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CHAPTER I: INTRODUCTION

One of the most significant trends in recent years has been the pragmatic attempt by all types of organizations to assess or evaluate their performance. In these assessment efforts, business, governmental, and civic leaders have turned to the academic community for the concepts, methodologies, and theories necessary to undertake the evaluation task. Researchers have responded as operations researchers and systems analysts (Saaty, 1972) and, armed with planning, programming, and budgeting systems, have variously attempted to assess and evaluate (Suchman, 1967; Zurcher and Bonjean, 1970). Their most conspicuous successes are found in business organizations (Bauer and Fenn, 1972), in the Department of Defense (Hitch, 1969), and in the Office of Economic Opportunity (OEO) (Rossi and Williams, 1972). Unfortunately, even though President Lyndon Johnson had ordered the agencies of the United States government to implement a government-wide planning, programming, and budgeting system (PPBS), subsequent practice revealed that PPBS systems were often inappropriate evaluation instruments when applied to social action programs. Specifically, it was noted PPBS systems were inappropriate in areas where: 1) a basic consensus on the goals of the activity either did not exist or were too broad to serve any meaningful guidance function; and
trip to Detroit, topped off by a White House visit, for host
country government officials and industrial leaders to increase
United States automobile exports. In the verbal model outlined
above, the hypothetical country team has advanced and identified
a model of trade considering good will and prestige gained by
a trade delegation as an important factor in the decision to
order American automobiles.

The identification by the country team under the CASP system
of the challenges or opportunities, level of concern, selection of
appropriate environmental indicators and resolution of the issue
clearly reveal the verbal modeling presently undertaken by the
country team members.

Second, modeling by designers is a crucial first step in
identifying the levers or particular control actions which will
most easily produce the changes desired by the country team. It
is first necessary to have an understanding, however rudimentary,
of the system to be controlled, before control actions or courses
of action can be identified. In the example of the automobile
exports, the leverage or control point may well have been the
country team's decision to seek an official invitation for the
prospective trade delegation members. This would be the easiest
and the most direct course of action to convince appropriate United
States officials to issue an invitation than would any other
combination of means. Modeling thus allows the designer to locate
those factors most susceptible to this control and which most
directly produce desired results.
The CASP courses of action function as the control actions of the CASP planning system. The goals and objectives indicate the specific accomplishments expected to be produced by these actions within a given time frame. In addition, the resource allocation estimates allow the country team to gauge the expense of its actions.

3. The Necessity of Information for Control. The most prominent feature of any control system—from the simple pressure valve on a steam engine to the computer managed optimal control systems in large industrial plants—is the feedback loop which carries information on the output of the system to the error detector or monitor. Control actions, as noted before, are designed to keep the errors in the output of a system within acceptable bounds. Error detection, therefore, must occur before control decisions and actions may be undertaken. Acquisition of information is thus a prior condition to error detection.

The weakest component of the CASP planning system from a control perspective is its environmental indicator system. The CASP environmental indicators suffer because: 1) the indicators for each area of concern are not standardized; 2) the indicators, with the obvious exception of economic affairs, are rarely quantified—thus making accurate and intersubjective agreement for diagnostic purposes hazardous; and 3) the indicators are not maintained as an ongoing indicator system.
Despite these problems, the position of environmental indicators in the planning sequence and their role in identifying challenges suggests efforts may be made to remedy some of the problems noted earlier. Chapter VI contains a number of suggestions concerning relatively inexpensive ways to alleviate some of the problems identified above.

4. The Use of a Knowledge Base. Design efforts require planners to draw upon the best knowledge available to construct the models used to identify and plan for control actions. Time, level of resources, state of available knowledge, and the professional experience of the designers will directly influence the amount of information available to identify the components and the inter-relationships of the model. They also help locate and fashion the control devices necessary to produce the desired outputs.

CASP country team members follow the application of the knowledge pattern noted above when issue statements are developed and courses of action are posited.

5. Conscious Activity. Design actions are purposive efforts to promote goals. The design process is thus a very self-conscious effort to fashion strategies to ensure desired end-states come about. All plans, as control actions, are goal-referenced (i.e., they seek to advance a goal).
As noted earlier in the discussion of the referencing of control actions by goals, all work in the CASP planning system begins with the identification of generic interests to be advanced. The environmental indicators, courses of action, and resource allocations are thus referenced or included within specific interest areas. All planning and action is thus located by the United States national interest it is to advance or protect.

6. Existence of a Perceived Problem. As noted earlier in Chapter II, if there are no problems there is no need to design, control, or to set up indicator systems. Indeed, before resource-consuming design, control, and monitoring systems can be developed it is necessary for the policy maker to ask whether the consequences of not acting or not instituting the design and control activities listed above exceed the cost of implementing these strategies.

The assessment of the costs of trends in the environment, the identification of problems, the initiation of control actions, as well as the institution of a monitoring system find their criteria for identification and guidance in terms of goal statements. Stated simply, costs, problem identification, and problem solution require goals as their frame of reference. If, for example, universal public education is not a design goal, then the existence of a dropout rate among pupils is not necessarily seen as a problem—even if it is as high as eighty percent.

In the CASP system, problem identification occurs whenchal-
The planning phase that the CASP system represents importantly reflects direct congruencies with the design activities enumerated above. This is shown in the following chart:

7. Activity Undertaken to Solve the Problem. The design process is an organized and conscious activity in which the end product is a goal-based solution to a goal-defined problem. In the design process first goals and then problems are identified. Next, a search is made within time and resource limitations to produce a solution—the design product—to the perceived problem which reflects the design goals. In the design stage an indicator system may not only be set up to monitor disturbances or error for the control system, but also to store information necessary for making judgements about redesigning all or part of the control system.
### Figure 6: Congruence Between CASP and Design Activities

<table>
<thead>
<tr>
<th>CASP Components</th>
<th>Design Activities</th>
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<tbody>
<tr>
<td>Goal identification</td>
<td>National interests</td>
</tr>
<tr>
<td></td>
<td>Area of concern</td>
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<tr>
<td>Problem identification</td>
<td>Challenge or opportunity</td>
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<td>Level of concern</td>
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<td>Establishment of an indicator system</td>
<td>Environmental indicators</td>
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<td>Creation of a design product</td>
<td>Issue</td>
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<td>Goals</td>
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<td>Objectives</td>
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<td>Course of action</td>
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<td>Resource allocation</td>
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<tr>
<td>Redesign</td>
<td>The biannual review of the CASP</td>
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<td></td>
<td>package by DOS</td>
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<td>country teams</td>
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8. Desired End-States or Goals. Last, and most important, is the identification by the designer of specific goals to be advanced. Goals, as noted above, function to provide the guidance necessary to:

- identify problems
- indicate the range of proposed solutions
- reference control actions
- provide the background for the location of indicator system variables
- identify the need for redesign

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2Although this is not a component in the same sense as the other CASP components listed, it is clear that the biannual review of CASP reflects the redesign process examination in Chapter II.
The identification by the Latin American Bureau of eleven United States national interests, areas of concern, goals, and objectives represents an effort to define the end-states which the United States seeks to reach. One particular advantage of the CASP end-statements is that the vertical hierarchy in which they are imbedded is general enough for description (i.e., national interests) and at the same time specific enough for diagnostic action (i.e., objectives).

The principle disadvantage of the CASP goals is one common to all goal-based planning with a multi-year focus. The new set of decision makers with different goals may be encumbered or constrained by the self-justifying inertia all standard operating procedures develop. Consequently they will be unable to implement desired changes in goals (Hitch, 1969; Allison, 1969). The down time or lag time due to the inherited policies of previous administrations is a common feature of all recent shifts of Presidential administrations (Neustadt, 1954, 1955). Indeed, it is a common observation of political commentators that it is only in the second year the policies of the new administration find themselves decisively expressed in the budget submitted to Congress and in the federal bureaucracy.

Observation of foreign policy changes introduced by new administrations suggests the changes do not represent comprehensive overhauls of all issue positions. Still, incoming policy makers will have to realize the hidden agendas set for
them by previous administrations and seek to quickly master the planning system to change those existing goals or value preferences to those which they wish to pursue. The biannual reassessment of CASP indicates the potential flexibility of the planning system in addition to the opportunities present to change the goals United States policies seek to advance.

One other point concerns the institutional mechanisms which might be developed to make explicit the models employed by country team members in their identification of issues. Presently, no explicit in-house procedure exists to store or compare models employed by the country teams in constructing official United States courses of action. With the potential improvements to be made in the CASP environmental indicators, abundant opportunities will exist to compare the differential effect on United States national interests of different courses of action produced by competing models. Institutional mechanisms and procedures need to be developed to encourage these comparisons and to record the results in some systematic form.
CHAPTER V: CASP IN A POLICY EVALUATION MODE

Up until this point, this dissertation has been primarily concerned with explicating the Department of State's Country Analysis and Strategy Paper (CASP) policy planning system via the concepts contained in the design and control theories so that a better picture may be formed of the CASP planning system. In addition, the design and control theories have been examined in terms of an existing policy planning system. In this comparison it has been shown that the Department of State's CASP system has been planned, organized, and implemented along the lines indicated by design and control theorists.

