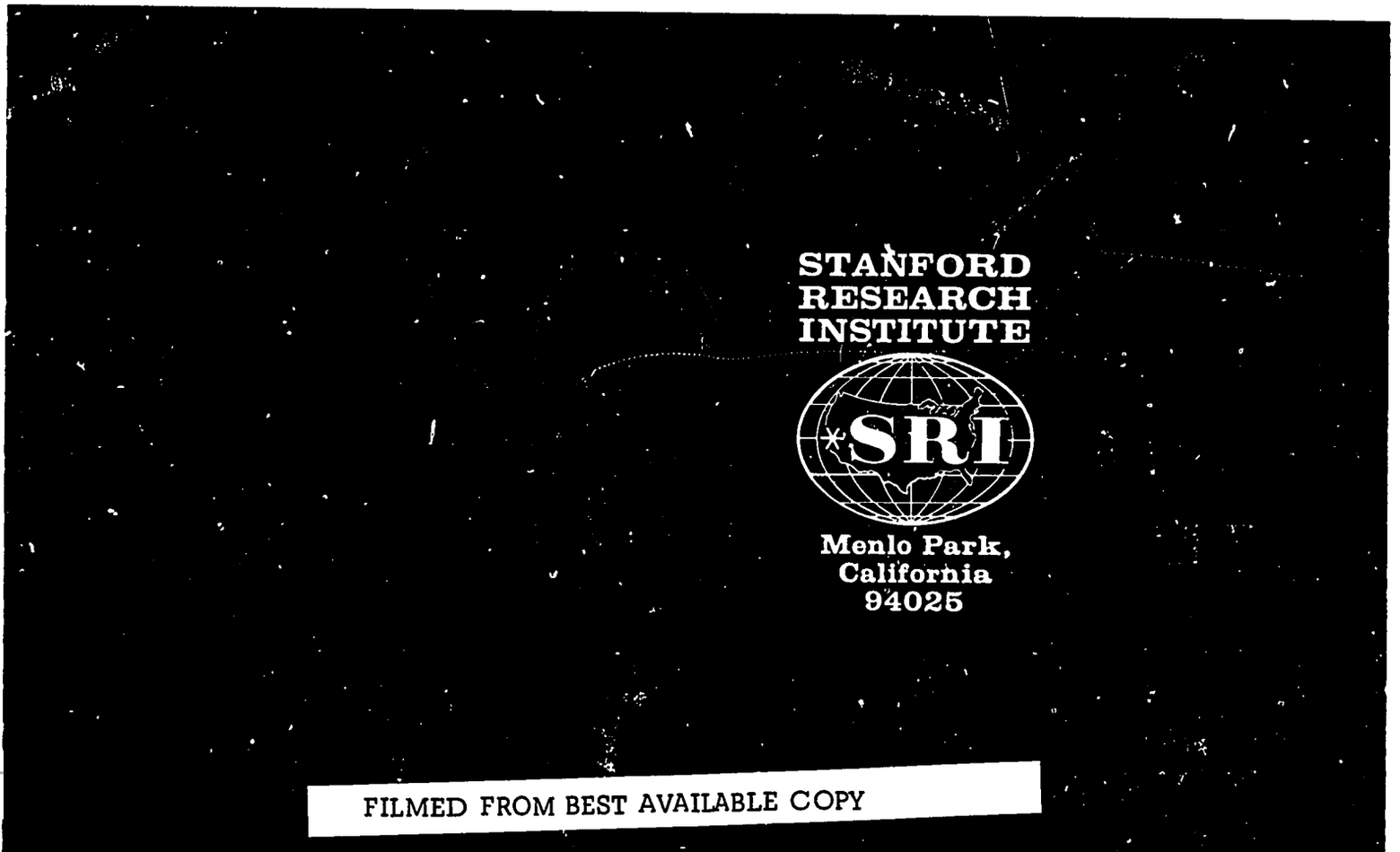

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SRI Project 1099

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PREFACE

> The overriding problem for today is how to make, from the unstable, warring systems in which we live, a governable world of governable men--at whatever level may prove possible.
>
> Geoffrey Vickers
> Freedom in a Rocking Boat

> The twentieth century marks the middle period of a great transition in the state of the human race. It may properly be called the second great transition in the history of mankind.
>
> Kenneth Boulding
> The Meaning of the 20th Century

What are the truly crucial problems for society--both now and in the days ahead? What innovative responses could a forward-looking agency, be it a private foundation or a public bureau, make to such problems--responses that would not only have a favorable ratio of long range social benefits to immediate costs, but that seem unlikely to occur without special efforts?

These questions are of particular importance because evidence accumulates that both the number and severity of societal problems is rapidly increasing; that responses which worked tolerably well in the past may be inappropriate in the future; and that this nation, and possibly the entire world, is faced with the challenge of a major transition in priorities, if not in operating systems and cultural premises as well. Other evidence indicates that an increasing fraction of the nation's observers and leaders are becoming convinced of the truth of these assertions, but lack either the knowledge or the resources to respond effectively without creating other, still more serious problems in the process.

It is to the illumination of such issues that this study is devoted, the orientation being not so much toward the presentation of conclusions to be either accepted or rejected, as to the sharpening of issues whose reflection and interpretation may lead to as yet unsuspected breakthroughs.

ACKNOWLEDGMENTS

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The core research staff for the study consisted of David A. Curry, O. W. Markley and Dan L. Rink. Other contributing SRI staff included Eric Duckstad, Willis W. Harman, Arnold Katz, Shirley Manning, Connell F. Persico, and Richard Schmidt.

Much of the background research and thinking underlying the study was performed at the Educational Policy Research Center with the collaboration of Johnson Research Associates. Numerous key insights, acknowledged in the text, came from investigators at other centers.

Grateful acknowledgement is extended to The Conference Board for permission to reproduce portions of Charles W. Darling's "Perspectives for the '70s and '80s," c 1970, and of "Issues Which the Proposed Center Should Address", by Karl W. Deutsch; to the journal Science for permission to reproduce portions of John Platt's article "What We Must Do;" and to the Institute for the Future for permission to reproduce parts of their report "Future Opportunities for Foundation Support," c 1970.

We are grateful to Winston O. Franklin of the Charles F. Kettering Foundation for his guidance and incisive review of various draft materials. Responsibility for the final product is, of course, our own.

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SUMMARY

This study was designed to discover significant problem areas in which application of foundation resources might be especially fruitful--either because of the significance of the problem or because attention from other agencies is likely to be inadequate. Two different types of analysis were explored toward this end.

In one approach, resource allocation analysis was central. This technique, described in Appendix A, was found to be of limited usefulness except as part of more general evaluation procedures. Therefore, a problem analysis procedure was developed for applications where it is desirable to start with consideration of a single problem and expand the analysis to consider as many aspects of the problem situation as seem necessary. This procedure is described in Appendix B.

A second approach is developed in the main body of the report. This analysis starts with a broad view of society, and leads to the development of an overall perspective from which to deal with individual problems or programs. Basically this approach consists of interrelating apparent societal trends and changes in the human ecosystem with the various problems besetting society.

Societal problems can usefully be ordered into four levels:

- Substantive problems (poverty, pollution, resource depletion, and so forth) lie at an applied or operational level, and are usually identified as immediate targets for corrective attention or increased resource allocation.

- Process problems (such as excessive specialization of experts, lack of equitable representation in the political process, lack of adaptive long range planning, and lack of adequate coordination in government agencies) are those that impede the collective setting of appropriate priorities and strategies regarding substantive problems.

- Normative problems (e.g., obsolescent objectives, incompatible goals, the erosion of institutional legitimacy) concern the appropriateness and effectiveness of a people's values, preferences, and loyalties that are prerequisites for planning and priority setting.

- Conceptual problems (e.g., contradictory or otherwise inadequate conceptions, logical or semantic fallacies) may intimately affect the way we think, the words we use, and the solutions we invent as well as the normative values we acquire.

In this analysis, the functioning human ecosystem was conceived as consisting of four interacting environments--the physical, the institutional, the cultural, and the psychological--in which all individuals live. Some well known problems involving each of these environments include:

- The potential exhaustion of basic nonrecoverable resources and general degradation of the physical environment.

- The shift from the physical to the institutional environment as the main locus of man's activity, thereby making explosive and unbalanced growth of the institutional environment a threat to societal stability.

- The seeming incapability of present institutions to solve societal problems as fast as they are being created--or to anticipate future problems--especially problems of equitable distribution of goods and services among all people and problems of regulation in general.

- The increasing fragmentation of the culture and loss of a sense of unifying national purpose.

- The felt incapability of individuals to comprehend the complexities of the modern world, with accompanying feelings of inadequacy, anxiety, and alienation.

There is little disagreement regarding what these and other substantive problems of society are. There is much more disagreement at the process level, i.e., deciding which specific problems should be given a higher priority, which demand the development of new institutions or programs, and so forth. Most planning and policy analysis is

oriented toward concerns at this level. Even more serious and far-reaching disagreements exist at the normative and conceptual levels. At these levels very little policy analysis occurs, although recognition and management of differences at the conceptual level in particular may well be the key problem area of our time. Two radically differing views or "organizing images" relating to the nature of contemporary problems can usefully be distinguished.

A conventional view is that the present, like the past, has problems that we do not yet know how to solve, but that there is no reason why in principle societal problems should be unsolvable. Our capability has grown enormously in the recent past and should be adequate for the future if agreement on and funding for needed reforms can be obtained. In this view such reforms, if successful, could lead us into a "post-industrial service-centered society" of expanding affluence.

A rather different reading of the same problems sees their existence and intensification as being intrinsic to the cultural systems in which we at present live, hence in principle the problems are not solvable without fundamental normative and conceptual changes in society.

Such a transformational view of society sees the major problems of our day as the natural outgrowth or fulfillment of the "dominant paradigm" of the past several centuries; that while this paradigm was well-suited to bring society from a low-technology survival orientation to a high-technology state of affluence, it is ill-suited to build a humane world in which that technological affluence can be appropriately regulated and distributed; and that this paradigm is thus inadequate. (By "dominant paradigm" we mean the basic way of perceiving, thinking, and doing in a culture that is associated with a particular vision or understanding of reality.) Western culture has undergone only a few transformations so profound as to involve a shift in the dominant paradigm--the last occurring at the end of the Middle Ages. From this perspective the post-industrial era must be guided by emerging value postulates and fundamental premises as different from those of the industrial era as that period differed from the Middle Ages.

From the limited perspective of the present, neither of these views or organizing images can be demonstrated to be correct. Both appear reasonable to different people who, because of this difference in interpretation, find it increasingly hard to communicate. In almost no instances can large institutions soon be expected to act in accordance with the transformational view. Hence this view represents an avenue in which opportunities likely to be neglected in the future may be discovered.

Both views imply definite risks as well as opportunities, costs as well as benefits. These need to be made as explicit as possible, and can only be made so by investigating the plausible consequences of planning on the basis of either. By so doing we may discern more appropriate strategies by which to help guide our headlong rush into the future for which we are too inadequately prepared.

I INTRODUCTION

This is the report of an attempt to identify and to interrelate the driving problems of our time, both national and international, to develop a useful perspective from which to better understand these problems, and to thereby identify crucial dilemmas whose understanding seems necessary if societal continuity is to be ensured.

Two rather different approaches are followed. One approach, reported in Appendix A, explores the use of resource allocation analysis as a tool for the identification of neglected societal problems. Appendix B presents resource allocation analysis as part of a more general problem analysis procedure. This procedure begins with a single problem but expands the context as necessary to embrace all relevant elements in the problem situation.

The other approach is an attempt to understand societal problems in relation to each other, to societal trends, and to the functioning human ecology over time--past, present, and future. This is the approach followed in the main text of the report.

Both approaches started with a comprehensive attempt to list all relevant societal problems. Three overlapping procedures were used:

- A selection of prominent persons of known divergence in both ideology and professional background were asked to nominate (a) other thinkers whom they regarded as having the best grasp of the problems of our day; (b) literature sources that best described the most crucial current problems; (c) the specific problems they saw as being most crucial now and in the years immediately ahead.

- Published results of previous systematic attempts to identify, categorize, or list societal problems were collected.

- Given the authors and problems newly identified from the above two procedures, a search was made of reviews, digests, and bibliographies, to provide an overview from which a much smaller number of sources were selected to be considered in detail. An annotated bibliography of these latter sources is provided in Appendix D, at the end of this volume.

Appendix C presents the several sets of important societal problems that were collected or developed by these three procedures.

These lists are useful for reference purposes as they represent the judgments of a wide variety of informed observers on specific problems that should be given increased attention and resources, either now or in the near future.

Before proceeding to a consideration of various problems facing society, however, it is perhaps worthwhile to comment briefly on the notion of validity.

The rules of evidence and proof used to establish validity in the natural sciences seem in many ways to be irrelevant to studies of social or political problems--not only because experimental verification is usually infeasible, but because the nature of the data is different. The ultimate severity of such problems is in large part a function of how they are perceived by all people concerned and on the degree of the people's motivation. Such effects as self-confirming or self-denying prophecy are reactions to problem assessment that force us to view validity in a new light.

We should therefore perhaps not expect to achieve consensus on the objective severity of societal problems, but should instead seek useful implications for planning and action.

II THE SOCIETAL CONTEXT

Apparent Trends

A number of apparent trends taken together provide an initial context in which to consider contemporary societal problems. Kahn and Wiener[1]* have identified a "basic long-term, multifold trend" (reproduced here as Table 1) that is often used as a reference point for future-oriented analysis. Other relevant trends are suggested in the NICB problem summary, "Major Themes in the Forecast," included as part of Appendix C. Although there is by no means agreement among "experts" regarding how far into the future these trends will continue to be an accurate summary of the basic changes taking place in society, they are generally accepted as representing the dynamics of the present as it grows out of the past.

For the purposes of this problem oriented study, the most important of these trends are undoubtedly those associated with the expansion and intensification of population density and urbanization, industrialization and affluence, and the fact that the rate of change in society continues to increase rather than leveling off. These particular trends are important because they are intimately linked to virtually all of the important societal problems of our day and because their continuation in terms of desirable goals for the nation is being increasingly doubted.[2]

The Human Ecosystem

The interrelationship of these trends with societal problems of the present and the future can perhaps be more easily grasped by considering the whole system of human ecology--the interaction of individuals with their total environment. Four elements of the human ecosystem stand out in importance, not only as significant aspects of reality that man uses to express himself and to fulfill his wants, but as environments that are themselves changing as a function of the multifold trend. Schematically depicted in Figure 1, they are the cultural, the institutional, the physical, and the psychological. All are closely interlocked subsystems, and all have increasingly come under the power of man to modify and to alter, though not (yet, at least) to regulate. What Figure 1 does not depict is the relatively dominant effect that one of these elements--the institutional--has come to have over the functioning of the others.

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* References and additional notes are listed at the end of the main text.

Table 1

THE BASIC, LONG TERM MULTIFOLD TREND

1. Increasingly sensate (empirical, this-worldly, secular, humanistic, pragmatic, utilitarian, contractual, epicurean or hedonistic, and the like) cultures

2. Bourgeois, bureaucratic, "meritocratic," democratic (and nationalistic?)

3. Accumulation of scientific and technological knowledge

4. Institutionalization of change, especially research, development, innovation, and diffusion

5. Worldwide industrialization and modernization

6. Increasing affluence and (recently) leisure

7. Population growth

8. Urbanization and (soon) the growth of megalopolises

9. Decreasing importance of primary and (recently) secondary occupations

10. Literacy and education

11. Increasing capability for mass destruction

12. Increasing tempo of change

13. Increasing universality of the multifold trend

Source: Reference 1.

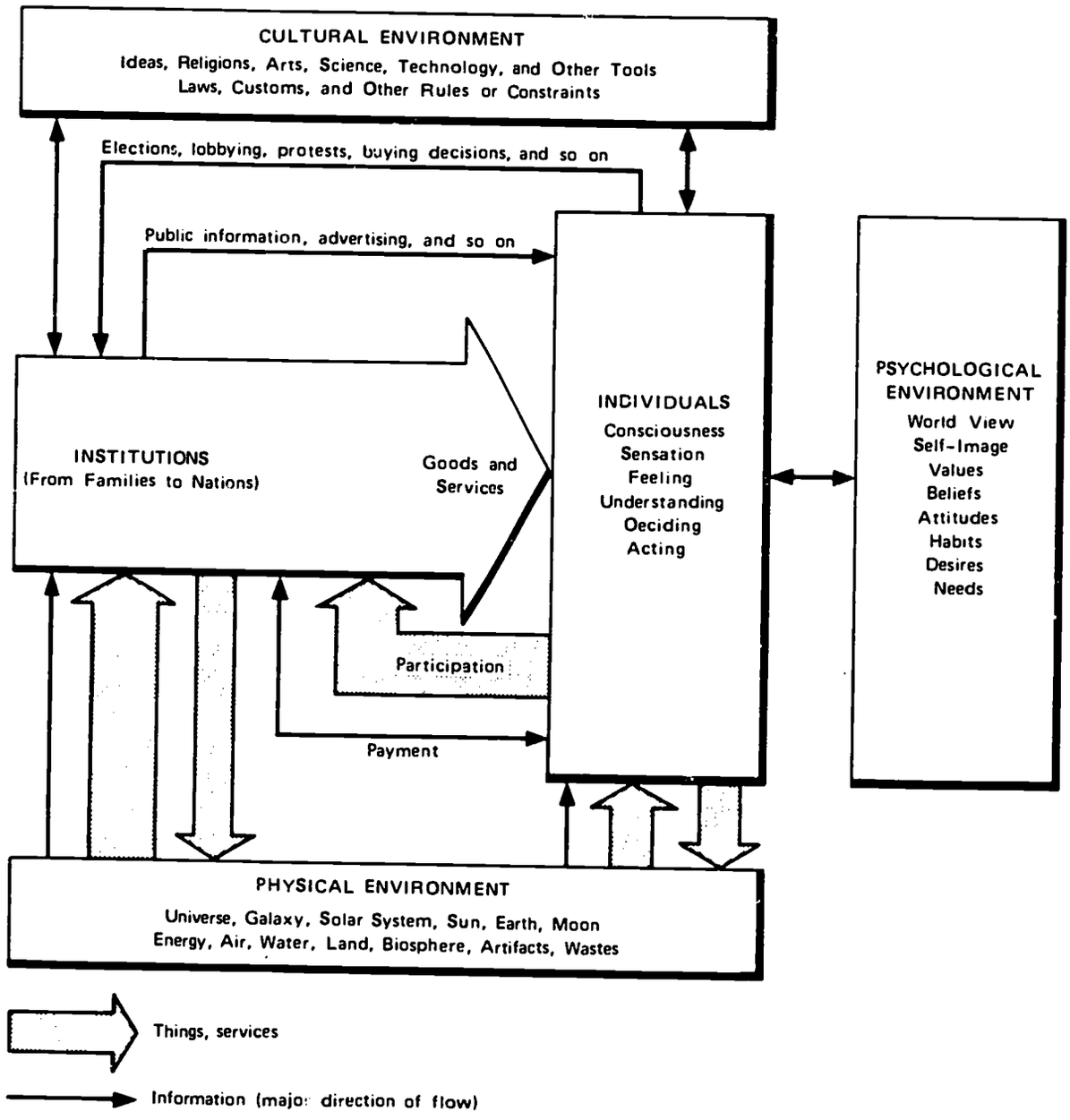

FIGURE 1 ELEMENTS OF HUMAN ECOLOGY

Unregulated Growth

Historically, the main source of institutional change appears to be the capital-intensive, wealth producing corporate system that developed in the West in the 19th century and grew with accelerating vigor in the 20th century. This vast institutional system has arisen from the joint effect of three main forces: private capitalism, the market economy, and science based technological innovations that have harnessed new energy sources and provided new products.

Instead of the usual public sector-private sector dichotomy, Vickers has drawn a useful distinction between institutions that are user-financed (commercial and industrial enterprises, user-financed highway construction) and those that are public-financed (public schools, most government agencies, most foundations).[3] Although some important institutions, such as hospitals, belong to both classes, a crucial difference between these two types of institutional systems can be seen in the ways most of their activity is regulated.

The user-financed institutions operate under conditions of regulation that in systems jargon are called "positive feedback." Behavior that is successful (e.g., secures a profit) is enlarged upon, until conditions of saturation are reached. An added incentive to growth has been the recognition that profits are far easier to increase by expanding the total market than by winning a larger part of a static market from competitors. While individual corporations are regulated, the user-financed sector as a whole remains free to grow with virtually no limits except those imposed by labor, its basic resources, and its markets.

The public-financed institutional sector (which provides what little external regulation is performed) takes a large and increasing share of user-financed sector revenues, expenditures, or wealth in taxes for its own sustenance, and hence has a stake in this continuing growth. But it responds to different incentives. Its growth is in response not to opportunities for profit, but rather to problems or failures, and therefore is usually limited either by success or by legal constraints. In the public-financed sector, anything that is not specifically authorized is prohibited, whereas in most of the user-financed sectors, anything not specifically prohibited is permitted, and the main constraint is the ability and willingness of users to finance the goods and services produced. Thus, the public-financed sector has more built-in self-regulating or "negative feedback" influences, which constrain its growth. However, if the essentially unregulated growth of the user-financed sector creates problems faster than the public-financed sector can find solutions (as now seems the case), growth of the public-financed sector may also get out of hand.

Owing in large part to the "self-generated" expansion of the user-supported sector, the vast and rapidly expanding complex of institutions has "displaced, though not replaced, the natural world as the immediate environment of Western man."[4] This displacement threatens the dynamic stability of society for at least three reasons. First, we have become dependent on the functioning of this institutional system for the production and distribution of goods and services on which our collective survival depends. Second, being a man-made system, the complex of institutions is inherently less stable than "natural" systems: it is dependent on the continuing and not always reliable agreement of its constituents rather than on the relatively stable action of natural law. And third, its character of "self-generated" expansion leads, if not better regulated, to an intensification of many serious societal problems identified below, and possibly to a dangerous instability of the ecosystem as a whole.

III CONTEMPORARY SOCIETAL PROBLEMS IN PERSPECTIVE

To understand the diversity of societal problems in a single perspective, we have found it useful to think of four roughly defined types or levels of problems. Substantive problems lie at an applied or operational level, and are usually identified as immediate targets for corrective attention or increased resource allocation. Process problems are those that impede the process of collectively setting priorities and strategies regarding substantive problems. Normative problems concern the appropriateness and effectiveness of a people's values, preferences, goals, and so forth that are the basis of planning and priority setting. A fourth level or category concerns conceptual problems, difficulties that seem to be intrinsic to the way we think, the words we use--in short, to the particular vision or understanding of reality that is dominant in the culture--thus affecting our ways of perceiving and doing, and also the formation of our normative values.

These four categories can be thought of as referring to the levels of (1) action, (2) communication and decision, (3) ideals, and (4) ideas. Like the four environments of the human ecosystem (Figure 1) they interpenetrate and interact to a high degree. Many conventionally defined societal problems can be seen to have roots in all levels, and it is to be expected that all levels will have to be addressed if successful outcomes are to be obtained.

Although the pursuit of problem solutions was explicitly put beyond the scope of this study, we found it useful to think of solutions as falling into four general types:

- Compensatory solutions that help recovery from the undesirable consequences of the problem
- Ameliorative solutions that reduce or prevent some of the usual impacts of the problem
- Preventive solutions that, by changing predisposing conditions, reduce the frequency of occurrence of the problem incident
- Systemic solutions that act by changing the overall environment, system functioning, frame of reference, or definition of the problem.

This rough classifications of solutions proved helpful in our problem analysis procedure, as described in Appendix B.

Although examples of the various types of problems are given below, it is the confluence of these problems over time and acting on the human ecosystem as a whole that is the dominant concern of the analysis. This is the underlying theme of the paragraphs that follow.

Some Substantive Problems

Looking to the long term future, clearly some of the most important substantive problems are those that arise in connection with the increasing ecological demand--"the summation of all of man's demands upon the environment, such as the extraction of resources and the return of wastes"[5]--that is caused or intensified by increasing population density, industrialization, affluence, and urbanization. Our understanding of the natural environment and its limits is yet in its infancy and far from adequate, hence expert opinion on the extent and immediacy of ecological threats varies widely. Nevertheless, it appears safe to conclude that while the planet's ecosystem can provide basic life-support for far greater than current population levels if efficient distribution systems are developed, the planet cannot sustain even the present population at levels of physical affluence (utilization of basic resources and energy) currently enjoyed by most Western nations into the indefinite future. The population of earth is increasing at approximately two percent annually (a doubling time of 35 years) while the rate of resource utilization is increasing at approximately six percent annually (a doubling time of 12 years). If not reversed, these rates will lead to virtual exhaustion of many vital but nonrenewable minerals and fossil fuels within one to two hundred years.[6]

It is apparent that such growth rates cannot continue indefinitely on a planet of limited size. If growth of both population and physical resource utilization is not deliberately curtailed, it seems inevitable that curtailment will eventually be forced by a combination of such factors as (a) pollution, leading to disease and destruction of vital food chains, (b) crowding and/or insufficient food, leading to (c) social strife, and shortage of natural resources other than food.[7]

A major problem of the present and the more immediate future is the increasing gap between the affluent (both individuals and nations) who stay abreast of, sustain, and manage high rates of change and technological capability, and those who, being far behind and of lower market potential for highly developed products, fall still further behind. This is

a major problem not only because of the suffering and hardship that result from poverty, malnutrition, and so forth, but because of exacerbating "feedback" influences. For example, in the United States, the birth rate is disproportionately high among the poor; crime, poor health, and poor schooling are all intensified by poverty and in turn intensify it further; and the poor seek a continued increase in the rates of environmental exploitation, hoping yet to get their "fair share." For such people and nations, "ecology" is just another red herring used by the rich to sustain their position of superiority.

Along with the perpetuating gap between the haves and have nots, the accelerating rates of technological development and change bring problems of technological unemployment and aggravate the obsolescence of our educational system. Both new technical breakthroughs and changing national priorities create the requirement for new skills. Workers whose skills have become unneeded have nowhere to turn in a society that considers education virtually "finished" when a diploma has been awarded. Meanwhile, in spite of the best efforts of educational reformers to improve education for the disadvantaged, ghetto schools have become primarily custodial and, by not providing the skills with which the young could enter the economy, perpetuate ignorance, poverty, and class conflict. Up to 50 percent of young people are estimated not to be properly prepared for work or a profession of their choice; however, the schools can hardly be blamed if there are insufficient entry level jobs in which their graduates can be placed. Indeed, there is reason to believe that our society has already passed from a state of labor scarcity to one of job scarcity, a state that might become even more extreme if several present conditions often seen as problems were "solved." Among these conditions believed to heighten employment "artificially" are:

- War or continuing preparation for war, a condition that has existed since 1939
- Artificially expanded markets brought about through manipulative advertising
- Disguised makework (union "featherbedding," "prestige" space programs, "obsolescent" bureaucratic functions, and so forth
- Inflated educational requirements for jobs (reducing the labor supply by keeping people in school so long)
- Low productivity stemming from alienation
- The backlog of industries which are on the threshold of economically feasible automation (or shift to foreign-based production).

Along with the trends relating to an increasing rate of change and industrialization, urbanization is accelerating. With it has come the often stated and complex set of urban problems such as job shortage for underskilled migrants, lawlessness and violence, deterioration of the urban environment, pollution, congested private transportation and moribund public transit, decrepit housing, inadequate open space and recreation areas. But with urbanization have also come a broad range of problems that directly affect the well-being of the individual, such as breakdown of the integrity of the family, loss of a sense of community, increasing loneliness, and loss of felt potency in the face of an impersonal system.

These substantive problems (and others identified in Appendix C) can be expected to intensify and press for solution as present trends continue. Since they can only be attended to by collective societal action that is motivated by appropriate goals, it is useful to shift attention to the identification of various process and normative problems that are associated with the apparently decreasing ability of society to set and fulfill its objectives.

Some Process Problems

The specific steps that are cited as being necessary for the conduct of institutionalized planning, policy making, or problem solving vary with different authors and schools of thought. However, for our purposes it is useful to distinguish three basic and interrelated processes that must repeat over time. First, there are the processes through which priorities are set, often referred to as planning and budgeting (the specification of substantive problems to be attacked and the allocation of resources to support such an attack). Concomitantly, means or strategies are specified which, when executed, give the priorities operational form. Finally, the actual results (whether planned or not) are evaluated over time, with both priorities and strategies hopefully being constructively modified as a result of the evaluative "feedback."

Three general types of difficulties that appear to interfere with these three processes are: (1) a sense of incompetence to comprehend the complexities of modern society; (2) the incapability or unwillingness of institutions to engage in long range planning and in self renewal; and (3) the incapability or unwillingness to negotiate acceptable representation of all major interest groups in society.

The first type of difficulty is actually a whole syndrome of problems caused by the growing sense that we are locked into a system so complex and so large that individuals (including leaders of society) cannot understand the system, much less regulate its operation. Rootlessness, anomie, alienation, "future shock"--all are symptoms of life in a society that is perceived as being guided in some unclear way by the needs of its institutions rather than its people, with no apparent way to reorder priorities effectively. As these symptoms continue to grow there is the increasing danger of shifting from policy making and advocacy that is based on a detailed understanding of problems to that based on cognitively simplistic "single valued" thinking--the almost universal reaction to perceived crisis. In part such difficulties are caused by the high degree of specialization that has accompanied industrial and scientific growth, and by the resulting overload of segmented, unintegrated information. In part the problems of complexity stem from uncoordinated activity between various public and private structures, leading to overlap, nonfunctional (and often unrecognized) conflict, and the virtual impossibility of accomplishing effective systemic functioning or systemic improvements.

Looking to the long term future, the ability to perform the types of planning that are adequate to translate problems of the future (that are certain to result if present trends continue) into preventive actions in the present is of central importance. Donald Michael[8] has studied this issue in detail, concluding that a series of problems exist which are sufficiently trenchant that it is virtually infeasible to expect much better planning for the foreseeable future, given the Western sociopolitical system as currently structured. For example, there is the almost universal unwillingness to acknowledge changes in society which, if recognized, would imply a need for drastic shifts in the functional priorities, for changes in the operating structure of organizations, and for the replacement of specific roles therein. Or, take the conventional wisdom that error, like sin, is not only to be avoided, but hidden as well. However, "error signals" or discrepancies between desired and actual results need to be seen as necessary data for social management and not only as evidence of failure (hence to be hidden from view). Thus, we neither have an error-embracing ethos nor do we know how to design organizations that can continually modify themselves in response to the feedback from the environment.

The third major process problem area concerns the difficulty of adequately representing the interests of divergent stakeholder groups as society becomes increasingly divided over both priorities and strategies--a problem that compounds the difficulties of planning enumerated above. Both between persons on a national level and between peoples internationally, "power" (wealth, influence, status,

choice) is perceived as being increasingly concentrated and exercised in ways that perpetuate such concentration and serve predominantly the interests of those in power. As was stated before, the poor (both at home and abroad) are by and large unwilling to invest in the solutions of ecological problems until they get their "fair share." Thus, the superordinate priorities demanded by the affluent (stability) seem to contradict those made by the nonaffluent (growth of per capita consumption). Robert Theobald, addressing problems of world development, has made the point clearly:

> Our choice between global development or global breakdown depends on whether we learn to understand the real differences in priorities between the developed and developing nations of the world. Those nations which already have sufficient food, clothing, shelter, and services often forget the immediate needs of the poor. Those nations which must still solve the priority problems of production do not fully accept that the concerns of the more developed countries will necessarily move from the quantity of goods produced to the quality of life . . . . The climatic conditions, the basic resources, the cultural traditions, the hopes of the population will mean that different strategies of growth are both necessary and valuable.[9]

That Theobald's comments have equal relevance to our domestic situation is suggested by the emergence of a counterculture for whom the priorities, if not the structures of the present institutional system, have become alien. The general erosion of institutional legitimacy--from the counterculture and other pressures--is regarded as a normative problem, discussed below.

Some Normative Problems

While a wide variety of societal problems have rather obvious normative components or roots, three general normative problem areas stand out in importance. They are: (1) perceptions of intrinsic contradictions in basic values or objectives; (2) "obviously" wrong or situationally inappropriate values or objectives; and (3) the erosion of legitimacy or "moral authority" of the social order that follows if the first two types of problems are not adequately dealt with by society.

The competing aspirations already cited, particularly along "have-have not" lines, appear in many ways to be contradictory, but do not seem to be intrinsically irresolvable unless they are believed to be so. That

is, the belief in their irresolvability effectively prevents the possibility of negotiating solutions at the process level. As noted by McGeorge Bundy, "America is by tradition an 'either/or' society. This is often expressed in such terms as right or wrong, victory or defeat. We are at the end of the era of 'either/or,' and at the beginning of 'both/and'."[10] Thus the belief in irresolvable polarities is seen as a normative problem, although it has conceptual aspects as well.

In addition to conflicts of values, cultural norms, objectives, or priorities that are perceived to be irresolvable, some seem rather clearly to be inappropriate. For example,

- What Nader[11] has called "institutionalized corruption," i.e., individuals acting in positions of institutional power who knowingly act in ways that are contrary to the larger good. ("Anything that can in any way be construed as lessening our control or diluting our influence in the field of education will be opposed vigorously whether it has value or not."[12])

- What Michael[13] has termed "petite Eichmannism," the tendency for individuals acting as agents of a larger body to seek to maximize the short term good of the group whom they represent without the acceptance of a larger sense of social responsibility, that is, rather than conscious wrongdoing, one "merely does the job assigned."

- What is sometimes termed the "technological imperative," that any breakthrough that can "profitably" be developed "should" be, which leads to the problems of market saturation, unregulated growth, and resource depletion outlined earlier.

An important normative problem more difficult to resolve than conflicting priorities is the problem of legitimacy. In an authoritarian system, the setting of priorities, the selection of operational strategies, and the allocation of scarce resources can be done without widespread agreement or concurrence--as long as the authoritarian form can maintain power. In a more democratic society, however, a high degree of legitimacy must be maintained. That is, the belief must be widely held over time that the institutions currently operative are the most appropriate ones for society, and that they are a reasonably adequate reflection of individually held preferences and views throughout society.

Crowe[14] has cited three such beliefs that appear to be eroding at the present time:

- The belief in a common value system from which we can order national priorities using a pluralistic model of democratic politics.

- The belief in the state's monopoly of coercive force with which it can effectively repress disruptive behavior of dissidents.

- The belief in the basic honesty of the administrators of commonly held resources of society, i.e., that they will not make legitimate the desires and claims of small but highly organized groups for special access to tangible resources.

The loss of legitimacy signalled by the erosions of these unifying beliefs is a normative problem of as yet unknown, but potentially crisis proportions. The inevitable result of a loss of legitimate "moral" authority is the substitution of raw power--"power that becomes indistinguishable in a short time from organized and violent forces, whether of the police, the military, or the para-military."[15] More important, however, is decline of trust and the undermining of the society's ability to set and seek its objectives collectively. Thus, just as resolution of process problems must be adequate before substantive problems can be treated, unmanaged normative problems tend to prevent solutions at the process level as well.

Effects on the Human Ecosystem

Viewing the various substantive, process, and normative problems in the perspective of the functioning human ecosystem schematically outlined in Figure 1, we see:

- The problems of unregulated expansion of the exploitation of physical resources, leading, if unchecked, to exhaustion of vital resources, possibly within a few hundred years, and, in the nearer term, to continued degradation of the physical environment.

- The problems of increasing divisiveness and disunity in society, leading to fragmentation of the cultural environment, the rise of a counterculture, and an erosion of legitimacy in the institutional environment that is a prerequisite to a functioning democracy.

- The problems of institutions that are increasingly unable to meet the demands placed on them for both responsive and anticipatory problem solving in face of an accelerating rate of change.

- The problems of the individual whose psychological environment seems increasingly inadequate or even irrelevant as he tries to deal with the complexities and uncertainties of his changing world--cognitively simplistic responses often stemming from such stresses.

IV SOCIETAL PROBLEMS AS CONCEPTUAL

To the extent that conceptual errors underlie the three types of problems just discussed, they may be seen as intrinsic or unavoidable. If this is the case but is not recognized, conventional solution attempts are bound to fail. Some specific examples of conceptual problems are discussed on pages 13-15 of Appendix B. The focus of the present chapter lies instead on conceptual problems that seem to be systemic, that is, inhering in the structure of the cultural, institutional, and psychological systems or environments of our society.

Past Successes and Present Problems

Many contemporary societal problems have occurred as a result not of failure, but of the successful realization or fulfillment of earlier goals. Table 2 illustrates this: the left-hand column lists the achievements of Western industrial society; the right-hand column shows some of the problems to which these have led.

It requires but a moment's reflection to realize that most of the problems listed in Table 2 are intertwined and intensified by the "technological imperative" and the unregulated and unbalanced growth of the institutional sector described earlier.

As Sir Geoffrey Vickers has noted,[16] the Western world views goals as new states to be continually obtained (getting the job or the wife), rather than as flexible but continuous norms to be held through time (doing the job, living with the wife). He suggests that the result is a heavy emphasis on change and growth per se rather than on the stability, continuity, and self-regulation that now appear to be crucial.

Thus, it is reasonable at least to doubt whether the more pressing of our contemporary societal problems can be ultimately "solved" or "managed" by conventional programmatic strategies aimed at amelioration or prevention through still more piecemeal "change." An alternative possibility worth exploring lies in the reconception of societal problems and of societal systems. To develop this notion it is necessary first to introduce two special terms--"dominant paradigm" and "underlying metaphysic."

Table 2

SELECTED SUCCESSES AND ASSOCIATED PROBLEMS

"Successes" of the Technological Era	Resulting Problems of Being "Too Successful"
Prolonging the life span	Overpopulation; problems of the aged
Weapons for national defense	Hazard of mass destruction through nuclear and biological weapons
Machine replacement of manual and routine labor	Exacerbated unemployment, urbanization
Advances in communication and transportation	Increasing air, noise, land, pollution; information overload; "shrinking world"; vulnerability of a complex society to breakdown (natural or deliberate)
Efficient production systems	Dehumanization of evaluative criteria in the world of work
Growth in the power of systematized knowledge	Threats to privacy and freedoms (e.g., surveillance technology, "bioengineering"); "knowledge barrier" to underclass
Affluence	Increased per capita energy and goods consumption, leading to pollution and resource depletion
Satisfaction of basic needs; ascendance up the "need-level hierarchy"	Worldwide revolutions of "rising expectations"; rebellion against nonmeaningful work; unrest among affluent students
Expanded power of human choice	Inability or unwillingness to manage the consequences of technological applications
Expanded wealth of developed nations	Increasing gap between have and have-not nations; frustrated "revolutions of rising expectations"

Dominant Paradigm and Underlying Metaphysic

The term "dominant paradigm" is used by T. S. Kuhn[17] to refer to the particular vision or understanding of reality that affects our basic way of perceiving, thinking, and doing. It is largely embodied in unquestioned, tacit understanding transmitted largely through example. Although Kuhn used the concept primarily in connection with the evolutionary transformations in science (e.g., from the Newtonian conception of the physical universe to the Einsteinian one of relativity), the term seems equally useful in considering cultural transformations.[18]

In retrospect we can see that a cultural paradigm became dominant several centuries ago and has since influenced all aspects of Western society. Its general character, sharply differing from the dominant paradigm of the preceding Middle Ages, can be characterized by the:

- Development and application of scientific method
- Wedding of scientific and technological development
- Industrialization through division of labor
- Definition of progress as technological and economic growth
- Acquisitive materialism, work ethic, and economic-man image
- Man seeking control over nature.

Obvious products of this paradigm are the pervasive system of institutions that has displaced the natural environment as Western man's "home," and the incredible range of technological advances that have now brought virtually all aspects of the planetary ecology under man's "choice," with the attendant problems cited above.