The CASP policy planning system has exhibited the following design and control characteristics:

- Referencing of control actions by goals
- Specification of control actions
- Necessity of information for control actions
- Use of a knowledge base
- Conscious activity
- Existence of a perceived problem
- Activity undertaken to solve the problem
- Desired end-states or goals

Unfortunately, the area of the weakest congruence between the CASP system and design and control theories lies in the use
of information provided by the environmental indicators for diagnostic control actions. Briefly, the present system of environmental indicators exhibits the following weaknesses: indicators have not been standardized; many indicators have been too imprecisely stated to permit ready measurement; collection of environmental indicators has not been regularized; and the indicators do not explicitly measure the outcome or impact of control actions. These weaknesses, it is argued, represent discongruencies with the design and control theories and have seriously limited the use of CASP by the Department of State as a policy evaluation tool.

The objective of this chapter is to outline two improvements that can be made in the environmental indicators component of the CASP system to enhance its use as a tool of policy evaluation for Department of State planners. This will be accomplished, first, by briefly indicating the role of evaluation in design and control efforts. Secondly, improvements can be made by outlining how the CASP environmental indicators may be modified to provide data on the control actions undertaken by the Department of State. It also outlines the degree to which these actions have enabled the United States to reach its goals or fulfill its interests.

A. Policy Evaluation. Evaluation of specific policies or programs requires policy makers ask what contributions the policy actions made toward the successful completion of their goals.
2) measurement problems obviated the setting up of a reliable indicator or accounting system (Held, 1969).

Although policy evaluation efforts to date have experienced only limited success, recent developments in the policy sciences and in the United States Department of State suggest solutions to the problems of goal consensus and measurement. In the efforts of both the Department of State and of design and control theorists, important conceptual work has been undertaken regarding the use of goals for diagnosis and evaluation. Both have also established indicator systems to provide needed measurement information.

In the Department of State recent events seem to indicate the establishment of a systematic policy evaluation instrument incorporating goal specification with a diagnostic indicator system may be at hand. The first has been the orientation of the top Department of State leadership in the last several years, spearheaded by the Office of Management, in promoting the use of social science concepts and methodologies in the planning, operation, and evaluation phases of Department of State activities. Second, owing to pressures for long-term planning created by the Alliance for Progress since the mid-1960's, the Latin American Bureau of the Department of State (ARA) has been involved in the development of a policy planning and analysis tool—the Country Analysis and Strategy Paper (CASP) (Mosher and Harr, 1970). Third, in conjunction with the efforts of the
The three main types of policy evaluation employed by policy makers have been ad hoc analyses, experimental design, and indicator systems (Rossi and Williams, 1972). Each of the types will be examined in terms of how well, from a design and control perspective, they permit the policy maker to determine and assess the consequences of his policy actions.

1. Ad hoc analyses are the most common and least satisfactory method of policy evaluation. They have generally involved assessment efforts implemented toward the end or after the completion of a program to judge whether it was successful. Since criteria of evaluation had not been set up nor data collected in advance, ad hoc analyses are most often limited to either anecdotal evidence or to whatever data, generally budgetary, the program may have generated (Wright, 1968). Ad hoc analyses thus have suffered from low intersubjective agreement among evaluators and have not produced systematic evidence concerning the impact of policy actions upon the goals of the decision maker.

2. Many of the models of measurement advanced in evaluative research have been directly borrowed from the work done in classical experimental design (Suchman, 1967). The primary advantage of experimental design models for policy makers is that they directly allow the analyst to determine the impact of policies upon goals (Houston, 1972).
In the figure on the following page, five progressively more sophisticated experimental design models are displayed in terms of their increasing ability to answer the impact question of policy evaluators.

Although the experimental design models illustrated allow the researcher to specify both his confidence in the results as well as the effect of particular stimuli upon the subjects of the experiment, they are often too expensive or too difficult for policy makers to implement (Rossi and Williams, 1972; and Wildavsky, 1972). In short, precisely at the moment experimental design models are able to provide decision makers with impact information, they simultaneously become too cumbersome and expensive for use.

3. The use of indicator systems provides an additional source of data for policy evaluation purposes. In the design and control models examined in Chapter II, two types of indicator systems, output and impact, are examined. Output indicators monitor and measure over time the actions that a system undertakes. The
Figure 7: Five Experimental Design Models

Key: T = A time period  
S = Subjects of experiment  
C = Control or placebo group  
X = Administration of experimental stimuli or treatment  
E = Measurement of selected impact variables

<table>
<thead>
<tr>
<th>T1</th>
<th>T2</th>
<th>T3</th>
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</thead>
<tbody>
<tr>
<td>XS</td>
<td>E</td>
<td></td>
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<tr>
<td>E</td>
<td>XS</td>
<td>E</td>
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<tr>
<td>E</td>
<td>XS</td>
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<td>E</td>
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<tr>
<td>E</td>
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<td>E</td>
</tr>
<tr>
<td>E</td>
<td>C</td>
<td>E</td>
</tr>
</tbody>
</table>

-T1- Provides measurement, but experimenter does not know if or to what extent treatment has affected the measurement scores.

-T2- Experimenter now has pre- and post- treatment measures but does not know if changes are due to external factors or to increased sensitivity due to use of pre-test.

-T3- Control group (c) allows researcher to assess change to some extent but leaves unclear the extent of the changes due to initial differences between subjects and control group, or the influence of the pre-test.

This design enables the researcher to assess both initial and post-treatment changes. It does not, however, deal with the effect of the pre-test in increasing sensitivity and its effect on post-scores.

This design permits the experimenter to answer the following questions:

1. Is there a change due to treatment of X?
2. Are these changes related to features of S and C groups?
3. What is the effect of pre-test measurement upon post-test results?
granting of a loan, the issuing of passports, and consulting with host country officials all constitute actions undertaken by the Department of State. Output indicators would measure, for example, various aspects of these actions over time, such as the number of applications, dollar value, processing time, and the repayment period for loans granted, in order to provide information as to whether the loan program was operating in the manner desired by decision makers. Output indicators, in short, furnish the information necessary to measure the congruence between desired and actual actions. In the previous example, the policy maker might have found that because the processing time was longer than desired, the effectiveness of the loan program in delivering needed funds was seriously impaired, or that the dollar value of loans disbursed was low and processing as fast as desired, but that the source of the problem lay in the extremely low number of loan applications. Policy makers would then be in a position to redesign the application or processing procedure if they still desired to dispense a given volume of loans.

Impact indicators, on the other hand, function to provide information on the result or outcome of actions by an organization on its goals. In the above example of loans, the output indicators do not furnish information on the consequences of their actions. A system of impact indicators would, however, provide outcome information such as the effect of United States AID loans on local private interest rates, the purchase of farm equipment,
the number of new acres planted, and the average caloric consumption of the region if the goal of the loan program was to promote agricultural development.

Output and impact indicator systems thus function to supply two different kinds of information. Output indicator systems provide information on the congruence of their actual actions with their desired or intended actions. Impact systems detail information on the consequences of these actions on particular goals.

Both types of indicator systems are necessary and desirable for organizations such as the Department of State engaging in design and control activities for a number of reasons. First, an output or action indicator system provides the information necessary for the policy maker to base decisions concerning the allocation and reallocation of manpower and financial resources. Prudent management purposes are thus served by indicating which components of a policy program are or are not operating in a desired fashion.

Second, impact indicators allow policy makers to answer the so what? question by providing information on the consequences of their actions on their goals. Thus, for example, a loan program may be efficiently managed but prove to be of little consequence or impact in increasing agricultural development.

A third, and perhaps the most important, reason for the development of both an output and impact indicator system is the
contribution of an integrated indicator system for policy evaluation. Stated simply, the use of both an output and impact indicator system provides the data allowing the policy maker to evaluate the success of a given policy action in reaching or furthering goals. For example, in the figure on the following page, three components of the loan program example are displayed as influencing the achievement of a particular goal—increasing planted acreage. An output-impact indicator system would provide the data allowing the policy maker to evaluate the impact of the three components of the loan program separately and collectively, upon increasing agricultural acreage. Evaluation of the data might provide the basis for one of the following recommendations:

1. **Finding**: A million dollars worth of loans increases planted land by 10%.
   **Policy recommendation**: increase dollar value of loans.

2. **Finding**: The dollar value of loans is unimportant. What matters instead is that a farmer can come in and quickly have his loan processed. Dollar value is not as important as processing time because if the farmer has some ready cash (his loan) he can often drive a better bargain from his local creditors for the agricultural supplies he needs.
   **Policy recommendation**: decrease processing time for loans.

3. **Finding**: The repayment period is crucial because farmers feel the crops for the next two years will not bring prices sufficient to pay back the loan. Hence he will not borrow even to increase his acreage.
   **Policy recommendation**: provide delayed repayment option.

4. **Finding**: With a delayed repayment option of up to three years, the increase in acreage does not seem to be affected by the loan program or its components.
   **Policy recommendation**: investigate institution of program to increase the number of agricultural experts.
Figure 8: Impact of Actionable Variables

<table>
<thead>
<tr>
<th>Actionable Variables</th>
<th>Goal</th>
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</thead>
<tbody>
<tr>
<td>Dollar Value of Loans</td>
<td>New Planted Acreage</td>
</tr>
<tr>
<td>Processing Time</td>
<td></td>
</tr>
<tr>
<td>Repayment Period</td>
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Of the three types of policy evaluation examined, experimental design and indicator systems seem to offer the most systematic models for evaluation. Although both types of policy evaluation share a number of difficulties, briefly examined below, it is argued that the indicator model included in the design and control theories is the more appropriate model for policy evaluation, especially in an ongoing policy planning system such as CASP.