A less obvious product of this paradigm has been the drying up of normative values appropriate to our time. Positive values and images of man's potential have traditionally been given by the dominant religions. The development of science in Western culture has eroded--and almost replaced--the usefulness of religion as a giver of knowledge. In so doing, it has also eroded--but not replaced--the usefulness of religion as a giver of basic values and images of what man can be. The need for such basic values and images remains, and may only be fulfilled by a new "underlying metaphysic" appropriate to our time.

Lewis Mumford[19] has noted that there have probably been not more than about a half dozen profound transformations of Western society since primitive man, each of which was accompanied by a change in the dominant underlying metaphysic--the ruling vision-of-reality, the unquestioned cultural picture of man-in-the-universe.

The inseparability of the metaphysic and the dominant paradigm is suggested by Kenneth Boulding's[20] observation that the transformation to our present paradigm of science and technological development was not possible until the metaphysic of animism was replaced by one in which will is essentially and solely a property of the minds and souls of men, rather than of inanimate natural objects. It is suggested as well by Victor Ferkiss'[21] conclusion that the problems to which the technological ethic has led cannot be overcome without some new type of metaphysic that contains at least three basic elements. The first is what he terms a "new naturalism," which affirms that man is absolutely a part of nature, of a universe that is always in the process of becoming. The second element, a "new holism," recognizes that "no part can be defined or understood save in relation to the whole." The third, a "new immanentism," sees that the whole is "determined not from outside, but from within."

Whether or not our pressing confluence of societal problems can be solved without a shift or transformation of the "dominant paradigm" of the culture (or, for that matter, whether it can be solved at all) is, of course, not possible to answer. What we can do is to select several alternative ways of viewing societal problems that seem reasonable, investigate where they might lead, and choose how to act. To that task we turn next.

Societal Problems in Future Perspective

Fred Polak more than a decade ago wrote a book entitled The Image of the Future[22] that anticipated much of the present future-oriented thinking. In it he suggested that the ability of an ideology (or paradigm) to mobilize society depends in large part on the optimistic or pessimistic quality of its images of the future, and on whether it holds that the future can be changed by human activity in the ways that are desired. It is Polak's contention that the capacity to envision the future, especially other "realities," is a core capacity in man. He in fact documents a decline in imaging capacity in science, philosophy, and religion in the 20th century as evidence of the "diseased" technocratic futurism of our time, concluding that this ability to image the "other" has not been lost, only weakened, and that the awareness of our plight can rejuvenate this capacity.

In a related but somewhat different vein, Robert Boguslaw[23] used the analogy of a chess game. Distinguishing between "two, three, and four move players" (according to how many moves they anticipate before making a move themselves), he cited evidence indicating that players who anticipate more events do, in fact, win more games.

The central element in each of these two observations is the utility of using a process that Vickers has termed "feed forward"--the "information" that one gets from such sources as an imagined series of events which might improve (or worsen) one's present condition.

To "feed forward" our thinking, we need some notion regarding what the future context of society is apt to be like. In general there seem to be four radically differing directions of societal movement that might stem from the present.[24]

Four Alternative Futures

If the multifold trend of accelerating and spreading industrial development continues, it seems obvious that the planet will become a very tightly-coupled, fouled nest, increasingly unstable as unsolved problems mount in both number and intensity.

In more dismal possibilities the multifold trend may be reversed, either because of an escalating inability to provide solutions as fast as problems are created or because cultural and value disynchronization grows with the increasing erosion of beliefs in the legitimacy of the prevailing institutions. A second possibility is thus societal reverse, ranging from limited wars and economic recessions to a massive worldwide collapse and return to the dark ages. A third is the emergence of a monolithic authoritarian regime that would bring a return to order by coercive means.

A fourth possibility is that of regulated growth, reestablishment of a popularly supported sense of national direction, and the gradual attainment of dynamic stability in the physical and institutional environments, including the achievement of a reasonably balanced planetary ecology.

While all plausible futures should be considered in long range planning, only the fourth possibility seems worth trying to achieve. Whether it can be achieved without recourse to a far higher degree of authoritarian control than is now present in society is not clear. What is clear is that the emergence of authoritarian forms of overarching control--both nationally and internationally--is a virtual certainty if more democratic forms lose their competence.

Two Organizing Images of the Future

While no single government agency, foundation, or individual can either cause or prevent a given future, we can plan according to what we desire and what we think is reasonable. Disregarding the flagrantly pessimistic expectations of the future, two very different organizing "images" or "views" of our time are currently advocated as bases from which to plan.

A Conventional View

One view, or understanding of contemporary society is that the present, as always, contains problems we do not yet know how to solve. Nevertheless our problem-solving capability has in the recent past always proven adequate, hence there is no reason to assume that it will not continue. The primary difficulty is to obtain agreement on needed reforms and to commit the necessary resources to achieve the reforms. Basic structural or cultural change in the society is not necessary.

This image is in essence a continuation of basically the same trends listed in Table 1, and the same manner of societal problem-solving as currently pursued applied within essentially the same institutional framework--leading eventually to a "post-industrial" service-centered society of expanding affluence.

A Transformational View

In a second view, the nature and severity of contemporary societal problems are perceived to be a reflection of the currently dominant paradigm--a paradigm that was admirably suited to the transition from a low-technology to a high-technology state, but is ill-suited for the further transition to a planetary society that can regulate itself humanely. In this view, the very intractibility of these problems, the dismal ends to which continued pursuit of the goals that produced these problems appear to lead, and the current level of social and intellectual upheaval all signal the incipient breakdown of the present paradigm. Little hope is seen for rectifying both present and anticipated societal problems unless there is a pervasive reordering of operative values which in turn is believed possible only if there is an expanded awareness of human possibilities. Thus the emergence of a new dominant paradigm more appropriate to our time is anticipated.

The Two Views Compared

Table 3 summarizes some of the salient characteristics believed to pertain to the conventional and transformational views as well as illustrative reforms consistent with each.

In the conventional view, as already observed, basic structural or cultural changes in the society are not assumed to be necessary. Assertions to the contrary are seen as irrelevant at best and seditious at worst. Strategies implied by this view tend to be ameliorative or compensatory in nature, preventive and systemic solutions being resorted to only if forced by collective agreement that something drastic is finally necessary.

The transformational interpretation, on the other hand, sees efforts to inspire confidence in the continuation of present trends as at best infeasible and at worst wasteful of the precious few years that are left in which there is yet time to save society from disaster. Strategies implied by this view emphasize the restructuring needed at the normative and conceptual levels, although substantive and process types of inquiry may be the most effective way to obtain them. The transformational view therefore leads directly to plans and actions that attempt to discern basic alternatives and systemic solutions (Appendix B discusses these distinctions at greater length).

Bennis[25] has suggested a number of changes such a transformation might bring. For example, it might well portend a shift from mechanistic and bureaucratic forms to organic and adaptive forms; from competitive to collaborative relations; from suboptimizing objectives to system optimizing objectives; and from regarding one's own resources as being owned absolutely to regarding them also as society's resources.

While the transformational approach is bound to involve increased risks (e.g., intra-cultural hostility) and may lead to tactics that in the short run are low in apparent cost-effectiveness (according to the present paradigm), it is hoped to lead to increased present stability and, by facilitating emergent perceptions, to generate greater capacity to understand and resolve future difficulties.

Ultimately there appears to be no "proof" that the present industrial-state paradigm is breaking down. To some the breakdown is apparent; to others the available evidence suggests a less dramatic interpretation. Thus, for the present at least, one view cannot be said to be more "correct" than another.

Table 3

THE CONVENTIONAL AND TRANSFORMATIONAL VIEWS COMPARED

Conventional View	Transformational View
• Present day problems severe, but amenable to traditionally successful approaches.	• Present day problems intrinsic to present (industrial-state) paradigm and steadily intensifying.
• Problems primarily substantive and process in nature.	• Problems essentially normative and conceptual in nature.
• Politically facilitated solutions expected through development of new skills if agreement on societal objectives can be obtained.	• Political and technological solutions infeasible without pervasive reordering of priorities and emergence of new cultural norms.
• Planning by extrapolation.	• Planning by normative anticipation and search for transitional strategies.
• Compensatory and ameliorative solutions primarily sought.	• Basic alternative approaches and systemic solutions sought.
• Exemplary reform in education: development of industrially based vocational retraining to deal with "technological unemployment."	• Exemplary reform in education: development of capability to think using alternative epistemologies.*
• Exemplary reform in international relations: reorientation of nation toward heavy trade/aid to developing countries.	• Exemplary reform in international relations: formation of multinational policy research centers, each with a differing bias (both ideological and methodological) all participating in a common network of communications.

* For example, Maruyama's nonaristotelian logics; nonhierarchical mutualism of Navahoes and Eskimos; ecological naturalism of Plains Indians; complementarity and mutual causality of cybernetics.[26]

The point is that the view which is held makes a drastic difference in the nature of plans and actions that are implied. Both of these organizing images appear reasonable to different people, but often for different reasons (e.g., concerns of a long-range versus a short-range nature, or a planetary versus a more local interest). When not recognized, these differences make it increasingly hard to communicate as societal problems become ever more complex.

In almost no instances can large institutions soon be expected to act in accordance with the transformational view. Hence, exploration of this view represents an avenue by which opportunities to resolve societal problems which are likely to be neglected in the future may be discovered.

Both views imply definite risks as well as opportunities, costs as well as benefits. These need to be made as explicit as possible, and can only be made so by investigating the plausible consequences of planning on the basis of either. By so doing, we may discern more appropriate strategies by which to help guide our headlong rush into the future for which we are so inadequately prepared.

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Appendix A

RESOURCE ALLOCATION ANALYSIS

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ILLUSTRATIONS

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Appendix A

RESOURCE ALLOCATION ANALYSIS

One way to study the relationship between societal problems and national priorities is to analyze the allocation of resources, as measured by expenditures or budgets, to different purposes. This approach, while sometimes useful, presents a number of complexities. Accordingly, the present study was limited to a summary and analysis of readily available resource allocation data and studies.

The specific questions that the appendix attempts to answer are:

- What is resource allocation, and what techniques are possible for resource allocation planning and analysis?
- What are the advantages and limitations of resource allocation analysis for identifying neglected societal problems?
- What do current resource allocations by the public and private sectors indicate about our societal goals and priorities?
- What can be learned from foundation resource allocations in recent years?

Before considering these questions in detail, we briefly summarize our general conclusions.

Summary

The techniques of resource allocation analysis usually require detailed and reliable information on resource needs and program effectiveness. Such data quickly become voluminous, and little comprehensive information on total societal resource allocations and program performance is available in a form amenable to detailed analysis. Moreover, resource allocation analysis techniques are only credible as part of a general problem analysis procedure (Appendix B) in which questions can be addressed to the total problem environment rather than only to the performance or adequacy of specific programs.

While opinions vary on whether the present relative emphasis in the United States on defense and nondefense programs is appropriate or not, heavy defense costs clearly preempt a large share of U.S. public resources and sharply reduce the possibility of adequate funding for nondefense purposes.

It is usually considered useful to look at "national goals" as a basis for evaluating government and private sector performance, but in fact there appear to be few national goals related realistically to the eventual elimination of substantive problems. Moreover, extremely high levels of expenditure are alleged by some observers to be necessary to "do anything" very significant about the major substantive problems of our society over the next ten years.

One activity of high priority that could be a greater driving force for constructive social change is broadly based planning and evaluation. Not only are substantially inadequate resources devoted to planning and evaluation, but the bulk of planning and evaluation funds are committed to ongoing programs, or to purposes of relatively narrow scope and short time frame, rather than to an unconstrained search for solutions to societal problems wherever they may be found, or to longitudinal studies that could reveal long range and secondary program impacts.

Resource allocations and nonallocations by the private or "user-financed" sector of the economy are coming under increasingly critical scrutiny. While at this point little comprehensive information is available on the social or environmental impacts of such actions, there are enough examples of seriously dysfunctional actions to justify efforts to compile social performance data on the private sector.

No significant conclusions can be drawn from summary financial data on expenditures of private foundations. Such conclusions require special surveys or analyses, such as those conducted by the Commission on Foundations and Private Philanthropy; and there seems to be no good reason to question their conclusions, which basically conceive of foundations as creating highly useful (but improvable) private supplements to public resource allocations.

Nature and Limitations of Resource Allocation Studies

"Resource allocation" is defined as the total process of planning for and deciding on the commitment of resources (money, persons, time, facilities, equipment, supplies, and energy) to given purposes. In most organizations, from families to national governments, this process is

carried out through and controlled by the budgeting of funds, since money is the usual medium of obtaining other resources.

Resource allocation decisions may be made on the basis of special studies or analyses, and a wide variety of techniques are available for this purpose. Figure A-1 shows the typical context of resource allocation decisions and studies in relation to other types of analysis, either broader or narrower, that may be associated with them. The procedures of system modeling, systematic analysis, and alternative futures studies are often used outside the domain of resource allocation, for purposes such as problem identification. The process of problem analysis (described in Appendix B) is shown in the figure as the major type of resource allocation study; some specific techniques of problem analysis, shown in the innermost block, are listed approximately in order of increasing quantitative content.

In the frequent cases when resource allocation requires decisions from among a variety of competing purposes or functions (e.g., transportation and education), each purpose is evaluated according to different criteria. For instance, alternative types and levels of land transportation investment can be compared on the basis of their effects on the unit costs of travel, on travel convenience, and on the appearance of the community in which the investment is made. Similarly, the costs and effectiveness of educational (or health, or pollution control) programs can be compared with alternative approaches to and levels of each individual function. But there are usually no common measures of effectiveness for different functions because they have different effects on different populations with different needs, income levels, and so forth. While analysis may help in clarifying the trade-offs between different program levels and mixes, human judgment is still required to choose the preferred levels and mixes.

Statements of goals or objectives are often used to assist in resource allocation judgments, but the goals themselves are the product of individual or collective judgments. Also, even though agreement can often be reached on general goals, as soon as the goals are made specific enough to affect budget decisions, there is bound to be a variety of conflicting opinions from institutions affected by the budget decisions, from their supporters, and from their critics. Moreover, there are often serious conflicts between the different goals of a set, such that increases in one goal beyond a certain point (e.g., economic and physical development) affect the attainment of others (e.g., freedom of individual choice). Budget offices, the political process, legislative appropriations committees, and similar conflict-resolving devices are our means for coping with both types of conflicts.

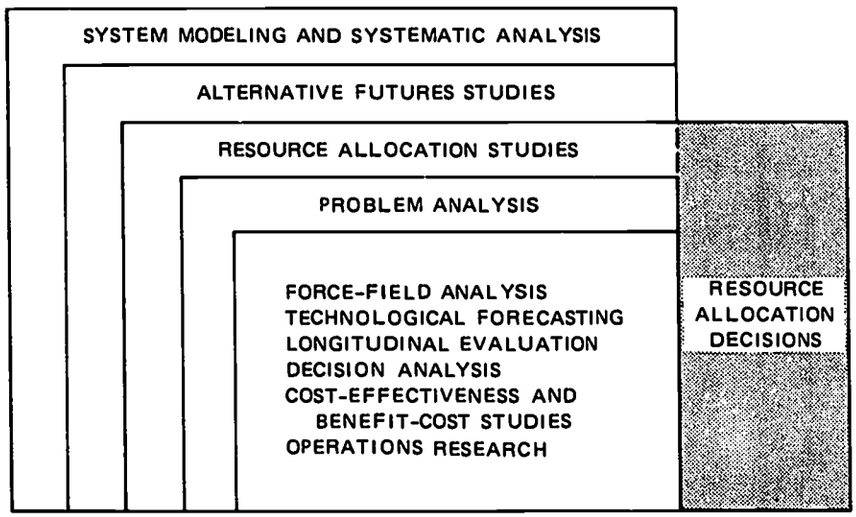

FIGURE A-1 RELATION BETWEEN SELECTED PROBLEM IDENTIFICATION AND ANALYSIS TECHNIQUES

Analysis of actual or planned resource allocations or budgets is often viewed as a means for identifying neglected societal problems. By definition, those areas that receive less funding than they "need" are neglected. The trick, of course, is to carry out a study in sufficient depth to develop a convincing case for the existence of needs and their level, then to show that there are no other, less expensive ways of satisfying the needs. The full analysis that should be conducted is described in Appendix B. If any elements of such an analysis are missing or inadequate, they should be carried out in proper relation to the scale of the problem under study. In other words, the resource allocations by themselves tell us nothing--they could, for example, be totally ineffective or even counterproductive, effective but grossly inadequate, or miss entirely problem areas that do not even show up in the budget. Who is to say which is which without understanding the reality behind the budget?

Resource allocation studies also presume some appropriate scheme for grouping or classifying expenditures. At the very broad level required for identifying neglected societal problems, the first need would be for a comprehensive list of program categories and expenditures, but that is only the beginning. Even if such a list existed, there remain the tasks of defining present and future problems within each area and gathering reliable program and financial data. No single set of categories can be consistent with all other program or expenditure categories currently used, such as those used in the federal budget, the national income accounts, and the Census Bureau's state and local government expenditure estimates. Not only direct expenditure data are needed, but ideally, data on loan or credit programs and tax subsidies (taxes foregone, through exemptions or other special provisions) should be included. Also, unless aspects of a program such as its effectiveness, its balance (or gaps in its coverage), and its future plans are well known, the conclusions reached can only be of a very general nature.

A complementary observation is that program inadequacies may or may not be due to inadequate allocation of resources; and once enough is known about the problem to make that determination, the effort of obtaining comprehensive resource allocation data may be superfluous.

Finally, a responsible judgment that this or that problem area has inadequate resources devoted to it must indicate where (from what added revenues or reduced expenditures) the resources will be obtained--in short, what are the tradeoffs?

Because of such difficulties, it was concluded that a comprehensive review of resource allocations to societal problem areas would be too time consuming and too gross to be of much use. We do, however, present

in the remainder of this appendix (1) a brief overview of total government resource allocations, and (2) reviews of several more limited resource allocation processes: private sector expenditures, national goals and performance criteria, federal priorities and decisions, and foundation priorities and expenditures.

Government Resource Allocations

Table A-1 shows total general federal, state, and local government expenditures for Fiscal Year 1968-69, the latest data available in Census Bureau publications. Programs are listed within the table in declining order of total magnitude. The Census Bureau definitions of the programs have some drawbacks, the chief ones being:

- Item 1, national defense, excludes the costs of veterans services or a proportional share of interest on the general debt (a share larger than a proportional share would be justified). These two components have therefore been added in the third memorandum entry at the bottom of the table, "adjusted national defense costs."

- Activities for both conservation and development of natural resources are combined in item 6, natural resources, with about $4.3 billion in farm programs (primarily stabilization of farm prices and income). These activities reflect at least three disparate goals for which the respective program costs should ideally be separated, but the data needed to do so are not readily available.

- The table ignores the self-financing nature of certain federal programs that rely heavily on user charges or employment taxes, notably the postal service and highway transportation. We suggest, in agreement with Sir Geoffrey Vickers,[1]* that a fundamental distinction should be made between government programs that are user-financed and those that are publicly financed. User-financed government programs properly belong with goods and services of the private sector in joint "user financed" items, contrasted with "public financed" items paid for out of general tax revenues. This is because the levels of user-financed services are largely market-determined, whereas resource allocation

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* The references for this appendix are listed at its end.

Table A-1

SUMMARY OF DIRECT GENERAL GOVERNMENT EXPENDITURES, BY FUNCTION AND LEVEL, FISCAL YEAR 1969, AND PERCENTAGE CHANGE, 1959-1969

	1969 Amount (Millions)			1969 Percent			Percentage Change, 1959-69	
	Total (a)	Federal (b)	State and Local (c)	Total (d)	Federal (e)	State and Local (f)	Actual (g)	Effective (h)
Total	$ 255,924	$ 139,197	$ 116,727	100.0%	100.0%	100.0%	106.0 %	46.1%
1. National defense	78,309	78,309	-	30.6	56.3	-	77.5	25.9
2. Education	50,377	3,139	47,238	19.7	2.3	40.5	178.0	97.2
a. Local schools	33,752	-	33,752	13.2	-	28.9	140.5	70.6
b. Higher education	11,551	-	11,551	4.5	-	9.9	295.6	180.6
c. Other	5,074	3,139	1,935	2.0	2.3	1.7	335.5	208.9
3. Transportation	19,498	2,760	16,738	7.6	2.0	14.3	67.7	18.9
a. Highways	15,738	321	15,417	6.1	0.2	13.2	61.8	14.8
b. Air transportation	1,630	907	723	0.6	0.7	0.6	85.6	31.6
c. Water transportation and terminals	1,993	1,532	461	0.8	1.1	0.4	95.0	38.3
d. Parking facilities	137	-	137	0.1	-	0.1	-	
4. Public welfare	14,730	2,620	12,110	5.8	1.9	10.4	261.1	156.3
a. Categorical cash assistance	5,737	46	5,691	2.2	0.0	4.9	97.8	30.3
b. Other cash assistance	515	69	446	0.2	0.0	0.4	67.2	18.6
c. Other public welfare	8,479	2,505	5,974	3.3	1.8	5.1	876.8	592.8
5. Health and hospitals	11,930	3,410	8,520	4.7	2.4	7.3	130.2	63.3
a. Hospitals	8,593	1,582	7,011	3.4	1.1	6.0	107.9	17.1
b. Health	3,337	1,828	1,509	1.3	1.3	1.3	217.8	125.4
6. Natural resources	10,024	7,472	2,552	3.9	5.4	2.2	8.4	-23.1
7. Postal service	6,993	6,993	-	2.7	5.0	-	99.9	41.8
8. Police protection	4,242	341	3,901	1.7	0.2	3.3	125.6	60.0
9. Space research and technology	4,189	4,189	-	1.6	3.0	-	2789.0	1949.4
10. International relations	3,778	3,778	-	1.5	2.7	-	99.8	41.7
a. Economic assistance	3,162	3,162	-	1.2	2.3	-	107.6	47.2
b. Foreign affairs	616	616	-	0.2	0.4	-	67.4	18.7
11. Sanitation (including sewerage)	2,969	-	2,969	1.2	-	2.5	81.5	30.9
12. Housing and urban renewal	2,505	603	1,902	1.0	0.4	1.6	198.9	112.0
13. Atomic energy	2,409	2,409	-	0.9	1.7	-	0.8	-28.5
14. Local fire protection	1,793	-	1,793	0.7	-	1.5	96.2	39.1
15. Local parks and recreation	1,645	-	1,645	0.6	-	1.4	125.7	60.1
16. Corrections	1,157	66	1,391	0.6	0.0	1.2	105.8	46.0
17. Libraries	634	-	634	0.2	-	0.5	160.9	85.0
18. Interest on general debt	16,992	13,260	3,732	6.6	9.5	3.2	144.2	73.2
19. Other and unallocable	21,450	9,847	11,603	8.4	7.1	9.9	110.4	49.2
Memorandum Entries								
1. Federal veterans' services*	7,947	7,947	-	3.1	5.7	-	54.6	9.6
2. Federally financed basic research†	2,345	2,345	-	0.9	1.7	-	285.1	173.1
3. Adjusted national defense costs (see text)	94,472	94,472	-	36.9	67.9	-	80.5	28.0

* Chiefly included under items 19, 4, and 5.

† Chiefly DOD, NASA, AEC, NSF, and HEW.

Sources: References 2, 3, and 4.

procedures are used to determine service levels in the public-financed sector.* Accordingly, the user revenues for such programs should be netted against the levels of expenditure shown in Table A-1; again, comprehensive data for this purpose are not readily available, although they could be developed.

Columns d, e, and f of the table show the percentages that each program represents in total expenditures of all three levels of government, in total federal expenditures, and in total state and local government expenditures. National defense costs as adjusted (memorandum entry 3) constitute 67.9% or over two-thirds of federal expenditures, and 36.9% or over one-third of all the government expenditures. Thus military costs probably put serious constraints on the financing of nondefense needs, and this presumption is borne out by the tight federal budget ceilings usually imposed both on nondefense functions of the federal government and on federal revenue sharing designed to relieve the even more serious financing problems of local governments.

Education is the only other single program that takes over a tenth of total government expenditures. At 19.7% of total or 40.5% of state and local expenditures, it is certainly high on the list of government priorities. The next four programs--transportation, welfare, health, and natural resources--together consume 22% of total or 34.2% of state and local government expenditures. Thus these first six programs account for about 77% of total, 80% of federal, and 75% of state and local expenditures (these totals are somewhat less than the sum of separate components because some double counting of veterans services has been netted out). The other traditional functions of local governments that are itemized--police and fire protection, sanitation, local parks and recreation, and libraries--constitute only 4.4% of total government expenditures.

The last two columns of Table A-1 show the percentage growth between 1959 and 1969 of each program in two ways: the actual growth (column g)

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* We do not suggest that market-determined levels of services or goods are necessarily better, except in terms of purely economic efficiency, than the planned levels that would result from resource allocation procedures. For example, alcohol and meat and cigarette consumption levels may well be above the optimum, and physical recreation consumption may be below the optimum, from the viewpoint of human health.

and the net growth (column h) in excess of the combined growth of population and prices, which together rose by 41%.* Thus a 41% program growth was necessary simply to keep the equivalent per capita dollar value of a program between 1959 and 1969.

While most government programs rose rapidly between 1959 and 1969, the most rapid areas of actual growth have been education (178.0%), public welfare (261.4%), health and hospitals (130.2%), space research and technology (2,789.0%) and federally financed basic research (285.1%). The first three of these are high cost programs and their growth, together with a 77.5% growth in national defense, helps to account for the overall growth of 106.0% in government costs. Within programs, some even higher rates also stand out; the 295.6% advance in higher education and 335.5% advance in "other" education (probably including adult and vocational education programs); the 876.8% increase in "other public welfare"; and the 217.8% increase in health.

The only two programs that declined in their effective growth rates (though not in actual rates) were natural resources and atomic energy.

During the same ten year period, the gross national product rose by 91.4%, and total government expenditures rose from 26.5% to 28.5% of GNP, an increase of 2.0 percentage points. The federal expenditure share of GNP declined by 0.6 percentage point, however, while state and local increased by 2.5 percentage points.

The federal share of total government expenditures declined from 60.6% in 1959 to 54.4% in 1969, while federal revenues declined only from 66.2% to 63.1% of total government revenues. The excess percentage share of federal revenues over federal expenditures (5.3% in 1959, 8.7% in 1969) represents a rising level of federal transfer payments or grants to state and local governments, a trend that seems likely to continue. However, note also that the decline in federal revenue as a percent of the total means that there was a relatively heavier dependence on state and local tax sources in 1969 than 1959; so the increase in federal transfer payments did not, in a sense, even keep up with local needs. The relative regressivity (or lower progressivity) of state and local taxes, particularly property and sales taxes, probably resulted in a decrease in overall tax progressivity.

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* Population growth ratio of 1.13 X consumer price index ratio of 1.25 = 1.41. Column h = (column g + 100) ÷ 1.41 - 100.

While the foregoing observations may give some feel for the relative magnitude and directions of change in governmental expenditures, they are only marginally useful without in-depth knowledge of program needs in each area. For example, is there a reasonable balance between total public and total private revenues and expenditures, between expenditures at different government levels, and between program categories? Are the increase in space research and the nonincrease in atomic energy expenditures justified? Within individual programs, do we need changes such as development of an SST, a guaranteed annual income, better planning and evaluation methods and staffs? Are whole programs or areas missing that should be added, such as an urban growth alternatives program? Answering such questions, even in general terms, is complicated by two other factors that will be described briefly in turn: inadequate information on private sector expenditures, and the absence of national goals that can be translated into relative resource allocations.

Private Sector Expenditures

In nearly every program item listed in Table A-1, except national defense, substantial expenditures are made by the private sector of the economy. Private schools, universities, charities, transportation organizations, recreation suppliers, police services, foundations, and research organizations are only a few examples.

The extent to which private resources may supplement public expenditures is illustrated in Table A-2, covering basic research financing and expenditures between 1959 and 1969. The rapid rise of such expenditures--222.9% in ten years--is accounted for most obviously by the 285.1% increase in federal support. However, basic research expenditures by universities and colleges increased 248.6%, and by nonprofit institutions (largely private foundations) 140.7%. In short, any thorough study of basic research expenditures must take nonfederal expenditures in account.

Information about private sector expenditures on a given program are usually only obtainable through special studies, such as that underlying Table A-2. Another example, from a comprehensive compilation of U.S. urban travel expenditures, is presented in Table A-3. Even from such a gross tabulation, one can observe:

- The predominance of roads and passenger cars--and private parking facilities--in urban travel costs ($54.5 billion, or about 90% of the $60 billion total for 1968).

Table A-2

FUNDING OF BASIC RESEARCH,* BY SECTOR

	Millions of Dollars		Percent		Percent Change
	1959	1969 (est.)	1959	1969	1959-69
Total	$1,155	$3,730	100.0%	100.0%	222.9%
Federal government	173	525	15.0	14.1	203.5
Industry	320	700	27.7	18.8	118.8
From federal government	72	210	6.2	5.6	191.7
From industry	248	490	21.5	13.1	97.6
Universities and colleges	468	1,950	40.5	52.3	316.7
From federal government	226	1,180	19.6	31.6	422.1
From industry	24	35	2.1	.9	45.8
From universities and colleges	185	645	16.0	17.3	248.6
From other nonprofit institutions	33	90	2.9	2.4	172.7
Associated federally funded research and development centers (all from federal government)	92	280	8.0	7.5	204.3
Other nonprofit institutions	102	275	8.8	7.4	169.6
From federal government	46	150	4.0	4.0	226.1
From industry	8	20	.7	.5	150.0
From other nonprofit institutions	48	105	4.2	2.8	118.8
Totals	1,155	3,730	100.0	100.0	222.9
From federal government	609	2,345	52.7	62.9	285.1
From industry	280	545	24.2	14.6	94.6
From universities and colleges	185	645	16.0	17.3	248.6
From other nonprofit institutions	81	195	7.0	5.2	140.7

* Basic research is directed toward increases in scientific knowledge with the primary aim of "a fuller knowledge or understanding of the subject under study, rather than a practical application thereof."

Source: Reference 2, Table 13-2.

Table A-3

ESTIMATED U.S. URBAN TRAVEL EXPENDITURES
(Millions of dollars; all costs include capital and operating outlays)

	1966	1967	1968
Total	$49,350	$52,131	$59,899
Public sector	9,570	10,411	11,324
Roads			
Research, construction, maintenance, and administration	6,141	6,690	7,388
Safety, esthetics, and controls	947	1,035	1,189
School transportation	906	952	999
Bus transit systems	923	944	969
Rail transit systems	640	760	753
Other governmental expenditures	10	18	12
Private sector	39,780	41,720	48,575
Passenger cars	6,351	38,112	44,776
Taxis and jitneys	1,823	1,963	2,085
Private parking facilities	1,252	1,263	1,292
Driving schools	214	238	269
Commuter railroads	140	144	153

Source: Reference 5.

- The domination of public sector costs by private sector costs, owing particularly to passenger car expenditures.

- The surprisingly large role of school and taxi and jitney transportation compared with the role of commuter railroads.

In spite of these interesting points, this table does not help much in understanding the crucial problems and issues of urban transportation, such as congestion, pollution, and system imbalance. It even tends to distract attention from some promising solutions by its reliance on distinctions of little significance (e.g., bus versus rail systems, and public versus private sector) instead of taking a more functional, process-oriented view of urban transportation. The authors of that study[5] recognize its limitations and included the following caveat in its preface:

> Given data of the sort included in this paper, many are disposed to observe the "balance" or "imbalance" of expenditures of one type versus another (e.g., research versus capital outlays) and of expenditures for one mode versus another, and then to make judgments or assertions about the wisdom of having a more "balanced" funding allocation. The validity of such assertions must be strongly challenged when their basis rests simply or even principally on expenditure totals such as these. To say, for example, that a "better balance" between the auto and transit modes should be achieved (e.g., transit should receive a larger share of the total than it now receives) simply because the public urban auto travel expenditures are presently five times higher than those for transit travel is sheer nonsense.
>
> Only by employing a full-scale and proper benefit-cost analysis of alternative funding levels and allocations can the analyst or policymaker determine (from an economic standpoint) which sectors have too much or too little funding and thus whether the funding allocations are or are not in "balance." Such an analysis would include consideration of both increased and decreased funding levels, of different staging possibilities (i.e., should we expand the system now, or some year in the future), of all system consequences over the planning horizon (i.e., the foreseeable future) and not just the year to year conditions or those at present, and of changes in benefit or value (both internal and external and both present and future) occurring with system increases or decreases, as well as changes in cost. Hence the expenditure estimates presented here are only one ingredient for such a broad analysis.

The quality of the private sector contribution (as well as its magnitude) is important to consider in resource allocation studies. The low "quality of life" experienced in many urban and suburban areas is increasingly cited as an example of the failure of the private as well as the public sector to follow high standards in judging human and community impacts. There is a growing interest in standards of general social performance for businesses, to complement the ingrained emphasis on profit standards. For example, the Council on Economic Priorities, with support from church and other groups, is attempting to obtain factual information on such matters as the extent and effectiveness of pollution control equipment utilized by different companies in the paper and pulp industry. The Council will also review the performance of selected corporations--those in investment portfolios of foundations and universities--in minority hiring, foreign investments, ecological impacts, defense, and other activities.

National Goals and Performance Criteria

It is popular and tempting to begin evaluations of societal problems with some broad statements of national goals. There is no dearth of such statements, but in the main they are of the following types: (1) political slogans and campaign promises; (2) he composite product of a national commission or other (usually nonrepresentative) body, formed by adding together the separate and often competing aims of different societal groups, institutions, and geographic areas; (3) historic and widely cited documents such as the Declaration of Independence, which offer many philosophical insights but few operational guidelines; and (4) occasional goals, such as winning wars or mounting space programs, that do evoke a very widespread national commitment--usually in response to external threats. Among their other shortcomings, such statements of goals are usually generalized to the point that they are not comprehensive and overlook many especially serious regional aims or problems; they seldom distinguish between substantive, process, normative, and conceptual problems or aims; and they raise false hopes because they frequently fail to include serious plans for implementation or are obviously unattainable.*

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* As the main text notes, Vickers[1] and others have also questioned defining goals as states to be attained rather than as norms to be held through time, the resulting emphasis being on change, growth, and adaptivity instead of on stability, continuity, self-regulation, and similar values. Vickers goes on to suggest that Western man needs to

In fact, what is much more real than national goals are the separate aspirations of subcultural groups, which tend to result in competition for scarce resources rather than unity on national objectives. What holds the society together are some general procedural or process-oriented goals and rules (such as majority rule and separation of governmental powers, and a general ethic of fair play--at least when discovery or exposure is likely), and laws and customs incorporating these rules. In addition, and perhaps more important, are the tight networks of economic and social interdependencies, and what has been called a "shared appreciative and communicative system"--the common set of expectations, of oneself and others, created and reinforced by communication with others.

An example of proposed national goals statements follows, from the Urban Coalition Study "Counterbudget: A Blueprint for Changing National Priorities, 1971-76."[6]

1. Achieve full employment with a high level of economic growth and reasonable price stability--all of our other policy goals depend upon it.
2. Provide all citizens with an equal opportunity to participate in American society and in the shaping of governmental decisions affecting their lives.
3. Guarantee that no American will go without the basic necessities: food, shelter, health care, a healthy environment, personal safety, and an adequate income.
4. Rectify the imbalance in revenues between the federal government and state and local governments.
5. Assure adequate national security against military threats from abroad.
6. Meet our obligations to assist in the economic development of the world's less-developed nations.

These goals are more comprehensive and specific than usual, and at least they recognize some kind of obligation to other countries. Before one can say how realistic or costly such goals are, however, they need to be translated into more detailed objectives. It is even more helpful when they can be expressed in terms of criteria or standards, that is,

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rediscover that life consists much less of seeking goals than of experiencing relationships. It would be most interesting to attempt application of this concept in developing statements of national or societal goals.

as explicit rules for controlling or judging the quality, performance, or effectiveness of an event or process or set of plans. There are, generally speaking, three basic types of criteria:

- Performance, output, or evaluation criteria that specify how a finished product or process should operate (e.g., a 4% average unemployment rate, or no more than 20% of the population living in poverty by 1980).

- Design or input criteria that specify in reasonable detail how something should be developed or organized or built (e.g., three branches of government, each with limited and complementary powers).

- Procedural or process requirements--also a type of input criteria--that specify details of the process by which a desired goal will be pursued (e.g., majority rule).

Each of these types of criteria has its place in the interpretation of national goals, and in addition, plays a role in the development of goals and criteria under the following guiding principles:

- The derivation of criteria from goals requires an intermediate step of specifying indicators of the measurement units that will be used for assessing compliance with a given goal. For example, "unemployment rate" could be a compliance indicator for the goal of controlling or minimizing unemployment. Then the criterion itself can be expressed as a level or range of the compliance indicator (e.g., "an unemployment rate between 2% and 4%"). Note that while agreement may be obtained on goals stated in general terms, such as "full employment," the real test of agreement (and consequently the battleground) becomes the criterion, or level of compliance indicator, that is to be sought and the time frame for its achievement.

- Compliance indicators should be related as closely as possible to goals, consistent with requirements for ease and reliability of measurement. The selection of valid indicators is itself a major problem. For example, if the goal were "high standards of educational opportunities and attainments," it might only be possible today to use indicators such as the percent of youth completing high school or college, but one would hope eventually for more accurate and direct indicators of satisfactory educational attainment than completion of a required curriculum.

Serious efforts to define and attain national goals in the conventional sense can run into enormous costs. Senator Ribicoff's proposal for a 12 year, $20 billion program to desegregate metropolitan area schools[7] is a mild example. A more striking example is an analysis by Nestor Terleckyj[8] that identifies $4.2 trillion in new activities needed over the next ten years to achieve compliance with "goal output indicators" that he postulates as measures of compliance with national goals. (This estimate is reduced to about $1.5 trillion to come within available resources while still achieving maximum feasible compliance with goal output indicators.) Terleckyj's suggestions for goal output indicators are listed in Table A-4, and his proposals for activities to achieve full compliance are shown in Table A-5 together with their impacts on each goal output indicator.

Insufficient data are provided in Terleckyj's paper to evaluate his suggestions, but the comprehensiveness of the approach is most interesting and his forthcoming book on the subject should be well worth reading. It is difficult to resist speculating, however, either that the price of reaching the goals will be too high for society to pay or that the huge amounts specified cannot effectively be spent for the purposes indicated--which involve substantial changes in human behavior. Terleckyj's analysis is reminiscent of Leonard Lecht's effort in 1966,[9] supported (as was Terleckyj's) by the National Planning Association, to assign dollar costs and priorities to national goals as they would presumably be formulated by "knowledgeable people" in the respective fields covered by each goal. This analysis also resulted in finding far more costs than resources, but argued that a large part of the deficit could be made up through increases in GNP and taxes resulting from more rapid economic growth and full employment.

Another effort similar to but more limited than either Terleckyj's or Lecht's was made in 1966 by Philip Randolph, who prepared and published a "Freedom Budget" that entailed use of $185 billion in federal expenditures in a serious effort to end poverty.[10] The budget was endorsed by Gunnar Myrdal and John Kenneth Galbraith, among others. Randolph estimated that the full employment resulting from ending poverty would add more than $2 trillion to GNP over the next decade, so that the expenditure would be practically self-financing. However, this estimate far exceeds Terleckyj's estimate of an added $101 billion GNP per year by 1980 from a much higher level of expenditure (Table A-4, Item VI).