A number of factors have limited the use of policy evaluation models by policy makers. One of the most important is that policy makers rarely have available the lead time necessary to organize and implement policy evaluation models for assessing the performance of new programs (Williams, 1971). In addition, the education and training received by most policy makers has traditionally not stressed social science evaluation models (Burgess, 1970; Hillsman, 1969). Third, because the determination of success for a program is a political problem and will directly affect the careers of program administrators, program heads are ill-inclined to implement evaluation programs threatening either their careers or the
values they hold (Wildavsky, 1972). Fourth, the lack of an explicit notion of what a successful program looks like, also may discourage an administrator from employing policy evaluation models. Fifth, implementing evaluation routines always costs money and manpower which could be applied elsewhere. Lastly, evaluation models requiring control or placebo groups are often difficult to administer because of legal and moral restrictions. It may not be either legal or morally acceptable to withhold welfare benefits, medical care, food supplies, or educational loans from control groups as required by the experimental method (Hillsman, 1969; Rossi and Williams, 1972).

Policy evaluation based upon information by indicator systems is in many ways more appropriate to needs of policy makers than information produced through experimental design. First, the pre- and post- measurements included in experimental design models implicitly assume stops and starts in the phenomena under consideration. This assumption of stops and starts represents an imposition by the researcher of arbitrary time boundaries on what have often been regarded, especially in the political arena, as continuous streams of action (Riker, 1957). Inherent in the assumption of stops and starts is the consideration that a significant portion of the experimental group will receive and react to the experimental stimuli within the time period selected by the researcher. In addition, given the fact that few policy oriented experimental designs are panel studies, the researcher
must assume that all responses of his subjects to the stimuli presented have had the same rate and been in the same direction. The figure below indicates four possible response patterns to stimuli. Experimental designs frequently, especially in the social arena, miss much of the action because they do not over time systematically follow-up or monitor the responses of their subjects (Weiss and Rein, 1969; Tufte, 1968). Indicator systems, because they continuously monitor responses over time, avoid this shortcoming. The ability to provide continuous measurements of the effect of policy actions is particularly important in ongoing systems acting over time. Thus, welfare payments are made twelve times a year; prime interest rates are adjusted at variable intervals; and credit ratings for municipalities are made on a yearly basis. Indicator systems thus allow policy makers to see the consequences of their actions over time.

Figure 9: Four Possible Trends in Response Scores to Experimental Stimuli
Second, indicator systems do not require the use of control groups. Since the use of control groups often poses legal and moral problems, an important advantage of indicator systems is that they free the policy maker from a potential source of trouble (Rossi and Williams, 1972). Although a certain amount of control over conditions effecting the impact of stimuli is lost with indicator systems, economists have, for example, been able to make accurate evaluations based upon a GNP-based system of economic indicators.

Third, experimental design requires the researcher have some notion of the magnitude of difference between control and experimental groups sufficient to indicate success. Information provided by indicator systems does not require a comparative notion of success because it is an ongoing system without control groups. In short, if political will and resources are sufficient, program elements need only be manipulated until either a desired level is revealed by the indicator system or a decision is reached to redesign program elements. Success is thus measured in terms of the extent to which goals are achieved.

Indicator systems, however, do suffer from the fact that unlike the experimental design model, it is difficult to determine the cause of the change in the value of an indicator. In this respect experimental designs hold an advantage over the use of indicator systems. A strategy which employs both models to their strength would envision using the indicator model to detect change
ARA to apply the CASP policy making system to Latin America, has been the establishment by the Department of State and approval by the National Security Council of eleven official national interest goals for the United States. Fourth, has been the recent action by the Department of State to expand and implement the principles contained in the CASP system on a world-wide basis under the name of Policy Analysis and Resource Allocation (PARA) system. Fifth, and most recent, has been a rather specific proposal to establish a global indicator system designed to monitor the progress of the world in five selected areas. While each of these points will be discussed in more detail later, for now the important thing to note is that a policy planning system which is based upon the use of goals has been implemented in the Department of State.

The second factor which is about to have a significant impact on the efforts of individuals and organizations to evaluate their performance, has been the development and dissemination of the work of design and control theorists (Bellman, 1967; Simon, 1969). Some idea of the importance attached to the newly emerging design work can be found in International Studies Association President Alexander George's identification, in his presidential address, of design work as one of the three main missions of the international studies field (George, 1973).

The principle contributions of the design and control theorists for policy scientists lies in their use of goals,
and the experimental design model to determine cause and effect relationships. For example, once a signal had been received indicating that a drop in violent crimes had occurred, an experimental design might be undertaken in selected districts to vary treatments and discern the causal relationships. This information would then be fed back to the designer to identify the most appropriate action necessary to produce the desired effect.

Although both experimental design models and indicator systems provide accurate information on the stimuli or actions undertaken, indicator systems hold a decided lead in the quality of information provided on the consequences of these actions. In short, the inability to provide information over time, combined with the restrictions incumbent with the use of control groups, make experimental design models less useful to policy makers interested in policy evaluation than evaluation based on information provided by indicator systems.

B. Improving the CASP Environmental Indicators. The information provided by ongoing indicator systems is superior to the static measurements generated by experimental designs. The reason for this is that policy makers require information on their actions and their consequences over time. Experimental designs, with the exception of panel studies, are not intended to provide information
over time. Three methods for improving the environmental indicator component of the Department of State's Country Analysis and Strategy Paper (CASP) policy planning system will be examined. The following section will identify some tentative steps suggested by the design and control concepts examined earlier which can serve to improve the utilization potential of environmental indicators. These include,

1. Environmental indicators should be standardized.
2. Environmental indicators should be precisely stated to facilitate ready measurement.
3. Environmental indicators should be designed explicitly to facilitate measuring the outcome or impact of control actions.

The first two points will be examined together to provide the basis for an analysis of the use of environmental indicators to measure policy impact.

1. Standardization and Operationalization. Unlike the national interest categories, the areas of concern and the environmental indicators used to measure them do not appear to be sufficiently standardized into a fixed set of categories. Standardization of areas of concern and environmental indicators is especially important for policy evaluation purposes. Stated simply, if policy makers were to evaluate the consequences of a particular program for an interest area under the present system, difficulties would arise if each country team failed to:
1. Use comparable areas of concern.

2. Employ the same environmental indicators for each area of concern.

Policy evaluation, in short, requires standardized units and measures be implemented if comparisons of the success of different policies are to be determined across countries or on a regional basis.

In addition to the lack of common reference points limiting the comprehensiveness of policy evaluations, CASP environmental indicators also suffer from the fact that they have often not been stated in a readily measureable form. From the control perspective examined in Chapter II, it is clear that unless signals agreed upon or specified in advance reach the decision maker, it will be impossible to know when corrective actions are to be undertaken. In the CASP policy planning system the apparent lack of operational indicators makes it impossible to specify when to implement the course of action designed to promote or protect threatened United States interests.

Because the CASP guidelines provide only a sketchy set of substantive examples for each National Interest (Department of State, 1973), other sources were consulted in order to expand the substantive elaboration of each National Interest (McMahon, 1973). In both Appendix B and the example presented below, the areas of concern and the environmental indicators for a hypothetical Latin American CASP have been standardized and the individual areas of concern and environmental indicators have been collapsed and integrated into standard areas of concern and environmental
indicators. In addition, proposed CASP environmental indicators have been stated in operational form in Appendix B.

The purpose of the standardized and operationalized list presented below and in Appendix B is not to present an authoritative statement of areas of concern or of environmental indicators. Rather, it is to serve as a model and example of the type of standardization and operationalization possible in the CASP environmental indicator system. It should be cautioned, however, that the standardized categories and operationalizations were not chosen lightly. They represent a serious attempt to provide results that might, with a minimal amount of work, be readily incorporated into CASP.

a. Standardization. In Appendix A the original areas of concern found in the review of the sources cited above are presented with a suggested standardized list. Standardization, as can be seen in the example below, involved collapsing similar areas of concern into a single area of concern.
Figure 10: Standardized Areas of Concern For United States National Defense

Original

A. Host country leadership favorably disposed toward U.S.
B. Pro-U.S. attitude of the military
C. Cooperation of the military
D. Acquisition of cartographic materials
E. Capability of armed forces of handling internal subversion and security
F. Development of force capability for internal and border security and participation in international missions for the U.S.
G. Modernization of armed forces equipment
H. Availability of armed forces for U.S. missions
I. Contribution of host country to hemispheric security
J. Prevention of hostile acts by extremists
K. Preservation of alliance
L. Prevention of hostile alignments
M. Pressuring of alliances and prevention of hostile alignments

Revised

A. Orientation of civilian and military leadership
B. Force capability of host country armed forces
C. Direction of host country alliance pattern

2"Original" refers to the results of the literature review. "Revised" refers to the effort to collapse the original references into more manageable form.
The primary intent in the exercise above was to produce a common set of standardized areas of concern which could be used by all country teams. In the above exercise nineteen areas of concern have been carefully examined and reassembled into six standard areas of concern, and no attempt was made to exclude representation of any area of concern. Even though a significant amount of collapsing was involved in the above example, it is important to recognize this was not the primary thrust, but rather represented an inevitable by-product of any standardization attempt.

In addition, several other points need to be made. First,
it was necessary to be rather conservative in collapsing or subsuming areas of concern. The actual decision as to which areas of concern require separate categories is a political or value judgement which must be supplied from within the Department of State. Second, what is important in both the example presented above and in those examples contained in Appendix A is that they present a model of obvious areas of standardization. It also provides a shopping list against which country specialists may react in suggesting other areas of concern which better aggregate or differentiate an interest area. Lastly, a common rule of thumb which country specialists may wish to adopt is the seven, plus or minus two rule in limiting the number of areas of concern to be constructed for each United State's national interest. Such a limitation rule would help in the display of data as well as in policy analysis by keeping the number of handled categories within a manageable range.