Before closing this discussion, it is important to note that broadly based planning and evaluation efforts which could systematically develop and substantiate such new approaches to societal problems are next to

Table A-4

NATIONAL GOALS AND THE PRINCIPAL INDICATORS OF THEIR OUTPUT

Goals	Principal Output Indicators	Output Level 1966 Actual	Output Level 1980 Projected	Change in 1980 Output with $1.5 Trillion Program
I. Health and safety				
Health	Average life expectancy at birth (years)	70.1	72.3	+5.9
	Numbers of persons with major disabilities (millions)	30.4	30.4	-11.3
Public safety	Number of violent crimes per 100,000 persons per year	358	620	-343
II. Education, skills, and income				
Basic schooling	Index of performance in education (based on 1966=100	100	109	+20
Advanced learning	Number of persons completing college (thousands)	523	1,020	+650
Skills	Number of persons not in mainstream of labor force) (millions	9.5	4.8	-4.8
Adequacy and continuity of income	Number of persons below present poverty standard (millions)	28	15	-15
	Number of persons in near-poverty conditions (millions)	15	11	-11
	Number of persons with living standard loss of over 30% (millions)	10	10	-6
III. Human habitat				
Homes	Percent of persons living in adequate houses	85%	85%	+10
Neighborhoods	Percent of persons living in satisfactory neighborhoods	75%	75%	+16
Quality of environment	Number of persons exposed to bothersome pollution (millions)	120	100	-58
Recreation	Percent of persons regularly taking part in recreation	25%	25%	+40
IV. Finer things				
Conservation	Number of areas maintained for preservation of life and natural forms	300	300	+325
Sciences	Number of scientists active in basic science (thousands)	51	115	+170
Arts	Number of active artists (thousands)	200	240	+227
Leisure	Average time free from work and chores (hours per person per year)	2,160	2,160	+315
V. Freedom, justice, and harmony				
Income equality by race	Average family income, nonwhite as a percent of white	60%	75%	+12%
Dispersion of lifetime income	Average income of top 1/5 as a ratio of bottom 2/5 of population (households with male heads aged 35 to 45)	2.8%	2.5%	-.5%
VI. Economic base	GNP (billions of 1967 dollars)	$800	$1,500	+101

Source: Reference 8.

Table A-5

EFFECT OF ACTIVITIES ON GOAL OUTPUT INDICATORS
1971-80

Activities	Total Cost: 1971 1980 (billions)	Health and Safety			Education, Skills, and Income						
		1. Average Life Expectancy (in years at birth)	2. Number of Persons with Major Disabilities (millions)	3. Number of Violent Crimes (per 100,000 persons per year)	4. Index of Performance in Education Based on Standard Years	5. Number Completing BA Equivalent (thousands)	6. Number of Persons Not in Mainstream of Labor Force (millions)	7. Median Earnings (1967 dollars)	8. Number of Poor Persons (millions)	9. Number of Near-Poor (millions)	10. Number of Persons with Living Standard Loss of Income of Over 30% (millions)
Base 1966	—	70.1	30.4	358	100	523	9.5	$ 6,200	28	15	10
Base 1980	—	72.3	30.4	620	105	1,020	4.8	11,800	15	11	10
1. Change behavior: stop smoking, fitness & diet, alcoholism, obesity, accidents, drug use	$ 43	5.2	8.9	-186							-2
2. Special services: mental, cancer, arthritis	51	1.6	5.0	-58							
3. Special health services: poor and children	71	2.5	2.2								
4. Improved enforcement system: police, courts, correction	20			-260							
5. Full employment of the young: school, job, recreation	40			-223	7		-2		-2		
6. Teacher inputs: training, aides, class ratios of 20, kindergartens	120				7						
7. Remedial tutoring, including outside school	71				9	50		100			
8. Improved educational technology: learning by devices and for the very young	205				20	50		100			
9. Parent counseling & books for home	5				4						
10. Universal fellowships	168					522				-1	
11. University improvement: new institutions, staff support, technological change	35					500					
12. Maintenance, updating and improvement of job skills	363					250	-2	400	-1	-4	
13. Specialized training for outside mainstream: placement, workshops	73						-4		-5	-2	
14. Private savings, insurance, pension plans	180								-1	-3	-1
15. Old age pensions up to 30%	50								-4	-4	-9
16. Extended welfare program: tax and transfer	65								-15	-1	-3
17. Aid to depressed communities	240						-2	300	-2	-2	
18. Construction & maintenance of houses	148								-2	-1	
19. Design & testing of new environments: city, neighborhood, region	155										
20. Innovations in cars, roads, and intracity systems	78										
21. Improvements in intercity transport	162										
22. Pollution control	100										
23. More basic environmental improvements	522										
24. Recreation facilities at work	65	.6	.6								
25. Recreation facilities in neighborhoods	190	1.1	1.0								
26. Major parks and facilities	210										
27. Preservation of wilderness & scenery	20										
28. Beauty of environment: homes, neighborhoods, public places (plants & architecture)	43										
29. Pure science: institutions, education, communication	138										
30. The arts: institutions, education, subsidiaries, new forms	67										
31. Three weeks additional vacation	200										
32. Retirement at 60	300										
33. Time saving innovations: mechanization of home, services	71							400			
Total listed (output not additive)	4,179	(9.1)	(14.9)	(-434)	(30)	(1,000)	(4.8)	(1,300)	(-15)	(-11)	(-10)

Table A-5 (concluded)

Activities	Human Habitat				Finer Things				Freedom, Justice, and Harmony		GNP
	11. Percent of Persons Living in Adequate Houses	12. Percent of Persons Living in Satisfactory Neighborhoods	13. Number of Persons Exposed to Bothersome Pollution (millions)	14. Percent Persons Regularly Taking Part in Recreation	15. Number of Areas Maintained for Preservation of Life and Natural Forms	16. Number of Basic Scientists (thousands)	17. Number of Artists (thousands)	18. Leisure from Work and Chores (hours per person per year)	19. Average Income, Non-White as a Percent of White	20. Average Income of Top 1/5 as Ratio to Bottom 2/5 of Population	22.* Change in GNP (billions of dollars)
Base 1966	85%	75%	120	25%	300	51	200	2,160	60	2.8	500
Base 1980	85%	75%	100	25	300	115	240	2,160	75%	2.5	1,500
1. Change behavior: stop smoking, fitness & diet, alcoholism, obesity, accidents, drug use				25				57			
2. Special services: mental, cancer, arthritis								30			
3. Special health services: poor and children											
4. Improved enforcement system: police, courts, correction											
5. Full employment of the young: school, job, recreation									2	-.1	
6. Teacher inputs: training, aides, class ratios of 20, kindergartens											
7. Remedial tutoring, including outside school									2	-.1	15
8. Improved educational technology: learning by devices and for the very young									2	-.1	15
9. Parent counseling & books for home									1		
10. Universal fellowships						49	30		2	-.1	
11. University improvement: new institutions, staff support, technological change						33	20		1		
12. Maintenance, updating and improvement of job skills						16	10		3	-.1	36
13. Specialized training for outside mainstream: placement, workshops									4	-.1	15
14. Private savings, insurance, pension plans											
15. Old age pensions up to 30											
16. Extended welfare program: tax and transfer									2	-.3	
17. Aid to depressed communities	3	5		5					7	-.2	36
18. Construction & maintenance of houses	15	6	-10						1		
19. Design & testing of new environments: city, neighborhood, region	3	10	-20	5							
20. Innovations in cars, roads, and intracity systems			-10					60			
21. Improvements in intercity transport								25			
22. Pollution control		5	-50								
23. More basic environmental improvements			-30	10	150						
24. Recreation facilities at work				10							
25. Recreation facilities in neighborhoods		5		15							
26. Major parks and facilities				5	50						
27. Preservation of wilderness & scenery					300						
28. Beauty of environment: homes, neighborhoods, public places (plants & architecture)		3	-10								
29. Pure science: institutions, education, communication						76					
30. The arts: institutions, education, subsidiaries, new forms							200				
31. Three weeks additional vacation								70			
32. Retirement at 60			-	5				30			
33. Time saving innovations: mechanization of home, services				7				243			15
Total listed (output not additive)	(15)	(25)	(-90)	(15)	(500)	(171)	(260)	(484)	(19)	(-.7)	(155)

Note: All data are illustrative or preliminary.

* Column 21 has been omitted.

Source: Reference 8.

nonexistent. Most planning and evaluation is directed to highly specific problems, programs, or geographic areas, and cannot usually be hoped to change significantly the resource allocations or the trade-offs between the different areas of concern. Moreover, there is a serious lack of sophisticated evaluation tools even for limited program areas such as transportation and education that should receive increased attention in the near future.

Federal Priorities and Decisions

The federal government is a frequent target of comments on national goals and resource allocations. The federal budget represents the largest single resource allocation decision framework and it is a public document, openly debated and decided upon (even though the largest share of it is determined by legal or financial obligations that are not easily changed). Below we consider the budget document itself and two recent comprehensive studies of the 1972 budget.

The Federal Budget Document

The federal budget presents serious obstacles to inferring national priorities or areas of neglect. This is due not only to its size and complexity, but to its combined accounting, planning, and political purposes. Consider, for example, the opening sentences of the U.S. Budget in Brief for FY 1972:

> In the 1971 budget, America's priorities were quietly but dramatically reordered: for the first time in 20 years, the money spent for human resource programs was greater than the money spent on defense.
>
> In 1972, we will increase our spending for defense to carry out the Nation's strategy for peace. However, even with this increase, defense spending will drop from 36% of total spending in 1971 to 34% in 1972. Outlays for human resources programs, continuing to rise as a share of the total, will be 42% of total spending in 1972.

Thus, the authors of the budget maintain that our priorities have been reordered by switching the ranks of defense and "human resources" without even noting that $10.5 billion in veterans services (enough to reverse the order) are classified as human resources rather than

defense outlays; nor is the large share of interest on the national debt that is attributable to defense spending mentioned. In any case, it seems more likely that changes in rank order of programs are the result of many independent decisions and perceptions of relative needs, rather than any conscious reordering of priorities.

Another difficulty with the budget document is its primary focus on expenditures to the exclusion of some other forms of assistance, notably government credit and tax aids (federal revenues are reduced by these tax concessions to special beneficiaries).

Such shortcomings were remedied in a recent analysis by the Assistant Secretary of the Treasury for Economic Policy.[11] His analysis shows that the distribution of $20.9 billion in government assisted credit programs and $45.9 billion in tax aids particularly affect urban housing, insurance and retirement, specialized welfare, business subsidies, and general aid to states and localities. The net effect of these additions to direct outlays is to change relative priorities as expressed by the rank order of expenditures per item as a percent of the total federal budget. These changes in priorities are shown in the last column of Table A-6.

Unfortunately, Table A-6 still cannot without great effort and considerable added data be related to societal needs in each program area. For example, referring to the last column, should urban housing be the third in magnitude of federal resource allocation, and should aid to farmers be sixth, and education and research fourteenth, or not?

The federal budget document itself is full of justifications for programs couched in terms of societal needs, but gives virtually no consideration to alternative program levels or approaches; in short, the budget explanations are not critical, but defensive, as manifested in the following statement from the President's budget message of January 29, 1971:

> The 1972 budget . . . provides the resources needed to meet the Nation's commitments at home, with a new standard of fairness to the poor and sick.

If this statement is taken at face value, we appear to be meeting our national goals without great difficulty, and projections of added resource needs such as Terleckyj's seem unnecessarily high. The official position should not be discounted. Our poor, after all, are probably better off in the main than those of many other countries, and the federal budget represents an annual political consensus over how much wealth should be

Table A-6

FEDERAL GOVERNMENT PROGRAM PRIORITIES
FY 1971
(Billions of Dollars)

Program Rank Based on Direct Outlays	Direct Outlays	Outlays Plus Credit and Tax Aids	Program Rank Based on Outlays Plus Credit and Tax Aids
1. U.S. military forces	$ 68.2	$ 68.7	1
2. Insurance and retirement	60.8	67.4	2
3. Interest	19.0	19.0	4
4. Transportation	13.1	13.3	5
5. Natural resources	10.1	11.4	7
6. Public assistance	9.0	9.1	10
7. Aid to farmers and rural areas	8.0	12.4	6
8. Veterans benefits	7.4	9.9	9
9. Health	5.3	8.6	11
10. Education and research	4.2	6.7	14
11. Unemployment benefits	4.0	4.4	15
12. Urban housing and facilities	3.7	21.6	3
13. Scientific competition	3.3	3.3	17
14. Allowances	2.6	2.6	18
15. Housekeeping	2.5	2.6	19
16. Foreign nonmilitary aid	1.9	4.1	16
17. Manpower development	1.7	1.7	20
18. Anti-poverty	1.5	1.5	21
19. Judicial and law enforcement	1.3	1.3	22
20. Specialized welfare	1.2	11.1	8
21. Foreign relations	1.2	1.2	23
22. Business subsidies	.9	7.6	13
23. Foreign military aid	.5	.5	24
24. Legislative function	.4	.4	25
25. Psychological competition	.3	.3	26
26. Economic regulation	.3	.3	27
27. General aid to states and localities	.3	8.2	12
28. U.S. passive defense	.1	.1	28
Total	$232.8	$299.3	

Source: Reference 11.

shared with those who cannot make it "on their own" under the constraints of the prevailing socioeconomic system. However, there are positions between these two extremes, and fortunately, two recent independent evaluations of the federal budget help throw light on the matter.

Alternatives to the 1972 Budget

The Brookings Institution has sponsored a sequel to its excellent analysis of the 1971 budget, titled "Setting National Priorities: The 1972 Budget."[12] In this book-length study, Charles Shultze and others have set out the underlying rationale and possible alternatives for most major programs in the U.S. budget. A fine air of impartiality is maintained throughout the study, and the authors seldom take a position on which alternative to back--Schultze is himself a former director of the Bureau of the Budget, and knows well the issues and value judgments that must be weighed in arriving at explicit budget recommendations. Some features and limitations of the study are noted below.

- A thoughtful discussion of defense options explores the risks of substantially smaller defense outlays as well as the need for even larger outlays.

- A brief analysis of foreign assistance manages to avoid all of the significant human and social issues and concentrates instead on security issues.

- The general revenue sharing analysis identifies the major issues (how much should be shared, and how) and proposals, in part by demonstrating for each state the per capita impact of three different proposals. The discussion of Administration proposals for combining all grants from the present categories into six special revenue sharing programs notes the relative restrictiveness of the proposal for education revenue sharing. Detailed effects of the proposed changes on state and local programs are obviously speculative and would require more extensive analysis to evaluate, an effort that does not appear to have been made by the Administration or recommended by Schultze.

- Excellent separate evaluations of alternative programs for welfare and family assistance, job creation, social security, and medical care are provided that would, however, profit from some discussion of their cross-impacts.

- Some environmental, transportation, housing, and agricultural program alternatives are explored, with at least two significant omissions: alternatives to present moribund intracity transportation systems and the critical need for better planning of applied research in all these programs to devise and test improved technical and administrative approaches to problem areas.

- In a novel analysis of "expenditures outside the budget," the Brookings study notes that increases of some $18.9 billion in (1) federal programs legally excluded from the budget or (2) subsidy increases not reflected in budget totals (such as lower-than-market loan rates) occurred between 1965 and 1972. The increase in federal outlays during this period is 107%, not 93% as indicated by official budget totals, when adjustments are made to include these omitted items.

- The final chapter of the Brookings study projects federal revenues and expenditures through 1976 and concludes that a small "fiscal dividend"--an excess of revenues over expenditures, available for discretionary use--will be available beginning after 1974. The Brookings estimate of $17 billion for this surplus by 1976 is only about half the administration estimate of $30 billion, due principally to higher projections by Brookings of unavoidable increases in costs of new federal programs such as family assistance, health financing, and revenue sharing. Readers are reminded by the study that the Tax Reform Act of 1969 expressed the judgment that private spending should take priority over public spending, and that "those who believe that certain public needs should now take top priority must seek either to reverse that decision through tax increases, or find low-priority areas of public spending from which resources can be withdrawn".

The 348-page study by the Urban Coalition, previously cited,[6] provides a complementary analysis. In addition to some discussion of alternatives, it recommends tax reforms and increases, and specific funding levels for each major federal program for 1972 through 1976. In the main, human, social, and urban development programs and revenue sharing would increase at the expense of defense programs, with the heaviest increases going for health (from $19 to $69 billion), income maintenance ($14 to $40 billion), social insurance ($50 to $83 billion), education ($10 to $20 billion), and foreign economic assistance ($3 to $7 billion). Priorities are also reordered within programs; for example, a shift in

Table A-7

FOUNDATION EXPENDITURES FOR SELECTED YEARS, BY FUNCTION
(Grants of $10,000 or more)

Program	(Millions) 1960	1966	1969	1970	Percent Change 1966-70	1960-70	Comparable Government Program: Percent Change 1959-69	Name of Program
Total	$ 351	$ 661	$ 677	$ 793	20.0%	125.9%	106.0%	Total
1. Education	107	157	202	281	79.0	162.6	178.0%	Education
a. Higher education		63	78	143	127.0			
b. Endowments		10	23	11	10.0			
c. Buildings and equipment		20	30	28	40.0			
d. Elementary and secondary schools		17	15	26	52.9			
e. Libraries, publishing, broadcasting, and other		47	56	73	55.3			
2. Welfare	43	81	102	136	67.9	216.3	261.4%	Welfare
a. Race relations		6	22	16	166.7			
b. Community planning and development		11	15	24	118.2			
c. Recreation and conservation		2	6	11	450.0			
d. Social and youth agencies, and other		62	59	85	37.1			
3. Health	68	62	106	121	95.2	77.9	130.2%	Health and hospitals
a. Hospitals		32	56	73	128.1			
b. Medical education		19	29	27	42.1			
c. Health agencies, public health, and other		11	21	21	90.9			
4. Sciences	37	69	114	92	33.3	148.6	285.1	Federally financed basic research
a. Life		38	54	44	15.8			
b. Social		26	38	38	46.2			
c. Physical		5	20	3	-40.0			
d. Technology and general science		0.3	2	7	2233.3			
5. International activities	62	141	75	59	-58.2	-4.8	99.8	International relations
a. Education and international studies		91	30	29	-68.1			
b. Technical assistance		27	19	9	-66.7			
c. Health and medicine		11	11	11	0.0			
d. Cultural relations, peace, international cooperation, and other		12	15	10	-16.7			
6. Humanities (arts, history, museums, etc.)	25	117	37	52	-55.6	108.0	--	No comparable category
7. Religion	9	34	41	51	50.0	466.7	--	No comparable category
a. Religious welfare		18	21	27	50.0			
b. Religious and theological education		4	9	7	75.0			
c. Churches, religious associations, and other		12	11	17	41.7			

Note: Details may not add to totals, due to rounding
Sources: Foundation News, The Foundation Center, and Table C-1

emphasis from highway to public transit is recommended within an almost constant total transportation budget. While there are many excellent proposals in the study, the authors appear to assume at least in part that a massive infusion of dollars into a program will certainly relieve the problem areas to which it is addressed, even if no one really has a good notion of how best to spend the money. The national goals suggested by this study, noted earlier in the appendix, provide a consistent if ambitious focus on future possibilities.

These two studies offer a wealth of data and expert judgment that help fill a serious gap in the information needed to debate federal resource allocation. They also illustrate the infeasibility of quick or easy resource allocation decisions--each study required a sizable research effort and produced a sizable final report in spite of the relatively brief treatment of individual programs. Probably the biggest handicap of both studies is their concentration on "federal" solutions to "national" problems--which are almost by definition ameliorative and compensatory solutions to substantive problems that are selected in part for their apparent amenability to federal program changes. For example, there is virtually no mention of process problems such as racial conflict; of normative problems such as how to promote more responsible behavior by individuals and institutions; of conceptual problems such as property ownership versus trusteeship; of systemic solutions involving extensive institutional or individual change; or of possible initiatives by state and local government and the private sector.* Hopefully, therefore, the studies will stimulate further detailed inquiry into these matters, as well as the development of better planning and evaluation tools within and between program areas.

Foundation Priorities and Expenditures

Shifting to a consideration of how charitable foundations allocate their resources, Table A-7 presents a summary of foundation grants of $10,000 or more for 1960, 1966, 1969, and 1970. The programs are shown as aggregated in "Foundation News," a bi-monthly publication of the

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* In these respects, the studies may be contrasted with Terleckyj's recommended "activities" in Table A-5, which include such diverse suggestions as changes in unhealthy individual behavior patterns, changes in the police-courts-correction system, improved intracity transportation systems and school programs, and provision of recreation facilities at work. Lecht also considered private sector activities and responsibilities.