Standardization is also important for environmental indicators. As presented in Appendix B, a standard set of indicators is proposed for each revised area of concern. Standardization of measures aids in policy evaluation by providing policy makers with comparable measures which may be employed across countries and aggregated for a geographic region.

b. Operationalization. Most of the environmental indicators proposed under CASP have not been stated in operational or
measureable form. In the example presented below and in Appendix B, the environmental indicators proposed for CASP have been examined, revised, and presented in a measureable form.

**Figure 11: Operationalized Environmental Indicators**

<table>
<thead>
<tr>
<th>Stated in Non-operationalized Form</th>
<th>Revised, and Stated in an Operationalized Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elections</td>
<td>Percentage vote received by each political party in presidential election</td>
</tr>
<tr>
<td>Visa Flow</td>
<td>Number of visas applied for Number of visas issued</td>
</tr>
<tr>
<td>Terrorist Acts</td>
<td>Number of terrorist acts</td>
</tr>
<tr>
<td>Nationalization</td>
<td>Dollar value of all nationalized United States owned firms; Dollar value of nationalized United States firms in host country</td>
</tr>
<tr>
<td>Law Enforcement</td>
<td>Size of police force; Number of reported crimes; Number of arrests; Ratio of arrests to reported crimes</td>
</tr>
<tr>
<td>Level of Political Freedoms</td>
<td>Number of political prisoners; Number of political demonstrations; Average size of political demonstrations</td>
</tr>
</tbody>
</table>

Each environmental indicator has been organized or referenced by an area of concern. As noted above, this represents part of the proposal to standardize both areas of concern and environmental indicators. Multiple indicators have been proposed for each area of concern in order to provide the highest fidelity picture.
possible of the state or condition of each area of concern (Jones, 1970). Again, selection of the actual indicators will have to
await the judgements of country specialists, although each in-
dicator listed represents either a serious attempt to
create new measures or to operationalize those suggested by the
country teams themselves.

The most important feature of the proposed environmental
indicators lies in the types of data employed. Three primary
types of data have been proposed: Expert-generated data, aggre-
gate data and attitudinal data. Of the three types of data,
expert-generated data deserves the closest attention, since the
other types have been extensively examined elsewhere (Mueller, 1969).

Expert-generated data are produced when specialists in a
particular substantive field or subject matter are asked on
the basis of their expertise to rank, scale, or estimate the
value of one or more variable (Helmar, 1966). This information
may then be employed along with, or in lieu of, other data to
make predictions about the state of the economy, the likelihood
of war, or the impact of technology upon society. The primary
advantage of expert-generated data is that they seek to use the
best features of two intellectual arenas by fusing the substantive
knowledge of the area specialist with the analytical and manipu-
lative skill of the mathematician. Expert-generated data thus
help the policy maker and analyst avoid the twin traps of
brute empiricism or idiosyncratic inquiry."
Three types of expert data are proposed in the set of proposed environmental indicators found in Appendix B: Country team estimates, profiles, and scales. Country team estimates are to be employed whenever other data are unavailable, unreliable, or too expensive to gather. Estimates differ from the two other types of expert data in that the specialist makes a prediction or estimate without reference to the other values the variable might obtain. For example, when an area specialist estimates either the number of combat ready troops or the balance of payment deficit, he does not (even if his estimate is stated to indicate a range of variance) necessarily indicate the meaning of the assigned value. In the other types of expert-generated data examined, all assigned values are accomplished and elaborated by other bits of information. Thus, in the other two types of expert data, the estimate of the number of combat ready troops may be accomplished by the number of support or reserve troops.

Construction of country team profiles requires area or subject specialists inventory the different types of activities in a given area and estimate the magnitude of each activity. Thus, in the examples presented below, each bit of information is seen relative to other immediately related activities. Note also that while the scales are nominal, the values of each activity may be either ordinal, interval, or ratio. In the same fashion as the estimate data, profiles are generated whenever other data is not presently available.
actionable variables, feedback, and in the referencing of control actions by goals. The design and control theorists' recognition of the necessity of clearly specified goals for problem identification and solution is the key component of design work. Design and control work has also focused upon producing problem solutions which incorporate actionable variables—variables which will produce a desired change within a specified time period. A third important feature is the use of indicator systems to provide the feedback necessary for implementing diagnostic control action. The fourth feature, the referencing of control actions by goals, indicates that all of the control actions of a designed system are purposive—they seek to promote a goal. The applicability of these design principles for policy evaluation efforts lies in the use of goal statements for planning purposes and in the development of indicator systems for diagnostic and evaluative purposes.

In light of the outlined developments in the Department of State, and in the work of the design and control theorists, it appears the goal and measurement problems which have plagued previous policy evaluation efforts might now be greatly reduced. It is the intent of this dissertation to examine and apply the concepts and principles of the design and control theorists to the Department of State's CASP in order to improve its use as a policy evaluation instrument.

The analysis and application of the design and control
The third type of expert data, scaled and estimated, differ from the first two types since they are not substitutes for presently unavailable data. In profile estimates, for example, it is possible to obtain the actual percentages of investment return by sector, although this is undesirable because of cost and time constraints. In scaled data, on the other hand, alternate data sources do not exist. In both of the examples found on the following page, and in the suggested scaled environmental indicators in Appendix B, no presently existing data set can provide the estimate of a nation's position on the scale.
Figure 13: Country Team Scaled and Estimated Data

1. Country team scale and estimate of the reliability of host country election results

<table>
<thead>
<tr>
<th>Extensive Voter Fraud</th>
<th>Extensive Voter Fraud</th>
<th>Limited Voter</th>
<th>Inefficient Vote Tabulation</th>
<th>Stringent Criminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>by One</td>
<td>by All</td>
<td>Fraud</td>
<td>lation</td>
<td>Code Concerning Electoral System of Poll Watching</td>
</tr>
<tr>
<td>Party</td>
<td>Parties</td>
<td></td>
<td>Process</td>
<td></td>
</tr>
</tbody>
</table>

2. Country team scale and estimate of probability of host country renewal of military base agreement

<table>
<thead>
<tr>
<th>Renewal of Agreement</th>
<th>Renewal not Popular, unvisible, but New Jobs</th>
<th>Economy Depressed, but New Jobs</th>
<th>Host Country Government Officials Feel Threatened by Third Party and Welcome Visible Signs of U.S. Presence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Politically</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unadvisable</td>
<td>Government</td>
<td>Host Country</td>
<td>Welcome</td>
</tr>
<tr>
<td>for Host Country</td>
<td>Offers More Money</td>
<td>Country Government Feels</td>
<td></td>
</tr>
<tr>
<td>Government (cause</td>
<td>Host Country</td>
<td>U.S. Should</td>
<td></td>
</tr>
<tr>
<td>riots)</td>
<td>Nationals</td>
<td>Increase</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Payments</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>and Stop</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>U.S. Jets From</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Breaking Sound</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Barrier</td>
<td></td>
</tr>
</tbody>
</table>

Expert-generated data have a number of advantages over either expert opinion or aggregate data. They allow the policy maker to avoid the year-plus time lag occurring in the collection of national social and economic accounting data. Another important advantage is that the experts may themselves determine whether a daily, weekly, monthly, quarterly, or yearly reading is best suited to fit their diagnostic or evaluative needs. Third, expert generated data neatly fill the void when there are no existing sources of data sufficient to supply the demands of the policy maker. In a related point, without expert-generated data the policy maker is forced to use economic data
as crude surrogates due to their ready availability (Bauer, 1969).

From a more substantive viewpoint, expert data have a number of additional advantages. Most importantly, they employ area specialists to their strength and training by calling upon them to use their expertise to make judgements concerning the relative position of a nation on a scale. A second important advantage is that the use by experts of a scale or profile will help provide a common frame of reference to all readers both in their vocabulary and in the recognition and specification of warning signals. Thus, a significant aspect of the job of the policy analyst is simplified because all country teams are reporting the status of their country vis-à-vis corruption or treaty renewal in the same terms.

Implementation of expert generated data as part of the CASP environmental indicator system can best be accomplished in two stages. In the first stage each country team should be permitted a wide range of freedom and be encouraged to develop its own scales or profiles. In the second stage, in order to achieve the comparability of indicators necessary for policy evaluation, the several country teams should be encouraged to select the "best set of scales and profiles.

2. Goals and Impacts. After standardization and operationalization has been accomplished for the environmental indicators and areas of concern, the fashioning of the CASP system to monitor
the impact or outcome of its actions is relatively straightforward and easily accomplished. Once standardized and operationalized, the CASP environmental indicators can function in both a **diagnostic** and an **assessment** mode. In a diagnostic mode, the indicators are monitored to provide information on the occasion (according to some prearranged response schedule) for control action. Thus a desk officer may monitor under the preferences contained in the 1965 immigration act, the number of visa applications approved and then undertake efforts to limit and eventually stop the processing of applications once a certain limit is reached. The CASP planning system is presently organized to operate in a diagnostic mode.

In an assessment mode, the CASP system of environmental indicators offers a ready base from which measures of the impact of United States courses of action may be constructed. Stated simply, environmental indicators can provide information on trends effecting United States national interests **as well as** information on the status or condition of the interest themselves. Assessment occurs when the consequences or impact of the actions of the United States are compared to the change in trends and in the United States national interests.