Foundation Center that lists such grants and compiles annual summaries of the grants from its previous year's issues. (Thus the grants may not all have been awarded in the year indicated, but all were reported to "Foundation News" in that year.)

Data on the subprograms for 1960 are not available from "Foundation News," and so Table A-7 shows only the seven major program headings in 1960. The percentage change in foundation programs from 1966 to 1970 and from 1960 to 1970 is also given in the table, the last two columns of which show the percentage change for comparable federal government programs over the ten-year period 1959 to 1969, and the title of the equivalent government program category used for comparison.

Of the seven major foundation programs, education and welfare show a steady growth from year to year while the five other programs behave more erratically--that is, they show at least one year of declining funds. Even more erratic were the grants for the subprograms, very few of which show a steady growth even since 1966. These ups and downs are due to the random nature of the foundation grant process; there is no predetermined plan, as in government budgeting, to put certain resources into a particular area of continuing responsibility. Foundations respond instead to needs as they arise or come to their attention, and large grants in one area in a given year may throw off the long range growth curve for the activity. While it is risky to make forecasts from such data, it appears safe to say that foundation grants are growing in education, welfare, health, and religion, declining in international activities and possibly in sciences, and still fluctuating from year to year in humanities.

Taking only the five major foundation categories for which comparable government programs exist, it appears that the ten-year growth of foundation grants lagged behind the government's program growth in all cases but most noticeably in international activities--foundation grants here declined by 4.8% in comparison with a rise of 99.8% in federal expenditures for equivalent activities. It is of interest, however, as summarized below, that the five program categories rank in the same order according to relative rapidity of growth, except that foundation sciences are in third place while government basic research is in first place:

Program Rank in Order of Rapidity of Growth	
Foundations	Government
Welfare	Basic research
Education	Welfare
Sciences	Education
Health	Health and hospitals
International activities	International relations

The interpretation of these similarities and differences is of course a matter of judgment. Should foundations be "tracking" the trend of government resource allocations, or running counter to it so as to fill the gaps? Possibly neither a general nor definitive answer can be given to this question. Moreover, the contrasts noted must be treated with caution because of the basic noncomparability of most foundation and government activities, in spite of similarities implied by the program titles.

The problem of classifying foundation activities is explored further in Table A-8, which shows a distribution of 1969 foundation and government expenditures by function (columns a and b). Column c shows an adjusted version of foundation expenditures, with items 1b and c, 5a and c, 6, and 7a and b shifted in whole or in part to higher education, welfare, or health activities because they could be viewed as belonging to those activities. For example, items 1b and c are almost entirely grants to institutions of higher education, as are items 5a and 7b (category 4, sciences, also involves mainly grants to such institutions, but for research rather than educational purposes). These adjustments produce rather different percentage groupings of foundation activities; and the adjusted groupings (column f) correspond more closely in some cases with the distribution in the comparable government programs (column d), and less closely in other cases, than do the unadjusted foundation percentages (column e).

The last column of Table A-8 shows the percent that each foundation program category (as adjusted) represents of the comparable government program category. They vary from a low of 0.04% for elementary and secondary schools to a high of 4.86% for sciences, with most activities falling between 0.65% and 0.98%. Again, no definite conclusions can be drawn from these percentages, except to note the relative significance of sciences and higher education as objects of foundation support.

A final comment concerns the classification of the major foundation program titles as an indicator of their contents. In addition to the possibility of reclassifying certain activities as shown in Table A-8, notice

Table A-8

DISTRIBUTION OF 1969 FOUNDATION AND GOVERNMENT EXPENDITURES, BY FUNCTION
(Grants of $10,000 or more)

Program	Millions of Dollars			Percent			Foundation (Adjusted) as a Percent of Government
		Foundation			Foundation		
	Government (a)	Actual (b)	Adjusted (c)	Government (d)	Actual (e)	Adjusted (f)	(g)
Total	$ 83,160	$ 677	$ 677	100.0%	100.0%	100.0%	0.81%
1. Education	50,377	202	259	60.6	29.8	38.3	0.514
a. Higher education	11,551	78	188	13.9	11.5	27.7	1.628
b. Endowments		23	(to 1a)		3.4	-	
c. Buildings and equipment		30	(to 1a)		4.4	-	
d. Elementary and secondary schools	33,752	15	15	40.6	2.2	2.2	0.044
e. Libraries, publishing, broadcasting, and other	5,074	56	56	6.1	8.3	8.3	1.104
2. Welfare	14,730	102	123	17.7	15.1	18.2	0.835
a. Race relations		22	22		3.2	3.2	
b. Community planning and development		15	15		2.2	2.2	
c. Recreation and conservation		6	6		0.9	0.9	
d. Social and youth agencies, and other		59	80		8.7	11.8	
3. Health	11,930	106	117	14.3	15.7	17.3	0.981
a. Hospitals	8,593	56	56	10.3	8.3	8.3	0.652
b. Medical education		29	29		4.3	4.3	
c. Health agencies, public health, and other	3,337	21	32	4.0	3.1	4.7	0.959
4. Sciences (life, social, and physical)	2,345	114	114	2.8	16.8	16.8	4.861
5. International activities	3,778	75	34	4.5	11.1	5.0	0.900
a. Education and international studies		30	(to 1a)		4.4	-	
b. Technical assistance	3,162*	19	19		2.8	2.8	
c. Health and medicine		11	(to 3c)		1.6	-	
d. Cultural relations, peace, international cooperation, and other	616	15	15		2.2	2.2	
6. Humanities (arts, history, museums, etc.)	†	37	19 (50% to 1a)		5.5	2.8	
7. Religion	‡	41	11		6.1	1.6	
a. Religious welfare		21	(to 2d)		3.1	-	
b. Religious and theological education		9	(to 1a)		1.3	-	
c. Churches, religious associations, and other		11	11		1.6	1.6	

* Economic assistance, including technical assistance.

† No comprehensive data available.

‡ Believed to be insignificant.

Sources: Tables A-1 and A-3.

the subprograms "race relations," "community planning and development," and "recreation and conservation" in the welfare program. Is welfare in the governmental sense the real object of these subprograms, or are they listed there for want of a better place? (Or should welfare in its governmental usage be broadened to include such concepts?) The classification problem is further illustrated by a detailed survey reported in "Foundation News" (March 1969, p. 1) which revealed that over 18% of foundation expenditures in 1968 were devoted to projects directed toward some aspect of poverty or race relations, affecting all of the seven major foundation programs except international relations. This ratio is certainly not evidenced by Table A-8, which indicates (in column e) that only 3.2% of 1969 foundation expenditures went for race relations and 8.7% for "other" welfare programs (the comparable figures for 1968 were 2.4% and 6.5%, respectively). The data published also exclude grants under $10,000, which would increase the total and could also affect the distribution among programs and subprograms.

The Foundation Center, which publishes "Foundation News," is understood to be revising its procedures for reporting and summarizing foundation grants so that some of the difficulties noted above may be resolved within a few years. However, it will probably always be difficult to draw significant conclusions from general foundation expenditure data, and thus such special inquiries as the Peterson Commission Report[13] will continue to be needed. This report was reviewed in the November-December 1970 issue of "Foundation News" and need not be commented on in detail here. There seems to be no good reason to question the Commission's conclusions, which basically reflect the conception of foundations as sources of highly useful (but improvable) private supplements to resource allocations for public purposes.

An even more recent study, by Joseph Goulden,[14] provides interesting background information on a number of foundations and numerous government policy recommendations, but little in the way of comprehensive or comparative data on foundation expenditures for different purposes or the effectiveness of such expenditures. The question of how effectively foundation grants are being utilized cannot be answered without detailed evaluation of specific program areas, and no mechanism or institution yet exists either to review foundation performance or to identify grant needs and opportunities, beyond the internal efforts of individual foundations.

Besides reviewing their own programs, foundations might usefully analyze the approaches by other institutions to solution of societal problems. It is often easier to show that a given approach is nonproductive, or comparatively less effective than others, than it is to identify a "correct" or optimum approach, and there is probably a shortage of impartial and informed social critics. The need for better means to

carry out such functions is supported by the following conclusions of a recent National Academy of Science study of the closely related field of technology assessment.[15]

> "The present organization of private and public assessment systems is too fragmented and uncoordinated, too lacking in professionalism, continuity, and detachment, to provide a viable institutional basis for the support of the research and education that a sufficiently broad technology-assessment program will demand and for the development of the professional competence and vision that such a program will require. No institution or group of institutions is today charged with the responsibility, or equipped with the resources, to review the criteria and assumptions, monitor the operating procedures, and integrate the findings, of our many technology-assessment efforts--even those undertaken within the federal government--or to stimulate the development of a set of coherent principles that might increase the quality and influence of such efforts and enhance their sophistication."

Limitation of the Academy's conclusions to the field of technology assessment was probably due only to limitations of their own charter, because the above observations apply equally to assessment of all societal problems and not only to the arbitrary domain of assessing the impacts of technological "prospects." We are already immersed in the wreckage and refuse brought by past technological achievement (some examples are listed in Table 2 of the main text), and because a problem has its roots in the past, or in conceptual or normative areas rather than in technology, does not make it any less imperative to address. What is needed are better mechanisms for the assessment of present, proposed, or potential solutions to all societal problems, unconstrained by limitations that may be popular today but disappear, shrink, or expand tomorrow. The procedures outlined in the next appendix could be appropriate for such analyses.

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Appendix B

PROBLEM ANALYSIS

CONTENTS

ILLUSTRATIONS

TABLES

Appendix B

PROBLEM ANALYSIS

As indicated in Appendix A, it is suggested that resource allocation analysis be conducted as a part of an overall, comprehensive problem analysis procedure. This appendix first describes such a procedure and then, explains some of the terms and the frame of reference that underlie the procedure.

Problem Analysis Procedure

The procedure that we have called problem analysis is basically an attempt to raise in a systematic way the important questions that are related to understanding or ameliorating a particular problem situation. In our conception, the full process of problem analysis consists of the six steps summarized in Figure B-1 and discussed briefly below.

- The first step is the definition of the problem and our objectives in relation to it. What do we want to do (or what results do we want)? Related normative questions--such as, why is it worth doing, or should we be trying for some other results instead?--should be considered in arriving at an acceptable statement of objectives unless the norms must be taken as given.

  Initially, the objectives should be formulated in fairly general terms to avoid undue limits on the search for means of achieving the objectives. However, as the analysis progresses, they need to become very specific and can even reach the form of performance standards or criteria.

- Step 2 is closely related to steps 3 through 6 insofar as it can be carried out in part with the analytical techniques inherent in these steps. In Step 2, an analysis is conducted to describe the problem environment or situation in a way that reveals any weaknesses or difficulties the environment may present in achieving desired objectives (including identification of groups affected for good or ill by the present environment in relation

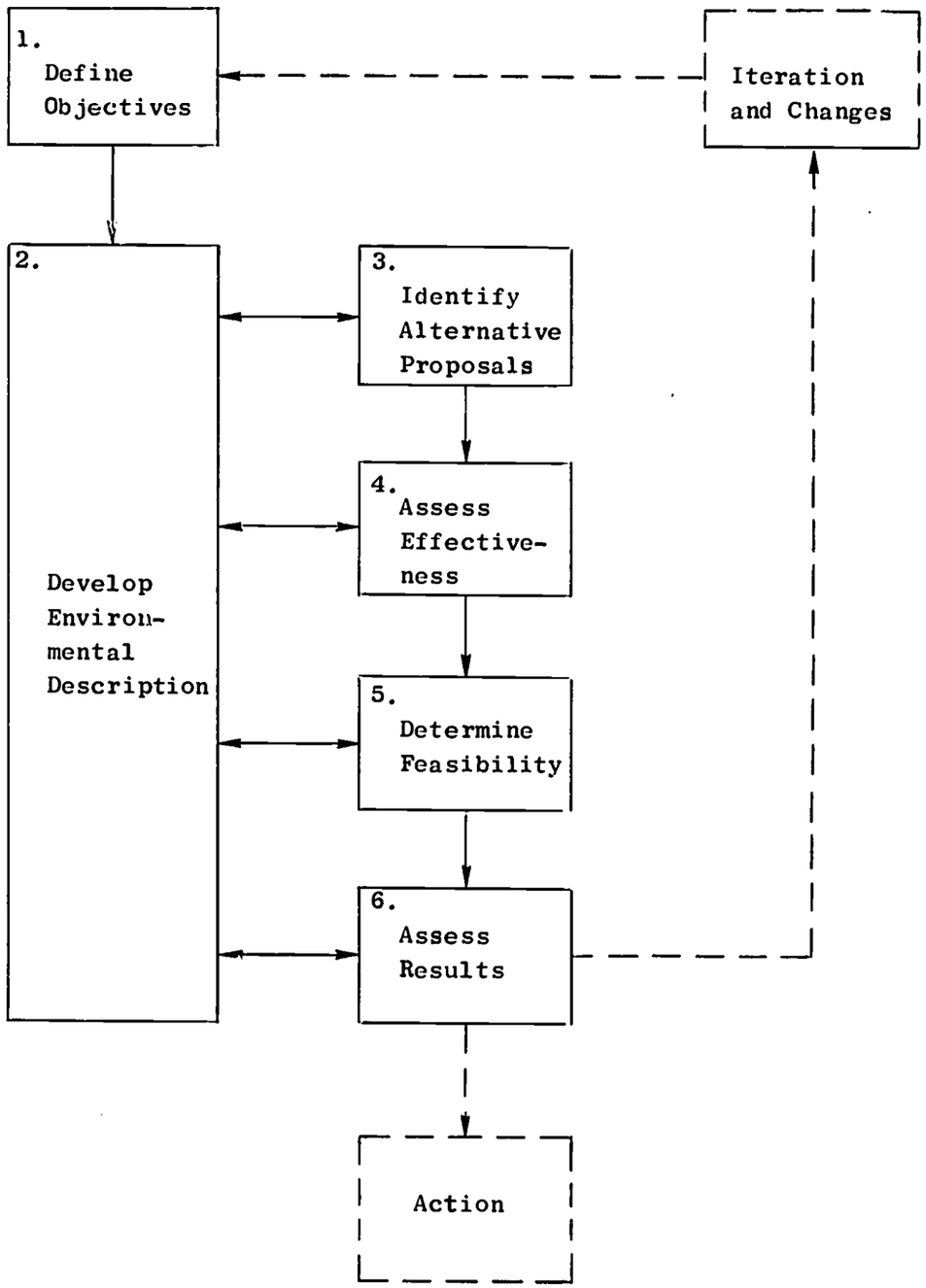

Figure B-1 PROBLEM ANALYSIS PROCEDURE

to the objectives under consideration). Descriptions of problem situations together with apparent causal factors and associated problems should be developed. The basic questions for the second step are: What are the relevant scope and elements of the problem environment? How do and should the systems under study work?

A system model or conceptual framework should be one product of this step. The model or framework is utilized in subsequent steps and is refined or expanded as necessary if its initial formulation was not adequate. In fact, a series of expanding frameworks may evolve as the scope of the problem environment is extended to embrace all relevant substantive, process, normative, and conceptual problems.

- Step 3 (Identify Alternative Proposals) should take account of different means of resolving problems (e.g., compensatory, ameliorative, preventive, or systemic). Relevant questions are: What workable alternatives exist for achieving (or better achieving) the objectives established in Step 1? What resources are currently devoted to achieving the objectives, and with what effectiveness? What new or modified approaches should be described in more detail for further analysis? The proposal description or descriptions resulting from this step can focus on changes in current or potential government programs, on policy or legal changes, on structural changes in planning or delivery systems, on behavioral or attitudinal changes, on research and demonstration needs, or on other possible actions. The proposal descriptions should include estimates of associated costs and other resource requirements, and an account of how the proposal will be implemented.

- Step 4 (Assess Effectiveness) answers the question: If the proposals are implemented as described, what will be the important physical, social, and economic effects on different areas, societal groups, and institutions, as measured against the objectives?

- Step 5 (Determine Feasibility) is concerned with the process type of problems described in the main text, and attempts to answer questions such as:

  - Can the required financial, managerial, personnel, time, and other resources be supplied by appropriate organizations, given present or projected constraints? (Administrative and logistic feasibility).

- Will any necessary changes in laws, regulations, or intergovernmental relationships be possible? (Legal feasibility).

- In Step 6 (Assess Results) the conclusions of the analysis are described, areas that require additional data or research are identified, and a decision is made whether to: (a) repeat the analysis in more depth, possibly with changes in either the objectives or the proposed approaches or (b) draw conclusions and recommend actions--or give an account of the plausible consequences of alternative approaches--from the analysis.

This generalized procedure for problem analysis is simply a way of systematically thinking in depth about complex problems and potential solutions. A single pass through the procedure can take from minutes to months. Repetition of the analysis should be a frequent choice, especially since the first pass usually reveals areas where better data or better understanding of the forces at work are needed. The procedure therefore represents a flexible strategy that can relate problems to actual or potential proposals for solution in a way that incorporates all significant societal inputs and impacts. Resource allocation considerations are essential to Steps 3 and 5 but, as already suggested, have limited meaning except as a part of the entire procedure.

Errors in any step of the procedure can of course invalidate the entire analysis, and probably the most common source of such errors is in the environmental description or model. This may be illustrated by Jay Forrester's preliminary attempts to model urban areas in Urban Dynamics (MIT Press, 1969) through a set of nonlinear difference equations allowing for interactions between selected elements of urban systems (primarily the supply and rates of change in each of three types of businesses, houses, and people). Criticisms of this model include its tendency to converge quickly to a unique equilibrium state regardless of variations in initial conditions, its limitation to a fixed land area that excludes suburban areas or effects, its failure to include a variety of potential responses to urban problems, and its almost total lack of calibration (validation by trail with empirical data). More fundamentally, it has been questioned whether gross mathematical models of complex social systems are feasible because of difficulties of validation--one change in relationships could require months or years of revalidation. The most acceptable approach seems instead to be more clear than Forrester has been about the conceptualization of relationships (there is little theoretical basis to his model) and to limit the quantification of relationships to sectors or subsystems that can be reliably isolated from exogeneous effects. But even early attempts

at societal modeling may, as Forrester's does, raise substantive issues worth exploring and advance the theoretical understanding of social systems.*

Characteristics of Problems

The word "problem" is used in this study in the dictionary sense of "a source of considerable difficulty, perplexity, or worry," leading to the following definition of societal problems:

> Societal problems are widespread failures or inefficiences of any component of the socio-politico-economic system (both U.S. and international) in satisfying individual needs or societal aims.

It is clear that the reality behind societal problems might better be called a problem situation, usually consisting of a network of interrelated events and processes, with consequences that constitute sources of difficulty or worry for some persons but often sources of pleasure and profit for others--the French word, "la problématique" refers to this global problem situation or environment.

Many of the enumerable sources of difficulty in our lives that we ordinarily call problems are in fact conditions that have to be lived with rather than problems that can be "solved." Others are only symptoms or results of a tightly-linked situation or problématique with multiple interlocking causes. The relative significance of societal problems cannot, in many cases, be established without raising and answering meaningful questions about their interrelationships, their causes, and the feasibility or effectiveness of alternative remedies. This latter point is closely related to another sense of the word problem: "a question raised for inquiry, consideration, discussion, decision, or solution." Asking the right questions about problem situations is both difficult and important. The purpose of the suggested problem analysis procedure is to bring such questions to mind in a logical sequence.

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* For further observations and details, see "A Critique of Forrester's Model of an Urban Area" by J. Gray, D. Pessel, and P. Varaiya at the Department of Computer Sciences and the Electronics Research Laboratory of the University of California, Berkeley--a recent undated report on research sponsored by the National Science Foundation (Grant GK-10656X); and "Two Models of the Urban Crisis: An Analytical Essay on Banfield and Forrester," by Harvey A. Averch and Robert A. Levine of Rand (RM-6366-RC, September 1970).