CASP environmental indicators are already designed to monitor the trends and conditions which threaten or promote United States national interests, but have not yet been employed in an assessment mode. In order to permit the CASP system to function
as an assessment tool, indicators must be advanced by the country teams which directly measure the national interests themselves. The revised CASP indicator system would then consist of interest and environmental indicators.

C. Evaluation Design. Although changes have been urged in the CASP system of indicators, little has been said regarding advantages or consequences of these changes for policy evaluation purposes. Below, two sample policy evaluation designs indicating the concrete types of assessment and evaluation possible with the standardized and operationalized CASP environmental indicators are briefly outlined.

1. Comparison of Actual to Desired Behavior. One important type of policy evaluation has to do with an analysis of the outputs or actions of a system. This type of analysis asks the question, "Are we doing what we want to do?" Analysis in this vein seeks to determine if standard operating procedures or courses of action are functioning as they were designed. Analysis of whether loan money to farmers was being disbursed, shipments of building supplies arrived, or if posters promoting tourism in the United States have been erected, are examples of policy output evaluation.

Within the CASP policy planning system itself, an excellent opportunity exists to perform an output oriented policy evaluation.
The assignment of levels of concern by country teams to each area of concern makes it possible to rank order United States national interests by aggregating the scores. The areas of concern themselves, in terms of their importance, may also be dealt with. The ranks could then be compared to the volume or extent of activity in which the United States engaged regarding that area of concern or interest. Thus, for example, we might find that even though a country team clearly specified and assigned to Country A a high level of concern for economic development, actual analysis of activity reveals that most of the United States' actions directed toward Country A are in the realm of national defense. Armed with this incongruency, the decision maker could then decide to reformulate his goals or his course of action.

In the following chart, the World Events Interaction Survey (WEIS) events data set of Charles McClelland has been recoded according to the eleven CASP national interests. In order to obtain events data which indicate the amount of activity that has been undertaken in each national interest area, it was necessary to recode McClelland's WEIS events data set according to the United States national interest categories provided by CASP. The recoding was carried out in the following manner:

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4See Appendix C for an elaboration of the methods used and the dictionary for recoding the WEIS data. For a further discussion of the WEIS data base, see Burgess and Lawton (1972).
1. The national interest categories, areas of concern, and other supporting documentation was examined to determine exactly what kinds of activity the Department of State included in each interest area.

2. A list of key words was then derived and compared to the information contained on the WEIS descriptive deck. After several comparisons a list of key words was developed which were able to satisfactorily classify events according to the national interest area into which it belonged.

The intention of the recoding was to supply measures of the volume of actions the United States had undertaken in each of its interest areas. The volume of activity as measured by the number of events in each category could then be ranked and compared to the importance attached to each interest by the country team. Importance could be ascertained by aggregating the levels of concern for the entire region. If this comparison revealed excessive amounts of behavior in interests with low concern, or little United States activity in areas of high concern, then policy decisions could be made to obtain congruence between intent and action.
Figure 14: Profile of National Interest Actions

(National Interest Categories)

A = National Defense
B = Economic Prosperity
C = Safety
D = Control of Movement
E = Open Channels
F = Humanitarian Assistance
G = Economic Development
H = Political Development
I = Favorable Disposition
J = World Order
K = Other
The chart reveals that the greatest volume of activity by the United States occurred in the following three interest areas: favorable disposition, open channels of communication, and United States national defense. With either a formal analysis of the average level of concern assigned each of the interests, or the judgment of an area specialist, it would be relatively straightforward to determine if the behavior of the United States was congruent with its goals.

B. Comparison of Programs to Goals. Unlike the analysis above, this evaluation is primarily concerned with the impact or consequence of our actions upon United States national interests. By asking, "Are we successful?", this analysis seeks to ascertain if, for example, emergency loans to farmers increased agricultural production. The basic form of a policy evaluation design undertakes to determine impact or effectiveness and would encompass the following steps:

1. Obtaining a volume measure for each course of action (e.g. dollar value, man hours, etc.)

2. Comparing this volume measure (aggregated where appropriate) with interest or environmental indicators for each area of concern

Volume measures may be obtained through the Department of State, other federal agencies, or by expert-generated data. Measures of the state of United States national interests may also be obtained from the same sources. One particular advantage of the regional focus of the CASP lies in its potential
for comparative analysis. In fact, the ability of the CASP system to combine the advantages of an indicator system with the possibility of control groups (i.e., countries in which United States interests are not threatened and United States programs or courses of action are not invoked), increases the accuracy with which the success of United States policies may be determined.

The intent of this chapter has been to show how the improvements suggested by the design, control, and information systems examined in Chapter II could be employed to increase the availability of the CASP system for policy evaluation purposes. Both the modifications and the research designs suggested are intended to serve as models for area specialists and policy makers of how the design, control, and information components found in CASP may be strengthened.
theories to the Country Analysis and Strategy Paper will be accomplished in four steps. First, the work of the design and control theorists will be reviewed and examined. The purpose of this review will be to extract and synthesize the most salient features of the design and control efforts. The use of goals, actionables, indicator systems, and the relationship of design to control activities will constitute the main part of the analysis.

In the second step, the national interest concept will be examined from a design perspective. Examination of the national interest concept is important because of the conceptual congruence of its role in CASP and the use of goals in design and control theory. The examination of the national interest concept serves three purposes. It allows the generic concept of a goal to be substantively grounded both in a policy action system (CASP) and in an intellectual discipline. Secondly, it provides an occasion to focus exclusively upon the most important feature of design—the use of goals. Finally, the design principles advanced in Chapter II make it possible to reinvigorate and reinstate a concept presently in disrepute after having been badly mauled in both the "realist-idealist debate" and in the work of the behavioralists (Rosenau, 1968).

The third step will entail the presentation and examination of the Department of State's Country Analysis and Strategy Paper (CASP) in terms of the concepts and principles found in the de-
Like all designed products, this dissertation was constructed with a goal in mind. Specifically, the intention was to demonstrate how the work of the design and control theorists could be applied to the Department of State's Country Analysis and Strategy Paper (CASP) policy planning system in order to improve its use as a policy evaluation instrument. This goal was to be accomplished in four steps. First, the work of the design and control theorists was to be examined and a body of concepts and principles extracted. Second, these concepts and principles were to be applied to the national interest concept. Third, the insights gathered from the examination of the national interest and the design and control concepts were to be used to describe and to suggest improvements in the Country Analysis and Strategy Paper (CASP). Finally, the improvements suggested were to be operationalized and applied to CASP so it might operate more effectively as an instrument of policy evaluation.

In examining the work of design and control theorists in other substantive areas such as in environmental psychology, architecture, product control, art, and engineering, a number of concepts and principles were extracted. Perhaps the most important was the often misunderstood distinction between design and control
activities. Stated simply, design activities are undertaken in order to control future trends or events according to a goal or set of goals. The distinction between design and control forms the basis of the discussion of design and control activities below.

Design work has a number of outstanding features which must be examined as a prelude to any attempt at definition. The most important feature of design is the role of goals in both problem identification and problem solution. Design activities are undertaken because a problem is perceived. Problem perception is a direct function of the values held by the observer. The goals held by the designer and client also limit the range of acceptable solutions to the perceived problem.

Thus, for example, due to their different goal preferences and problem conceptualizations, Republicans and Democrats define different problems and urge different solutions in their conceptualization of a healthy economy. Republicans tend to emphasize the curbing of inflation, while Democrats most often urge programs eliminating unemployment in order to achieve a healthy economy. They also differ in the range and extent of governmental involvement and deficit spending they see as desirable to restore or sustain a healthy economy. Design is, in short, a purposive, goal-seeking, activity.

A second design characteristic has to do with the nature of design activity. At the heart of design is the initiation of change,
with the creation of a new product or instrument. The purpose of
design is to create something new because existing procedures,
instruments, or systems are not sufficient to reach a particular
goal. Design involves the creation of the parameters for control
in the face of a problem. In a steam-driven engine, if pressure
exceeds a given level, then automatically a man or machine act
to restore pressure within the desired set limits. **This is a**
control action. If, however, it were noticed that the steam engine
had to constantly regulated, and that this regulation drastically
lowered efficiency, then a new steam engine with a larger
steam capacity might be designed. Such a creation of a new
product to meet our needs is a design activity.

A third feature of design is the application of a body of
knowledge in the search for a new product. Substantive principles,
empirical data, and methodological guidelines are all employed
in the solution of a design problem. In the areas of design
examined, engineering, industrial, and architectural design have
acquired the greatest body of principles, data, and methodologies.
They have, consequently, experienced the greatest successes. Al-
though the methodologies of the different disciplines which have
engaged in design have yet to be systematically examined, some
common features do stand out. Most prominent is the concern with
actionable variables. Because design products are intended to in-
duce change, designers must create products causing the desired
outcome in a specified period of time. Actionable variables
are those features of the design problem most susceptible to manipulation by the designer. Another important aspect of the design process is the construction of a model of the system to be controlled. Modeling of the system permits the actionables to be more easily identified and also aids in the construction of indicator systems.

As a result of the search of the design literature and design practices in several disciplines, a common core of activity stands out. The definition of design provided below attempts to concisely state the generic features of all design work.

Design: A conscious, problem-solving activity intended to meet the needs generated by a present or anticipated problem in terms of present values, resources, and goals by creating a new design product from a body of knowledge and data.