There have been many other attempts to formulate useful general approaches to problem-solving. One illustration is the book "How to Solve It," by G. Polya. The major steps suggested by Polya are "understanding the problem" (including "drawing a figure" and "introducing suitable notation"); devising a plan (including review of related problems); carrying out the plan; and looking back to check the results. For each step, suggestive questions are posed. Although the book is chiefly mathematical in its approach and examples, it serves to illustrate how much commonality there can be between solutions of diverse types of problems. Some steps missing from the book that are of importance in societal problem analysis are: exploration of alternative solutions and responsibilities for achieving them; determination of feasibility; and comparing the estimated benefits and costs of different solutions.

The processes that generate problem situations are inherently no different from other system processes, except that one's view of the system is focused on its problem-producing features rather than only on features leading to the production of positive values. For example, the highway transportation system can be viewed as a gigantic machine for killing and maiming people; highway accidents, normally considered "rare events" in relation to the vehicle-miles of travel in the systems, can be isolated for special study; and the system components, processes, or events leading up to accidents and their aftermath can be listed in detail, as follows for example:

Pre-accident stage

- Equipment (design and maintenance of vehicles and highways)
- Disposition (past history and capability of drivers)
- Confrontation (situation requiring evasive action)
- Evasion (results either in a near-miss or a collision)

Intra-accident stage

- First collision (transfer of impact energy to passenger compartment)
- Second collision (transfer of impact energy to passenger)

Post-accident stage

- Initial treatment
- Emergency transport
- Primary treatment.

Obviously, any stage of the above process can become the object of study and actions to reduce the frequency or severity of accidents. Parallels to the above sequence exist in many other societal problem areas, such as international conflict, since their unpleasant consequences are often regarded as accidental or at least unintentional. Therefore, the question of what are the stages in the production of unpleasant consequences that warrant study or action becomes germane.

In attempting to think even more broadly about what general characteristics of problem situations need to be described in order to evaluate solutions to problem statements about them, the following come to mind:

Nature of problem situation
System context (or model)
Influences, forces, constraints, and factors contributing to problem situation
Ameliorating influences of forces and actors
Undesired events and underlying processes
Groups, geographic areas, and individual or societal needs or aims affected by problem situation
Probable future course of problem situation
Problem statements or questions derivable from the problem situation
Possible solutions, or remedial strategies.

The foregoing set of problem situation characteristics may be regarded as a provisional checklist, each to be accounted for at least in summary form before one can be assured that a problem situation is sufficiently well defined. The characteristics can be displayed in a diagram (Figure B-2) that illustrates their relationships. Possible solutions or remedial strategies are shown in the figure as being applicable at any one of four points. For instance the following are some hypothetical strategies for reducing highway traffic accidents:

(1) Systematic--create better forms of public transit, which are inherently safer than highway travel

(2) Preventative--institute treatment for convicted drunk drivers

(3) Ameliorative--improve crash-worthiness of autos to reduce injuries

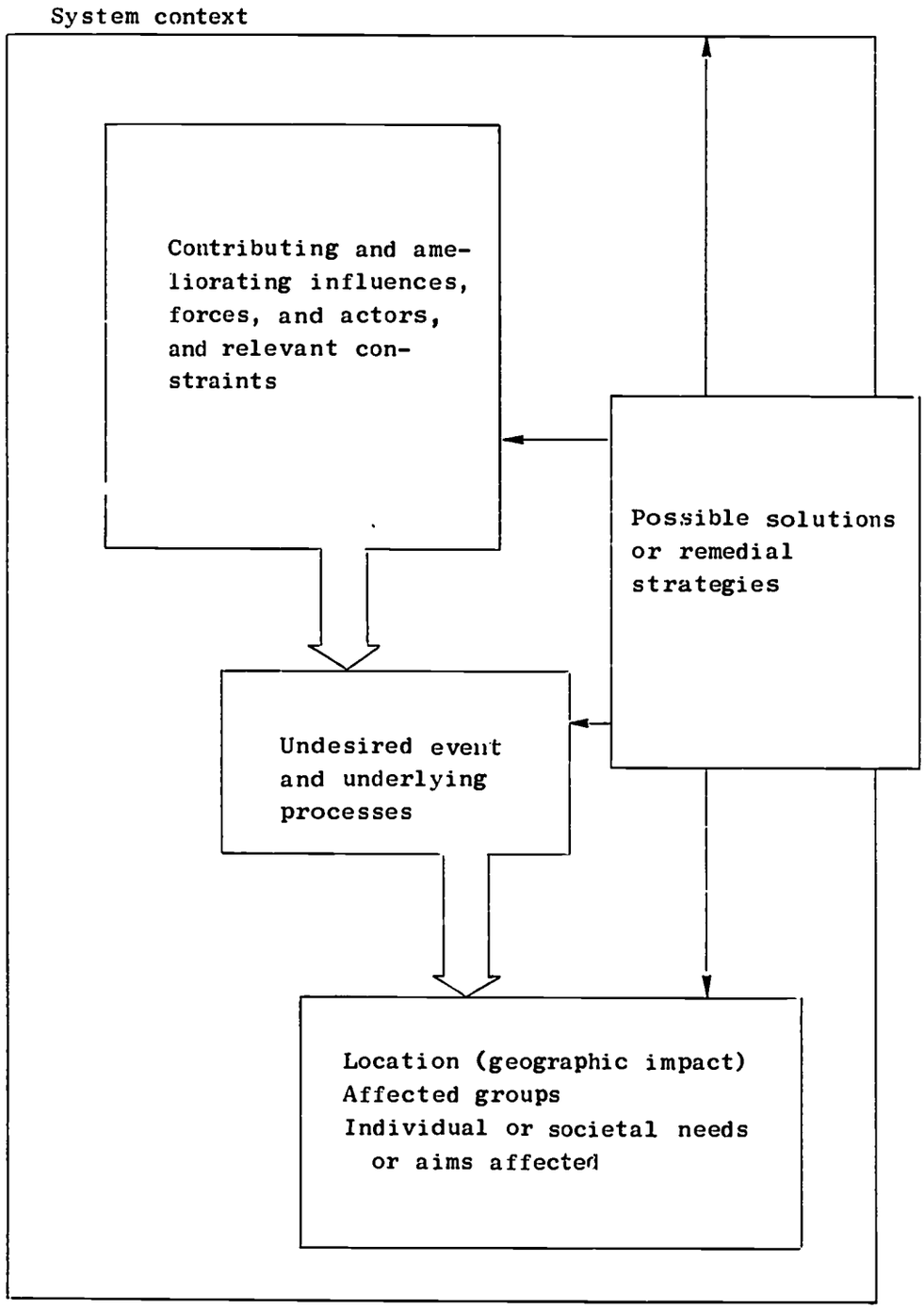

Figure B-2 PROBLEM SITUATION CHARACTERISTICS

(4) Compensatory--require self-insurance to reduce delays in remuneration of accident victims.

There may be an inherent superiority to systemic and preventive solutions if practicable ones are available, but ameliorative and compensatory solutions would still be essential components of most solution strategies for those problems that still "get by."

The above distinctions are useful as part of an overall problem analysis strategy. Once problem characteristics are well enough understood for such solutions to be specified in detail, different types of solutions can be evaluated as to their relative costs, effectiveness, feasibility, and complementarity.

Suggested Terminology

Generalizing from the preceding discussion, Table B-1 suggests a set of terms for referring to stages of the problem generation process and to potential solutions or remedial strategies. The order is temporal (following the "system context"), and solutions at each stage tend to prevent the arising of the next stage. This nomenclature can be illustrated again from the field of medicine: the system context of malaria includes the whole physical and biological environment that supports the disease (originally attributed to "mala aria," or bad air). The systemic solution of removing people from such areas not being acceptable, the contributing influences of the anopheles mosquito and stagnate pools of water were eventually identified and attacked. The problem incident--the point at which the disease is manifested--is the invasion of a body by a protozoan, the malaria parasite, that produces anemia by destroying blood cells. The impacts or symptoms of the disease at the human scale are recurrent paroxysms marked by chills and followed by high fever and possibly death.

It is not always apparent in what category a given problem aspect or solution should be placed, even with simple problems. For example, immunization can probably be viewed either as preventive (i.e., the problem incident does not occur) or ameliorative (i.e., the impacts of a disease are prevented by immunization even if the person immunized is attacked by the disease organism).

Classification of aspects of broad societal problems is even more difficult. For example, let us define the societal problem of "dehumanization" as treating people like things, and assert that it underlies or

contributes to such diverse phenomena as the My Lai massacre, the often debilitating organization of work in modern factories and offices, and the production-line orientation of many high schools. From this point of view, dehumanization contributes to many other "problems," which also have other and more immediate causes and which in turn create undesirable impacts. However, dehumanization may also be viewed as the undesired state itself, analogous to infection with the malaria parasite, which has its own set of contributing or preceding influences.

The choice of terminology in such cases will depend upon whether one is trying to explain the contribution of a problem to other problems, or to explain the problem's own genesis. In other words, the terminology suggested in Table B-1 is relative to the point of view taken and is not absolute.

A more fundamental difficulty with the definition of broad, abstract problems such as "dehumanization" is, what kind of thing is it we are talking about? The behavior itself was defined as "treating people like things." But is this only a value judgment that we place on certain events or processes, or is there some behavior pattern or self-image corresponding with dehumanization that can be more objectively defined? As in Kenneth Boulding's assertion that "valuation" is a process for which the object referred to by the corresponding noun "value" does not necessarily exist, some care needs to be used in reducing such abstractions to concrete events and processes or states.

Other Distinctions

A distinction between substantive, process, normative, and conceptual problems was made in the text of the report. Below we note three further distinctions or examples: between the types or components of process problems; between types of conceptual problems; and between types of nonproblems such as problem classifying concepts and potential solutions to unstated problems.

Types of Process Problems

The "solution" of societal problems may be viewed as a process with three basic components: (1) the setting of a plan, strategy, and schedule; (2) the stakeholders (persons who must define and understand the problem and participate or concur in the solution); and (3) the allocation of the physical and economic resources needed.

Table B-1

SUGGESTED TERMINOLOGY FOR PROBLEM AND SOLUTION PROCESSES

Problem Stage or Aspect	Definition	Potential Solution or Remedial Strategy	Solution Characteristics
System context	The total set of relevant system processes and components; the "environment" of the problem process	Systemic	Often enlarges the frame of reference or changes the definition of the problem as originally posed; may avoid the causes that have been leading to the problem; may involve new institutions or technologies or system functions
Contributing influences	The causes or predisposing conditions that lead up to undesired events or states: these may be removed in time or space from the problem incident	Preventive	Reduces the frequency of occurrence of the problem incident
Incident	The undesired event, process, or state itself	Ameliorative	Reduces or prevents some of the usual impacts of the incident
Impacts	Undesired consequences that follow from the incident (e.g., disease symptoms)	Compensatory	Helps to speed recovery from impacts of the incident

Insufficiences in any one of these components may make solutions to substantive problems impossible at any given time, thus creating or exacerbating what we have referred to as process problems. Some examples of important process problems, classified according to the foregoing distinction, are cited below.

Component	Associated Problems
Plan or strategy	Shortage of long range planning institutions, and lack of a long range viewpoint in many existing institutions
	Lack of coordination between diverse institutions and/or individuals that need to work in unison or harmony
	Absence of needed technology for implementing solution
Stakeholders	Lack of processes to mediate:
	(a) insufficient commonality of interests or aims or concerns
	(b) insufficient commonality of understanding of problems, or
	(c) lack of agreement on priorities (resources to be allocated to given solutions) or strategies (plan of attack)
	Suboptimization (people pursuing conflicting aims)
Physical and economic resources	Inadequate resources to address or fully implement all solutions that are competing for resources
	Lack of sufficient priority (sense of importance at the point of decision-making) for commitment of needed resources.
	Locational problems: resources are not where they are needed and the resources and needs cannot readily (or economically) be brought together.

Examples of Conceptual Problems

Many so-called value or normative "problems" in fact have a conceptual component that must be resolved correctly before the value problem can be appropriately formulated. More broadly speaking, conceptual fallacies or inadequacies may impair or prevent the solution of substantive, process, or normative problems. Some examples follow.

- Failure to understand a "problem" as a situation or "problématique" in which the idea "problem" is imposed on some of the results by the viewer's value system.

- Failure to distinguish between (1) the type of property that is the result of someone's labor and hence can be "owned" in the usual sense, and (2) other types of property that should only be held in trust by responsible persons--notably human beings, natural resources, and legal rights such as operating franchises. (See Appendix C, Borsodi, problem XI.)

- The false worship of economic efficiency, based on short sighted economics and a failure to include other individual and social consequences in the definition of efficiency (see Borsodi, problem XIII).

- Confinement of the concept of "political" actions to governmental activities, rather than applying it to all exercise of power over others; and the inadequate responsibility of many political actions--where responsible actions are defined as those taken with regard to other's interests (see Vickers, "Freedom in a Rocking Boat").

- Failure to understand the feedback and compensatory reactions of complex social systems and institutions when "solutions" are introduced, and the associated emphasis on operative rather than regulatory solutions (see Vickers, "Freedom in a Rocking Boat")--e.g., the failure to devise market or regulatory mechanisms that reflect desirable public objectives such as environmental quality.

The two references to Ralph Borsodi are significant, because the first four of his "Seventeen Problems of Man and Society" are in large part conceptual or intellectual problems: e.g., the "riddle of human nature," the "riddle of the universe." It may be apparent but should be stated that the ideas or values which we hold about such questions can fundamentally affect our views of many other issues, problems and solutions. For example, with material prosperity and better medical facilities has come a

changed attitude toward the value of life in terms of what we are willing to spend to postpone or avoid death. This attitude also shows up in the prominant place given to survival in any list of human values, and in the importance given to longevity, infant mortality, and similar social indicators. It is therefore important also to recognize that there are values which frequently displace survival (honor, love of family or friends, prevention of injustice); that no one survives very long on a geologic or planetary time scale; that to survive in physical or mental misery cannot be entirely sensible; that few persons weigh the inevitability of everyone's death in their daily actions; that it can be questioned whether death is a curse or a blessing, an end or a beginning, or all of these things; and that, in some mysterious ways, the quality of life and of death are inextricably related. Such facts, if more widely understood or accepted, could considerably alter our definition of health and survival and population control problems.

Normative and conceptual problems are often intertwined, as in the heavy weighting of economic efficiency as a determinant in individual or institutional or social choices. Some forms taken by this emphasis are:

- Mass production
- Specialization (or overspecialization) of work and professions
- Least-cost solutions to problems (e.g., highway routing and building construction), with corresponding lack of emphasis on aesthetic, ecological, and human goals and considerations.

Efficiency may alternatively be defined as optimization based on an incomplete understanding of the whole situation, and the results of this incomplete view are apparent everywhere, from the sterile, dismal vistas of most urban and suburban environments to the narrow, confined, unreflective, materialistic and self-centered lives of many persons. Better hidden results are the threatened or actual overproduction of many commodities (from wheat to automobiles); the ability to devote a large sector of the economy to the essentially wasteful goal of warfare; the absence of useful work for a large proportion of the population; and the added incentive to keep young people in school (out of the job market) for what must be to many of them an inordinately long period of time.

If we accept the fact that we do not understand society or ourselves well enough to optimize on values other than efficiency, than inefficient systems or solutions may be seen as more stable because they permit necessary but ignored conditions to exist more easily. For example, optimization of high schools for the "efficient" acquisition of intellectual knowledge could seriously interfere with their functions as escapes from home, opportunities for sexual exploration, means of keeping kids off the streets, or places to learn "inefficient" manual arts and crafts that could lead to greater individual development and self-sufficiency.

A more general statement of this issue is that the better a system fulfills a single purpose, the more difficulty it has fulfilling multiple purposes. Such a realization could lead to the reexamination of a great many societal problems and proposed solutions in terms of the explicit and implicit goals served by the system under examination.

Nonproblems

Two concepts are often used to refer to problems but in fact are either (1) classifying concepts for a group of more tangible problems (usually, common characteristics of the more tangible problems are abstracted to form the classifying concept, which may or may not be useful) or (2) potential solutions to unstated problems (hence the potential solution may beg the question by posing as a necessary approach to solution of the problem instead of only one alternative out of many). Examples of these types of misnomers are presented in Table B-2. There may be no serious harm in extending the word "problem" to cover such concepts, so long as it is clear to the user and the listener that the word is being used in those senses.

A related but more subtle issue is that many events or processes which we may refer to as societal problems are in fact only worries or concerns that have to be adapted to, either individually or in small groups. Among this type of nonproblem are (1) those that, while they may be given lip service (or even cause widespread human suffering), are in fact not taken seriously by persons in charge of allocating public and private resources; (2) conditions to which there are no known solutions that will not result in worse problems or excessive costs; and (3) problems whose definition depends on one's conceptual or value orientation, and which would from a different point of view be considered nonproblems. It is not always easy to distinguish between these categories; the following examples illustrate the first two types, and the third type was discussed earlier in connection with conceptual problems.

Table B-2

EXAMPLES OF NONPROBLEMS SOMETIMES REFERRED TO AS PROBLEMS

Problem Classifying Concepts
Environmental or educational or economic problems
Concentration of economic and political power
Ineffective institutional functioning
Future shock
Negative impacts of technological developments

Potential Solutions to Unstated Problems
Alternatives to "hard" economics
An adequate basis for conflict management between nations
Development of artificial organs
Better means for enforcing unpopular laws and sanctions (e.g., those pertaining to nonvictim crimes)
Upgrading urban bus systems.

(1) For aerospace scientists and engineers, an era of prosperity has come to an end with no visible provisions having been made, either by individuals or by the private and public institutions involved, to soften the impact. Aside from dramas such as suicides that reach the front page, few of the general public and fewer government officials in a position to "help" are aware of the scope or severity of the situation. Why? Has it anything to do with the apolitical bent of the people affected, and the resulting shortage of vocal and visible protest? Recent diversion of a federal grant to alleviate such unemployment from

Santa Clara County in California to a volatile racial problem area lends support to this view.

More basically, however, why cannot the affected people adjust to the lower standard of living imposed on them by fate, and live on welfare or band together until they can become trained in another lucrative profession (if that is their long term aim)? Because the idea is far-fetched? Yet the federal government is busy using the products of their past labors in a struggle with people for many of whom U.S. welfare standards would be luxury. Such comparisons are doubtless odious, and the whole idea repugnant, to the aerospace unemployed. But in the continued absence of other alternatives, they will have to solve their own problems within the available remedies or starve. At the risk of sounding callous, one can say--as the nonresponsiveness of the federal government says indirectly anyway--so what? It is not a societal problem until someone accepts it as one in a serious way.

(2) It is often asserted lately that extending the U.S. per capita rate of energy and resource consumption to the rest of the world would have devastating ecological impacts and exhaust depletable resources at an unacceptable rate. The logical responses are either to reduce the U.S. material standard of living radically or to stop technical and economic assistance to less developed countries, letting nature dictate the speed of their development. Since the first of these responses is unlikely to be widely accepted even well into the future, does it not suggest that we should advocate the second? But what does that do to our lofty goals of universal prosperity and self-fulfillment? The rude facts are, there may not be enough of anything to go around; there are no realistic plans afoot to prevent widespread famine in some countries before the end of the century; and most "solutions" to health and income problems in developing countries that are based on ideas and help from outside the culture have proven destructive or at least counterproductive. Something is wrong. Could it be our definition of the problem?

It would obviously be advantageous to regard as many issues and situations as nonproblems as possible, because if all sources of human difficulties, concern, worry, or suffering are considered to be societal problems, the task of coping realistically with them is clearly impossible--we will never get even to the ones of medium importance that affect, say, only millions rather than billions of persons. Moreover, the concern with "important" but actually insolvable problems, possibly including the risk of nuclear war, will so take our attention and resources that "less important" but solvable problems will never make it into the arena.

Appendix C

SOCIETAL PROBLEM DESCRIPTIONS

APPENDIX C

The following articles have been omitted for reproduction purposes.

Ralph Borsodi, "Seventeen Problems of Man and Society"

National Industrial Conference Board, "Perspectives for the 70's and 80's": major themes in the forecast, and the problems and trends listed

Karl Deutsch, "Issues Which the Proposed Center (for National Goals and Alternatives) Should Address"

Institute for the Future Opportunities for Foundation Support"

John Platt, "What We Must Do."

Societal Problems from the Literature Search and the Leading Thinker Survey of the Present Study

This section of the appendix--identifying problems derived from the literature search and the leading thinker survey--consists of three parts.

The problems listed in categories A through E are those that were clearly distinguished in the literature or in the survey.

The problems listed in categories F through H in the second part of this section represent a different, but somewhat overlapping view of problems drawn from the literature.

The third part of this section tabulates the results of the leading thinker survey and includes the list of thinkers nominated and books nominated, and a brief outline of the problems nominated.

	Literature or Interview Source
A. War and peace	
1. War potential for mass destruction both global and regional	Many sources
2. War related absorption of resources, both material and human	Many sources
3. War related forces for social change, lines of scientific development--ultimately dysfunctional for human welfare?	Kelman
4. Lack of adequate basis for conflict management between nations--need for a "law above laws?"	Tugwell, Osgood, others
B. Population, stratification, less developed areas	
1. Gross population increase	Ehrlich
2. Food production and distribution, and famine	Myrdal, Fuller
3. Uneven population distribution (enforced)	
4. Chronic underdevelopment	Illich

	Literature or Interview Source
5. Racism; estranged and excluded social groups	Hamilton; Schlesinger
6. Unwillingness of haves to share affluence with have nots	Myrdal
7. Lack of sufficient diversity of "legitimate" dimensions of stratification	Lipset, Becker, H.
8. Need for basic alternative goals to those of western industrialization for less developed areas	Illich
C. Natural resources	
1. Resource exhaustion, pollution, and recycling needs: the "spaceship earth" problems of the natural environment	McHale, Ehrlich
2. Need for alternative to fossil fuels	McHale
D. Acculturation, alienation, change, and credibility	
1. Unintegrated specialization and part-knowledge, information overload, lack of holistic perspectives	Michael, Vickers
2. Loss of a sense of the past or the future	Schlesinger
3. Prevalence of "pseudo-reality"	Boorstin
4. Increasing lack of faith in ability or credibility	Kenniston
5. Feeling of dehumanization and anomie	Mumford, Becker, E.
6. Pathological youth and drug cultures	
7. Decline in a "sense of vocation" and--the desire to do something well--and accompanying institutional loyalties	Hofstadter

	Literature or Interview Source
E. Societal goals	
1. Lack of optimism or will to "do small things to solve big problems"	Gardner
2. The higher priority usually given to personal pleasures than to collective endeavors	Hacker
3. Lack of agreement regarding "what is worth doing," i.e., unifying individual, national, or world goals	Harman
4. Lack of trust, goals, processes with which haves and have nots (advocates of central planning and homeostatic controls) are able to problem solve together	Michael, Theobald
5. Lack of alternatives to "hard" economics	Boulding, Mumford, Heilbroner
6. Unbalanced development of science and technology	Koestler, Snow, Kelman, Harman
7. Preoccupation with security and military "public works"	Genovese
8. U.S. economic and military imperialism and duplicity; meaningless and demeaning work of capitalist industry; and pervasive capitalist fear of socialism	Lynd

The following sets of problems were drawn from much of the same literature used in selecting the problems listed above. However, for the most part, the listing that follows concentrates on the less obvious, less tangible problems that tend to fall into the process or conceptual categories. In a sense this list describes trends or conditions that are perennial shortcomings rather than problems as usually conceived. Their inclusion here as problems implies either that these trends or conditions are deteriorating or that these shortcomings are particularly crucial now because of the more critical world situation.

For the most part these problems deal with the cultural, social, and psychological elements of the human environment. The problems are separated into three groups in this listing; (a) problems of social organization, (b) problems of the individual, and (c) problems in the conceptual world.

This list summarizes and generalizes from the problems actually identified in the literature rather than identifying the specific problems mentioned by the individual authors.

F. Problems of social organization

1. Concentration of power in society

This refers to the tendency within society for power and influence to concentrate in the hands of fewer and fewer individuals at the heads of larger and larger organizations. This process is accelerated by increases in the complexity of society and its problems; by increases in the rate of social and institutional change; and by the enormous size of so many private and public organizations.

2. Imbalance in societal institutions

This imbalance refers to a disruption of countervailing powers in a pluralistic society, or an imbalance in the relative sizes and powers of institutions, or to the relative neglect of certain functions in a society.

3. Ambiguity of institutional boundaries and functions

This refers to the blurring of the boundaries and functions between the public and private sectors of society, between academic disciplines, between various branches of government, and between jurisdictions and responsibilities of various organizations.

4. Separation of societal groupings

This refers to the functional or physical separation of certain societal groupings from others or from the social mainstream.

5. Ineffective institutional functioning

This refers to the breakdown in effectiveness of many of our public institutions such as the regulatory agencies, the welfare system, the judicial system, the educational system, and even of some of the private institutions such as Penn. Central and Lockheed.

G. Problems of the individual

1. Loss of the relationship between individuals and organizations

This refers to the loss of control by the individual over the corporate and governmental institutions that govern his life.

2. Loss of the primary community

This refers to the loss of an intimate set of relationships which provide a more or less stable social environment which encourage or allow personal growth and the fulfillment of social and psychological needs.

3. Breakdown of the individual

This refers to stresses which threaten the stability, dignity, or integrity of the individual or prevent his full social and psychological development.

4. Inequality of access to wealth, power, status, influence, etc.

This refers to poverty, but it conceives poverty as being far more than a lack of material wealth; increasingly, poverty is lack of access to the less tangible, social rewards in society.

H. Problems of the conceptual world

1. Lack of a common value base

This refers to the lack of a broadly-accepted or understood set of values concerning such basic questions as the freedom of the individual, the role of the nation in world affairs, or the responsibilities of individuals and organizations.

2. Lack of widely-shared understanding of elements of society

This refers to the fact that a large percentage of the individuals in society have only the vaguest notion of the structural aspects of the society, the basic social processes, feasible alternatives, or the diversity of viewpoints of various groups.

3. Fragmentation of the conceptual world

This refers to the range of diverse, and often incompatible notions about the current state of society, about images of man, and about overall strategies for dealing with the major societal problems.

4. The replacement of information with propaganda

This refers to the pervasiveness throughout society of advertising, public relations, pseudo-events, promises, and images in place of understandable, honest, and relatively comprehensive information.

5. The eclipse of personal experience

This refers to the increasing importance of conceptual knowledge as the key to understanding and participating in the social order, and the decline in the relevance of personal knowledge.

6. Loss of a sense of the legitimacy of politics

This refers to the loss of the sense of politics as a public process for the expression, cumulation, and resolution of legitimate conflicts between and among various public and private interests in society.

7. Lack of a basic social dialogue

This refers to the lack of communication between the intellectual and bureaucratic elites and the public.

8. Specialization and the knowledge explosion

This refers to the rapid expansion and obsolescence of the basic knowledge and approaches within specialties, and to the increasing difficulties of communication between specialties.

Persons Nominated in "Leading Thinker" Survey

Original List

E. Cleaver

W. Harman*

I. Illich*

H. Kissinger**

C. Marshall* (added to replace H. Kissinger)

J. McHale

G. Myrdal**

J. Platt*

Respondents' Nominees

R. Ackoff

R. Aron

D. Bell

K. Boulding* (3)

C. Churchman

I. de Sola Pool*

K. Deutsch (2)

C. Doxeodis

R. Dubos

K. P. Ehrlich

M. Freedman

J. Galbraith

R. Heilbroner

R. Jungk

H. Lasswell

S. Lipset

M. Mead (3)

D. Michael*

G. Myrdal**

H. Ozbekhan* (3)

A. Peccei

J. Platt*

G. Vickers

P. Weis

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* Response received thus far

** Declined to respond

Numbers in parantheses indicate number of times nominated

Books Nominated as "Most Useful" by Leading Thinkers

R. Aron, Progress and Dissolution

E. Boegelin, New Science of Politics

D. Boorstin, The Image

K. Boulding, The Meaning of the 20th Century (3)

Brookings, Setting National Priorities

L. Caldwell, Environment: A Challenge to Modern Society

P. Drucker, The Age of Discontinuity

P. Ehrlich, Population, Resources, & Environment

J. Forrester, World Dynamics (in press)

A. Freire, Pedogogy of the Oppressed

M. Harrington, The Accidental Century

R. Heilbroner, The Great Ascent

A. Koestler, The Ghost in the Machine

J. McHale, The Ecological Context

MIT SCEP, Man's Impact on the Global Environment

L. Mumford, The Pentagon of Power

M. Novack, The Experience of Nothingness

J. Platt, What we must do (In Edited Volume of similar papers)

F. Polak, The Image of the Future

Shumpater, Capitalism, Socialism & Democracy

A. Smith, Wealth of Nations

J. Spring, Education & the Rise of the Corporate State

G. Vickers, Freedom in a Rocking Boat (2)

Numbers in parantheses indicate number of times nominated

Predominant Problems Recognized by "Leading Thinkers" Survey
(listed in approximate order of rated importance)

War and Peace

- nuclear threat
- absorption of resources, material and human

Population

- gross population increase
- uneven population distribution

Underdeveloped areas

- problems of population growth and famine
- unfulfillable goals and expectations; need for realistic sense of hope
- need for basic alternative goals to that of Western Industrialization

Resource Exhaustion/Pollution

- the "spaceship earth" problem of ecology

Societal Fragmentation and Possible Transition

- specialized part-knowledge
- over-rapid communication, little sense of community
- need unifying national (and world) sense of commitment
- expectation of "new age" unfulfillable, cause of disillusionment

Pathological youth cultures

- lack of relatedness to the "human venture," anomie

Dilemma of Freedom vs. Security--antithetical?

Appendix D

ANNOTATED BIBLIOGRAPHY

Appendix D

ANNOTATED BIBLIOGRAPHY

Included in this bibliography are annotations of the books that are the major sources for the report. Also included is an unannotated listing of several articles that are central to the argument, and a listing of four anthologies that provide a broad coverage of societal problems from a variety of perspectives.

Major Sources, Annotated

- Bennis, Warren G. and Philip E. Slater, The Temporary Society, Harper & Row, New York, 1968 (Harper Colophon paperback, 1969)

The theme of this book is well expressed in the title of the first chapter--"Democracy is Inevitable." Bennis and Slater argue that democracy is the only system that can cope successfully under the conditions of chronic change which increasingly characterize contemporary society.

The remaining chapters explore the implications of these changes and of the "inevitable democracy" on our "key institutions: organizational life, family life, interpersonal relationships, and authority." Topics covered are the development of bureaucracy by adaptive, rapidly changing temporary organizations, the social consequences of temporary systems, new patterns of leadership required, and the need for education to prepare people to live in the emerging temporary society.

The authors do not believe that the future they describe is necessarily a "happy" one. "Coping with rapid change, living in temporary work systems, developing meaningful relations and then breaking them--all augur social strains and psychological tensions" (p. 75).

- Boulding, Kenneth E., The Meaning of the Twentieth Century, Harper & Row, New York, 1964 (Harper Colophon paperback, 1965)

"For Boulding, the meaning of the twentieth century lies in the fact that the explosion in man's knowledge, both of the outward physical world and the inward human world, represents a 'great transition,' one

as great as the agricultural revolution that marked the beginning of civilization itself...

Although technology, the application of scientific change to the manipulation of the physical universe, is deeply involved, the great transition means much more. It means a basic change from the social organization of the world we have fondly liked to call civilized, and radical change in the cluster of values that define the meaning of being human."*

Three traps--the war trap, the population trap, and the entropy trap--are discussed in relation to their potential as blocks to this transition.

Boulding considers at some length the role of basic values, images, and ideologies as formative influences for social development, concluding that "if there is any ideology peculiarly appropriate to the achievement of the transition, it is neither capitalism nor socialism, but the scientific ideology itself applied to society" (p. 179)--an approach that is a strategy rather than an ideology per se.

- Drucker, Peter F., The Age of Discontinuity: Guidelines to Our Changing Society, Harper & Row, New York, 1969

Drucker considers it unlikely that the apparent trends of the last 60 years will dominate the rest of this century as most predictions about the year 2000 assume. Instead he believes that major discontinuities are occurring which are "already changing structure and meaning of economy, policy, and society" and are likely to mold and shape the closing decades of the twentieth century (p. ix).

These discontinuities are taking place in the areas of new technologies, a world economy, a society of large organizations, and a massive increase in the power of knowledge in society. We are, in short, becoming a world society of large organizations in which knowledge has become the prime resource and industry.

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* Quoted from John William Ward's review which appeared in The Reporter, December 3, 1964, pp. 51-52.

Drucker devotes the major part of this book to exploring in detail the nature and implications of each of these discontinuities in turn.

- Ferkiss, Victor C., Technological Man: The Myth and the Reality, George Braziller, New York, 1969 (Mentor paperback, 1970)

A political scientist looks at the vast changes transforming society and attacks "the myth of the future" that focuses attention on what is to come rather than what is (pp. 10-16). He is concerned with creation of technological man--"man in control of his own development within the context of a meaningful philosophy of the role of technology in human evolution" (p. 245). He concludes, however, that at least for the present, "technological man is more myth than reality....Bourgeois man is still in the saddle [and]...is increasingly unable to cope with his problems. At the same time, an existential revolution is under way that may destroy the identity of the human race, make society unmanageable and render the planet literally uninhabitable. Bourgeois man is incapable of coping with this revolution. The race's only solution is in the creation of technological man" (p. 245). To survive, a new philosopy is required, involving such elements as a new naturalism, a new holism, and a new immanentism (p. 252).

- Gross, Bertram M., "Friendly Fascism: a Model for America," Social Policy, November/December 1970, pp. 44-52

In this article Bertram Gross warns of the possible emergence of a "new-style" fascism within America in the course of this decade. The key theme would be the "managed society," with management and planning not limited to the economy but encompassing the "political, social, cultural, and technological aspects of society as well."

This managed society would be "ruled by a faceless and widely dispersed complex of warfare-welfare-industrial-communications-police bureaucracies" that would be "brought to power not by force, but as a result of cancerous growth within present institutional structures." The resulting "friendly fascism" would come in the form of an advanced technological society operating under conditions of cybernetic technology,

electronic mass media, nationwide urbanism, and welfare-state comfort, and would rely on "the sophisticated development of indirect control and manipulation."

Although admittedly somewhat of a scare story, this article is very highly recommended for its clear detailed description of where we may be headed. It puts into frightening perspective some current developments in management, planning, and control.

• Kahn, Herman, and Anthony Wiener, The Year 2000: a Framework for Speculation on the Next Thirty-Three Years, MacMillan Co., New York, 1967

This work is perhaps the most central touchstone of the infant "futurist" movement. Stemming in part from the American Academy of Arts and Sciences Commission on the year 2000, the volume seeks not only to identify key trends and other statistical baselines, but to project them into a series of alternative futures. Central in this endeavor is the "basic long-term multifold trend" that points to a "least-surprises post-industrial" society which is increasingly affluent, urban, crowded, changeful, and is moving away from primary and secondary production toward tertiary (service) occupations and even quaternary (services to service trades) ones. International politics are stressed throughout.

The final chapter, on "Policy Research and Social Change," provides an excellent overview of some of the more important needs, opportunities, and inherent threats associated with future-oriented planning.

The book is a classic in its field.

• Michael, Donald N., The Unprepared Society: Planning for a Precarious Future, Basic Books, New York, 1968 (Harper Colophon paperback, 1970)

"The general argument of this book is that the convergence of certain social and technological trends will lead to much more extensive use of long-range planning even though we are ill prepared institutionally, methodologically, and personally to do it well; and that the type of education needed to realize the opportunities and avoid the threats in this situation is not at all likely to be available as soon as we will need it or on the required scale" (p. 3).

"Since we lack the ability to make the changes needed at the pace and on the scale necessary to cope with the problems we foresee, or to

make a world we want as quickly as we think we need it, we badly need data and theory to deal with the turmoil, the social disruptions, that are likely consequences of our incapacity to change ourselves quickly and coherently" (p. 90).

"The question explored in [the last chapter] therefore is what, if anything, could be done through the processes of education to provide a generation of leaders and citizens better able to cope with such a tumultuous world" (p. 106).

• Mumford, Lewis, The Pentagon of Power, Harcourt Brace Jovanovich, New York, 1970

This book is the latest product of Mumford's lifetime of study devoted to technology and society ("technics and human development"). From this background, and from his "growing awareness of the irrational factors present in our machine-oriented technology," he describes and criticizes the power complex, the associated mechanistic world view, and society's technological compulsiveness that have become the driving forces of society.

This power complex consists of a "constellation of forces, interests, and motives"--publicity, progress, profit, productivity, and property--that have been separated from human culture and enclosed in an "isolated subsystem centered not on the support and intensification of life but on the expansion of power and personal aggrandizement" (p. 167). The power complex drives a technological system that impacts on every sphere of human activity but is indifferent to other human needs, norms, and goals. Compounding this indifference is a technological compulsiveness under which "society meekly submits to every new technological demand and utilizes without question every new product, whether it is an actual improvement or not..." (p. 186).

In light of the massive problems brought about by this power complex and technological compulsiveness, Mumford considers the central problem of technics to be that of "creating human beings capable of understanding their own nature sufficiently to control, and when necessary to suppress, the forces and mechanisms that they have brought into existence" (p. 187).

- Vickers, Geoffrey, Freedom in a Rocking Boat: Changing Values in an Unstable Society, Penguin Press, London, 1970

Vickers considers the bases of man's stability and continuity to be threatened by accelerating rates of change in the physical, institutional, and cultural domains. He foresees increasing instability as regulation continues to break down in four fields--the ecological, the economic, the political, and the appreciative. The "appreciative" refers to "the inner coherence of that system of interests, expectations and standards of judgement which orders our lives, guiding action, mediating communication and making experiences meaningful" (p. 155).

In view of this breaking down of regulation in our significant environments, Vickers considers that "the overriding problem for today is how to make, from the unstable, warring systems in which we live, a governable world of governable men--at whatever level may prove possible" (p. 27).

He defines the necessary tasks of the dawning "post-liberal age" as "economically, to conserve the planet's resources and to distribute its product acceptably between man and man, nation and nation, present and future...politically...not merely to control but to organize and legitimize the huge concentrations of power which will be needed, not only in government but in all the major institutions of society...[and] ideologically and psychologically...to develop and spread an appreciation of the human situation and an acceptance of its inherent obligations..." (pp. 183-4).

He suggests that in the post-liberal age we will become more concerned with the "authority by which liberties are created and defined," and with the regulation that will be required to attain stability and assure continuity in the physical and social environment. He suggests, in other words, that we can no longer take for granted, but must actively foster the "bonds of common humanity."

Articles

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- Hardin, Garrett, "The Tragedy of the Commons," Science, 13 December 1968, pp. 1243-48

- Michael, Donald N., "On the Social Psychology of Organizational Resistances to Long Range Social Planning," unpublished paper prepared for the Symposium on Technology in Organizations of the Future, New York State School of Industrial and Labor Relations, Cornell University, Ithaca, New York, November 1970

- Platt, John, "Hierarchical Restructuring," unpublished paper, Mental Health Research Institute, University of Michigan, Ann Arbor, Michigan

- Platt, John, "What We Must Do," Science, 28 November 1969, pp. 1115-21

Anthologies

- Environment and Change: the Past Fifty Years, edited by William R. Ewald, Jr one of two volumes bringing together the papers presented at the American Institute of Planners' Fiftieth Year Consultation in 1967--papers by Vickers, Myrdal, Fuller, and others--Indiana University Press, Bloomington, 1968

- Toward the Year 2000: Work in Progress, edited by Daniel Bell, a summary of the work of the Commission on the Year 2000, Beacon Press, Boston, 1967

- Beyond Left and Right: Radical Thought for Our Times, edited by Richard Kostelanetz, an anthology of writings on the future, technology, society, planning, education, etc., by Boulding, Fuller, Theobald, Brzezinski, and others, William Morrow, New York, 1968

- The Endless Crisis: America in the Seventies, edited by Francois Duchene, a confrontation of the world's leading social scientists on the problems, impact and global role of the United States in the next decade; the record of a four-day international conference held at Princeton in December 1968 under the auspices of the International Association for Cultural Freedom, Simon and Schuster, New York, 1970