The primary product of the design process is a plan or product which sets the parameters for diagnostic action of a control system. The primary purpose of a control system is the comparison of actual outputs to the desired outputs. If the actual outputs differ by some specified amount from the desired output, a predetermined control action is taken. The design process provides the criteria for problem identification as well as the solution. The control process, however, identifies the problem according to these criteria and, via a monitoring process, implements the solution.
The International Red Cross is an example of a control system which seeks to keep the suffering and human misery which accompanies large-scale disasters within some tolerable limits. When a flood devastates a community, the Red Cross acts to provide temporary housing and other basic services until the area can provide its own basic services. As the basic services are restored, the Red Cross relief effort is correspondingly reduced and placed on inactive status until another intolerable disturbance is produced.

While a number of aspects of the control process mirror components of the design process, one aspect of the control process particularly stands out. Unlike design, feedback information is a necessary condition for all control systems. Without an ongoing indicator system to measure the output of a system, errors or disturbances cannot be detected. If disturbances are not detected, then corrective control actions cannot be initiated.

From the examination of the work of the design and control theorists, five principles have been extracted which succinctly characterize the design and control process:

- Design is undertaken in order to control
- Goals are necessary for problem identification
- Goals are necessary to identify solutions
- Modeling of a system is a precondition for control
- Information is a necessary condition for control

From a design perspective, the national interest concept, contrary to critiques by the realists, idealists, and behavioralists,
becomes a necessary and useful analytical tool. For the designer, interests signal the goals which a particular set of decision makers wish to pursue. For design purposes it does not matter whether interests are useful because they perform a guidance function, signaling the values to be pursued and the most appropriate means to achieve them. Operationally, they identify problems and the range of possible solutions to those problems. A balance of payments deficit becomes a problem only if the policy maker has as his goal a balance of payments which is favorable. Likewise, the list of remedies or solutions to the problem deficit is limited by the values held by the decision makers and by the laws of their country.

The Country Analysis and Strategy Paper (CASP) represents an attempt by the Latin American Bureau (ARA) of the Department of State to develop a policy planning routine which would assist in identifying: 1) whether changes in the international environment represent threats or opportunities to specific United States interests; and 2) the specific courses of action which the United States might undertake to advance, protect, or promote affected United States interests. For example, it might be specified that if the trade deficit of a country exceeded a given level (our indicator), this would threaten United States economic prosperity (our goal). The CASP issue statement would indicate the strategy to be employed and specific courses of action would be outlined to remedy the situation.
Armed with the concepts and principles of the design and control theorists, and the insights provided from an examination of the national interest concept, it is clear that the Department of State's Country Analysis and Strategy Paper (CASP) exhibits a number of design and control characteristics. Specifically, congruence between the CASP system and the design and control theories is found in eight ways:

1. **Referencing of control actions by goals:** Each CASP course of action is classified according to the goal it was intended to protect or advance.

2. **Specification of control actions:** CASP control actions are intended to achieve specific tasks within a particular time period.

3. **Necessity of information for control:** Control actions are "activated" by the information provided by the CASP environmental indicators. Because the indicators are not standardized or quantified this represents the least congruent area of CASP and the design and control theories.

4. **The use of a knowledge base:** CASP country team members follow the application of knowledge patterns when they model solutions to the challenges and opportunities to United States interests.

5. **Conscious activity:** The entire CASP planning effort is built around an explicit effort to promote United States national interests.

6. **Existence of a perceived problem:** In the CASP system, problem identification occurs when challenges and opportunities are identified in terms of United States national interests.

7. **Activity undertaken to solve the problem:** The CASP system produces goal-based solutions to goal-defined problems.

8. **Desired end-states or goals:** CASP goal statements are found in the national interest categories, areas of concern, goals, and objectives.
Unfortunately, the area of the weakest congruence between the CASP system and the design and control theories lies in the quality of the information provided by the CASP environmental indicators for diagnostic control actions and for policy evaluation purposes. Specifically,

1. Environmental indicators and areas of concern have not been standardized.

2. Many environmental indicators have been too imprecisely stated to permit ready measurement.

3. Environmental indicators have not been used to explicitly measure the outcome or impact of control actions.

Both control actions and policy evaluation efforts require comparable data and areas of concern.

In order to improve upon the use of CASP for diagnostic action and for policy evaluation purposes, improvements are suggested and carried out for the CASP areas of concern and environmental indicators. Specific changes include the standardization of the areas of concern for each national interest, and the indicators used to measure each interest. The environmental indicators are also operationalized so that more accurate and reliable data may be employed in recognizing threats and opportunities to United States' interests and for policy evaluation designs. In addition, modifications of the CASP environmental indicators are advanced which would permit measurement of the impact of United States policies upon our national interests.

Both improvements are designed to increase the usability of CASP as a policy evaluation tool by increasing the quality
of the data produced by the environmental indicator system. The modifications considerably ease the measurement problems and allow the policy maker to answer two important policy evaluation questions: "Are we doing what we want to do?" and "Are our programs successful in promoting our goals?"

**Conclusion.** A number of similarities have been found between The Country Analysis and Strategy Paper policy planning system of the Department of State and the design and control concepts developed in Chapter II. Comparison of the CASP system to the design and control theories has revealed the role of the CASP goals or interests and pointed out the weakness of the environmental indicators. With the insights and modifications suggested from the design and control theories, the CASP policy planning system is able to avoid the measurement and goal consensus problems which have limited previous policy evaluation efforts.

In addition to improving CASP as a policy evaluation instrument, several other benefits have been produced. First, the design and control theories have made it possible to gain insights into the dynamics of the CASP policy planning system. Second, the development and articulation of the design and control concepts have produced a tool which can be used to describe and to suggest improvements in other policy science areas. Third, the design principles make it possible to see the national interest concept in a new perspective as an important policy concept useful to all
those engaged in design activities in the realm of foreign policy studies.

Looking to the future, follow-up work needs to be undertaken in monitoring the policy evaluation efforts of the Department of State concerning CASP and in organizing the other regional planning systems of PARA. A second thrust needs to be made in the further refinement, dissemination, and application of the design and control theories to all those working in the policy sciences.
sign and control theories. Specifically, the several components of CASP will be described and examined via the concepts and relationships developed in Chapter II. Application of the design and control principles to CASP serves two functions. It allows the analyst to obtain a more coherent grasp of the dynamics of the CASP system through a set of design and control concepts. It also provides the analyst with a framework suggesting areas of possible improvement in CASP—particularly in reference to measurement problems.

Finally, armed with the suggested improvements in CASP, it will be possible to outline how the improved CASP might be fashioned to function more effectively in a policy evaluation mode. Improvements in the CASP environmental indicator system, along with a standardization of its sub-interests or areas of concern, are advanced to improve the use of CASP for policy evaluation purposes. The improvements suggested are important because they will provide the policy makers with comparable categories and data for diagnosis and policy evaluation.

It is the thesis of this dissertation that previous policy evaluation efforts have not been successful because of goal specification and measurement problems. Recent design and control work in the area of goal specification and measurement has generated concepts and principles which greatly alleviate these problems. Additionally, a policy planning system in the Department of State (CASP) has been established which incorporates goals
Appendix
Appendix A: Standardized Areas of Concern
United States National Defense

<table>
<thead>
<tr>
<th>Original</th>
<th>Revised</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Host country leadership favorably disposed toward U.S.</td>
<td>A. Orientation of civilian and military leadership</td>
</tr>
<tr>
<td>B. Pro-U.S. attitude of the military</td>
<td></td>
</tr>
<tr>
<td>C. Military cooperation</td>
<td></td>
</tr>
<tr>
<td>D. Acquisition of cartographic materials</td>
<td></td>
</tr>
<tr>
<td>E. Armed forces capable of handling internal subversion and security</td>
<td>B. Force capability of host country armed forces</td>
</tr>
<tr>
<td>F. Development of force capability for internal and border security and participation in international missions for the U.S.</td>
<td></td>
</tr>
<tr>
<td>G. Modernization of armed forces equipment</td>
<td></td>
</tr>
<tr>
<td>H. Availability of armed forces for U.S. missions</td>
<td></td>
</tr>
<tr>
<td>I. Host country contribution to hemispheric security</td>
<td></td>
</tr>
<tr>
<td>J. Prevention of hostile acts by extremists</td>
<td></td>
</tr>
<tr>
<td>K. Preserve alliance</td>
<td>C. Direction of host country alliance pattern</td>
</tr>
<tr>
<td>L. Prevent hostile alignments</td>
<td></td>
</tr>
<tr>
<td>M. Preserve alliances and prevent hostile alignments</td>
<td></td>
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</tbody>
</table>

"Original" refers to the results of the literature review outlined on pages 113 to 114. "Revised" refers to the effort to collapse the original references into a more manageable form.
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<tbody>
<tr>
<td>N.</td>
<td>Prevent hostile alignments or installation of hostile forces, bases, or materials²</td>
</tr>
<tr>
<td>O.</td>
<td>Prevent installation of hostile bases, forces, or materials</td>
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<tr>
<td>P.</td>
<td>Use of host country territory or facilities</td>
</tr>
<tr>
<td>Q.</td>
<td>Freedom of the seas and movement of U.S. forces</td>
</tr>
<tr>
<td>R.</td>
<td>Popular support for armed forces</td>
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<tr>
<td>S.</td>
<td>Access to strategic materials</td>
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<tr>
<td>D.</td>
<td>Use of host country territory or facilities</td>
</tr>
<tr>
<td>E.</td>
<td>Popular support of host country armed forces</td>
</tr>
<tr>
<td>F.</td>
<td>Access to strategic materials</td>
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</table>

²N. actually falls in two separate areas of concern in the revised list.
<table>
<thead>
<tr>
<th>Original</th>
<th>Revised</th>
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<tbody>
<tr>
<td>A. Optimum level of United States trade with host country</td>
<td>A. United States trade with host country</td>
</tr>
<tr>
<td>B. Favorable market for United States exports</td>
<td></td>
</tr>
<tr>
<td>C. Non-discrimination against U.S. goods</td>
<td></td>
</tr>
<tr>
<td>D. Increase U.S. share of host country market</td>
<td></td>
</tr>
<tr>
<td>E. Solutions to commercial policy problems</td>
<td></td>
</tr>
<tr>
<td>F. Optimum level of U.S. investments</td>
<td>B. United States investment in host country</td>
</tr>
<tr>
<td>G. Favorable atmosphere for investments</td>
<td></td>
</tr>
<tr>
<td>H. Protection of private U.S. financial interests</td>
<td></td>
</tr>
<tr>
<td>I. Fishery resources</td>
<td>G. Fishery resources</td>
</tr>
<tr>
<td>J. Control of foot and mouth disease</td>
<td>D. Disease control</td>
</tr>
<tr>
<td>K. Most favored nation status</td>
<td>E. Most favored nation status</td>
</tr>
<tr>
<td>L. Canal efficiently operated, defended, and unconditionally available to U.S.</td>
<td>F. Access to canal</td>
</tr>
</tbody>
</table>
M. Stockpile sales

N. Level of tourism

G. Stockpile sales

H. Tourism
Protection of United States Citizens and Property

**Original**

A. Violence against U.S. citizens and property

B. Terrorists

C. Public support for anti-U.S. activists

D. U.S. and host country ability to protect against violence

E. Large U.S. resident and visitor population in host countries

F. Legal rights of Americans

G. Violence directed against U.S. officials and property

H. Protection of U.S. citizens and officials from acts of violence

I. Welfare services for U.S. citizens in host country

J. Non-renewal of operating contracts or concessions

**Revised**

A. Violence directed against U.S. citizens and property

B. Discriminatory treatment against U.S. citizens and property

C. Violence directed at U.S. governmental personnel and property

D. U.S. government welfare service obligations to U.S. nationals living in host country

E. Non-renewal of operating contracts or concessions

---

3 B, C, and D could also be considered here

4 H could be included with A, B, C, D, and E
K. Commercial areas
L. Profit remittances
M. Payment of official host country debts

N. Expropriation

F. Financial obligations and exchange
G. Expropriation
**Control of the Movement of Goods and People To and From the U.S.**

<table>
<thead>
<tr>
<th>Original</th>
<th>Revised</th>
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<tbody>
<tr>
<td>A. Control of visitors and immigration</td>
<td>A. Control of visitors and immigration</td>
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<tr>
<td>B. Consular control</td>
<td></td>
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<tr>
<td>C. Promotion of visits</td>
<td></td>
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<tr>
<td>D. Effect of immigration limitations</td>
<td></td>
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<tr>
<td>E. Control of narcotics traffic</td>
<td>B. Control of narcotics traffic</td>
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<tr>
<td>F. Host country cooperation</td>
<td></td>
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<tr>
<td>G. Control traffic in illicit goods</td>
<td>C. Control of traffic in illicit goods</td>
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<tr>
<td>H. Casino operations</td>
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<tr>
<td>I. Extradition</td>
<td>D. Extradition</td>
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<tr>
<td>Original</td>
<td>Revised</td>
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<td>-------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>A. Access to host country leaders</td>
<td>A. Access to host country leaders</td>
</tr>
<tr>
<td>B. Relations with host country government</td>
<td>B. Maintenance of appropriate level of U.S. presence in host country</td>
</tr>
<tr>
<td>C. Maintenance of appropriate level of U.S. presence in host country</td>
<td>C. Collaboration between U.S. and host country military</td>
</tr>
<tr>
<td>D. Collaboration between U.S. and host country military</td>
<td>D. Communication between U.S. government and host country opposition</td>
</tr>
<tr>
<td>E. Communication between U.S. government and host country opposition</td>
<td>political leaders</td>
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</tbody>
</table>
and an indicator system into its planning routine. It is the intent in the following four chapters to demonstrate how the design and control theories may be applied to the CASP system in order to gain a better insight into an ongoing policy planning system and to suggest ways in which CASP may be improved for policy evaluation purposes.
<table>
<thead>
<tr>
<th>Original</th>
<th>Revised</th>
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<tbody>
<tr>
<td><strong>A. Host country receptivity to U.S. humanitarian assistance</strong></td>
<td><strong>A. Host country receptivity to U.S. humanitarian assistance</strong></td>
</tr>
<tr>
<td><strong>B. Assistance to public institutions and charitable organizations</strong></td>
<td><strong>B. U.S. assistance to host country organizations operating in humanitarian arena</strong></td>
</tr>
<tr>
<td><strong>C. Disaster relief</strong></td>
<td><strong>C. Disaster relief</strong></td>
</tr>
<tr>
<td><strong>D. Standard of living</strong></td>
<td><strong>D. U.S. developmental assistance</strong></td>
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<tr>
<td><strong>E. Need</strong></td>
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<tr>
<td><strong>F. Food assistance</strong></td>
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</table>
### Economic and Social Development of Host Country

#### Social Quality of Life

<table>
<thead>
<tr>
<th>Original</th>
<th>Revised</th>
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<tbody>
<tr>
<td>A. Crime and public safety</td>
<td>A. Crime and public safety</td>
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<tr>
<td>B. Education</td>
<td>B. Education</td>
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<tr>
<td>C. Family planning</td>
<td>C. Family planning</td>
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<tr>
<td>D. Health conditions</td>
<td>D. Health conditions</td>
</tr>
<tr>
<td>E. Health and family planning⁵</td>
<td></td>
</tr>
<tr>
<td>F. Housing</td>
<td>E. Housing</td>
</tr>
<tr>
<td>G. Pensions and welfare</td>
<td>F. Pensions and welfare</td>
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<tr>
<td>H. Public services</td>
<td>G. Public services</td>
</tr>
<tr>
<td>I. Social services and programs</td>
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<tr>
<td>J. Rural life</td>
<td>H. Rural life</td>
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<tr>
<td>K. Urban life</td>
<td>I. Urban life</td>
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</tbody>
</table>

⁵E could also have been included under family planning
## Economic and Social Development of Host Country

### Economic

<table>
<thead>
<tr>
<th>Original</th>
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<tbody>
<tr>
<td>A. Economic growth with a moderate rate of inflation</td>
<td>A. Economic growth</td>
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<td>B. Economic growth and diversification</td>
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<td>C. Economic growth</td>
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<tr>
<td>D. Economic recovery and development</td>
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<tr>
<td>E. Health of local economy</td>
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<tr>
<td>F. Economic growth with a more equitable distribution of income</td>
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<tr>
<td>H. Improve income distribution</td>
<td>B. Equitable distribution of income</td>
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<tr>
<td>I. Full employment and equitable distribution of income&lt;sup&gt;6&lt;/sup&gt;</td>
<td>C. Full employment</td>
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<td>J. Employment</td>
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<tr>
<td>K. Employment and unionism</td>
<td></td>
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<tr>
<td>L. Agricultural development</td>
<td>D. Sector development</td>
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<tr>
<td>M. Development of science and technology</td>
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<tr>
<td>N. Agricultural surplus</td>
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</tbody>
</table>

<sup>6</sup> Could also have been included in the area of concern dealing with income distribution
O. Industry and tourism

P. Economic development and favorable climate for private sector

Q. Balance of trade

R. Regional economic development

E. Private sector development

F. Foreign trade

G. Regional economic development
# Political Development of Host Country

<table>
<thead>
<tr>
<th>Original</th>
<th>Revised</th>
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<tr>
<td>A. Growth of democratic institutions</td>
<td>A. Growth and maintenance of democratic institutions</td>
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<td>B. Maintenance of democratic institutions</td>
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<td>C. Democratic institutions</td>
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<td>D. Development of institutions providing for smooth transition of leadership</td>
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<tr>
<td>E. Political participation and responsiveness</td>
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<tr>
<td>F. Respect for human rights</td>
<td>B. Respect for human rights</td>
</tr>
<tr>
<td>G. Maintenance of effective government</td>
<td>C. Effective government</td>
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<tr>
<td>H. Maintenance of host country government friendly to U.S.</td>
<td>D. Maintenance of host country government friendly to U.S.</td>
</tr>
<tr>
<td>I. Political instability and internal security</td>
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<tr>
<td>J. Capacity of extremists to overthrow government</td>
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<tr>
<td>K. Capacity of insurgents to hinder orderly political development</td>
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<tr>
<td>L. Communist party influence</td>
<td>F. Communist party influence</td>
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<tr>
<td>M. Workers</td>
<td>G. Trade union development in politics</td>
</tr>
<tr>
<td>N. Military role in government</td>
<td>H. Role of military in host country government</td>
</tr>
<tr>
<td>O. Institutions for local government</td>
<td>I. Growth of local government</td>
</tr>
<tr>
<td>P. Future political status of host country</td>
<td>J. Future political status of host country</td>
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</table>
### Favorable Disposition Toward United States

<table>
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<tr>
<th>Original</th>
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<tbody>
<tr>
<td>A. General populace</td>
<td>A. Disposition of general populace toward U.S.</td>
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<td>B. Reservoir of good will U.S. enjoys in host country</td>
<td>B. Disposition of specific groups in host country toward the U.S.</td>
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<tr>
<td>C. Support for U.S. policy</td>
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<tr>
<td>D. Understanding of U.S. society</td>
<td></td>
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<tr>
<td>E. Peaceful settlement of disputes</td>
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<tr>
<td>F. Military</td>
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<td>G. Intellectuals</td>
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<td>H. Professionals</td>
<td></td>
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<tr>
<td>I. Scientific and technical community</td>
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<tr>
<td>J. Labor</td>
<td></td>
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<tr>
<td>K. Politicians and government</td>
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<tr>
<td>L. Media leaders</td>
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<tr>
<td>M. Agriculture</td>
<td></td>
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<tr>
<td>N. Business</td>
<td></td>
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<tr>
<td>O. Police</td>
<td></td>
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<tr>
<td>P. Clergy and church leaders</td>
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<tr>
<td>Q. Students</td>
<td></td>
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<tr>
<td>R. Cultural groups</td>
<td></td>
</tr>
<tr>
<td>S. Promotion of U.S.I.S. facilities</td>
<td></td>
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<tr>
<td>G. Use of United States Information Service</td>
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</tbody>
</table>
T. Media

U. Law enforcement

V. Favorable attitude toward foreign investment

W. Suitable provision for defense

X. Internal security

Y. Support for U.S. policies

Z. Canal

D. Use of U.S. media

E. Major issues
<table>
<thead>
<tr>
<th>Original</th>
<th>Revised</th>
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<tbody>
<tr>
<td>A. Free passage on high seas through international straits and intern-</td>
<td>A. Free passage on high seas through international straits and interna-</td>
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<tr>
<td>national airways</td>
<td>tional airways</td>
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<tr>
<td>B. Maritime territorial jurisdiction</td>
<td>B. Adherence to international law and conventions</td>
</tr>
<tr>
<td>C. Adherence to international law and conventions</td>
<td>C. Intergovernmental and nongovernmental memberships</td>
</tr>
<tr>
<td>D. Intergovernmental participation and role</td>
<td>D. Peaceful settlement of disputes</td>
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<tr>
<td>E. Bilateral cooperation</td>
<td>E. Protection of international environment</td>
</tr>
<tr>
<td>F. Cooperation with neighbors</td>
<td>F. Regional economic integration</td>
</tr>
<tr>
<td>G. Preserve quality of environment</td>
<td>G. Level of arms purchases</td>
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<td>H. Regional integration efforts</td>
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<td>I. Level of arms purchases</td>
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### Advancement of Other United States Interests

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<tr>
<td><strong>A. Law enforcement</strong></td>
<td><strong>A. Law enforcement</strong></td>
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<tr>
<td><strong>B. Improvement of scientific research</strong></td>
<td><strong>B. Improvement of scientific research</strong></td>
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<td><strong>C. Health</strong></td>
<td><strong>C. Health</strong></td>
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<tr>
<td><strong>D. Central American Economic Integration</strong></td>
<td><strong>D. Central American Economic Integration</strong></td>
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<tr>
<td><strong>E. Safety of U.S. vessels in host country waters</strong></td>
<td><strong>E. Safety of U.S. vessels in host country waters</strong></td>
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<tr>
<td><strong>F. Water resources</strong></td>
<td><strong>F. Water resources</strong></td>
</tr>
<tr>
<td><strong>G. Internal Revenue Service</strong></td>
<td><strong>G. Internal Revenue Service</strong></td>
</tr>
<tr>
<td><strong>H. Areas of joint cooperation</strong></td>
<td><strong>H. Areas of joint cooperation</strong></td>
</tr>
<tr>
<td><strong>I. Support of U.S. in international organizations</strong></td>
<td><strong>I. Support of U.S. in international organizations</strong></td>
</tr>
<tr>
<td><strong>J. Host country adherence to treaty commitment</strong></td>
<td><strong>J. Host country adherence to treaty commitment</strong></td>
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CHAPTER II: DESIGN, CONTROL, AND INFORMATION SYSTEMS

A. Design. One of the major problems in the use of the design and control theories has been the lack of awareness of the separate and distinct types of activity included under the design and control theory rubric. It also has not been clear exactly what the relationship was between the design and control efforts. In this chapter an effort will be made to examine both the design and control theories and to advance a conceptual scheme which amplifies both of the theories and the interrelationships between them. In addition, the role of information systems as an integral part of the design and control process will be examined. The design and control concepts and principles produced from this examination will then form the framework for the analysis of the national interest concept and the Department of State's Country Analysis and Strategy Paper (CASP) policy planning system.

1. Definition. Until this point exact definition of design has been resisted in order that some of the conceptual issues and problems associated with design might be raised. These issues will be raised again and in more depth after the problem of defining what the term "design" includes and excludes has been accomplished. The method to be employed is rather straightforward and
K. Specific U.S. interests of concern in areas other than Latin America
Appendix B: Operationalized and Standardized Environmental Indicators
I. UNITED STATES NATIONAL DEFENSE

A. Orientation of Civilian and Military Leadership

B. Force Capability of Host Country Armed Forces

C. Direction of Host Country Alliance Pattern

D. Use of Host Country Territory or Facilities

E. Popular Support of Host Country Armed Forces

F. Access to Strategic Materials
A. Orientation of Civilian and Military Leadership

This area of concern encompasses the disposition of host country leadership towards the United States, the pro-United States attitude of the military, military cooperation, and acquisition of host country cartographic materials.

1. The number of times the United States Government or any of the agencies or persons associated with the United States Government are mentioned in the public press, speeches, or public policy documents (e.g., White Papers) by host country officials.

2. The ratio of the number of favorable United States Government mentions (in above) to the number of unfavorable United States Government mentions.

3. The ratio of favorable United States Government mentions to the number of unfavorable United States Government mentions in the most recent campaign speeches, publications, media broadcasts or party platforms of the political party presently in power and the other major (including underground, if applicable) political parties.

4. The number of United States mentions in the most recent campaign by the different political parties.

5. The percentage of agreement with the United States Government in roll call votes in the United Nations (This measure may be extended to all other shared membership inter-governmental organizations with roll call voting).

6. The number of host country armed forces personnel presently receiving training in the United States.

7. The number of United States armed forces personnel in training or advisory positions with host country armed forces.

8. The number of times the United States Government is mentioned in speeches or policy documents by military personnel.

9. The ratio (in above) of favorable to unfavorable United States Government mentions by military personnel.

10. The proportion of the official host country military training manual(s) which directly reflect United States Government armed forces training or procedures.
11. The percentage of the vote in the most recent election obtained by the communist party.

12. The percentage of the vote in the most recent election obtained by the communist party and any other parties which in the judgement of the country team represent a threat to the continuance or initiation of democratic elections.

13. The number of mentions the host country communist party (where applicable) receives in the speeches or public policy documents of host country government officials.

14. The number of favorable to unfavorable mentions the host country communist party receives in the above by the host country government officials.

15. Official host country government estimates of host country insurgents' numerical strength.

16. United States country team estimate of host country insurgents' numerical strength.

17. Creation of a scale by United States military experts of the different types of insurgent organizations which may be operating in the host country.

18. Creation of a scale by United States military experts of host country estimates of the different types of insurgent organizations which may be operating in the host country.

19. Percentage of host country territory controlled by insurgents.

20. Percentage of host country population controlled by insurgents.

21. Source, or country, selling or supplying the insurgents with their war materials.

22. Number of actions (includes property damage as well as armed clashes) in which host country insurgents participated.

23. Average amount of time in days between each insurgent action for last year.
24. Number of references of host country governmental leaders to insurgents in public press, speeches, or policy documents.

25. Number of references of the major political parties to insurgents in public press, speeches, or policy documents.

26. The ratio of favorable to unfavorable references of the major political parties to insurgents in public press, speeches, or policy documents.

27. Ranking of major political parties in reference to their ratio of favorable to unfavorable references concerning insurgents.

28. Volume of foreign military sales to host country government.

29. Percentage of foreign military sales placed in United States by host country government.

30. Percent of foreign military sales placed with United States or United States allies by host country government.

31. Scale of access of United States Governmental personnel to host country government basic intelligence and cartographic data. Scale to be composed by United States Government intelligence experts.

32. Number of military advisors in host country from communist countries.

33. Ratio of the actual number of diplomatic missions maintained with communist governments by host country government to the total number of possible communist countries.

34. Ratio of the actual number of diplomatic missions maintained in the host country region by host country government to the total possible number of nations in the region.

35. Ratio of the actual number of diplomatic missions maintained abroad by the host country government to the total number of possible nations.
B. Force Capability of Host Country Armed Forces

Actions in this area of concern include the modernization of host country armed forces equipment, the availability of host country armed forces for international missions, the capability of host country armed forces to handle internal and border security, as well as the contribution of host country to hemispheric security.

1. Percent of support forces to combat forces in host country armed forces.

2. Number of general officers in host country armed forces.

3. Ratio of general officers to total host country armed forces personnel.

4. Number of border incursions by unfriendly forces.

5. Develop a scale of generic military missions and then locate the percentage of host country armed forces allocated to each.

6. Country team scale and estimate of quality of officers in host country armed forces.

7. Atomic megaton delivery capacity of host country armed forces.

8. Number of villages under host county governmental control.

9. Develop a scale and estimate by United States Government military experts of the availability of host country forces for international missions for the United States Government.

10. Develop a scale by United States Government military experts on the amount of United States Government operational help (e.g., pay for troops, equipment furnished, transportation, etc.) anticipated for international mission.

11. Total military expenditures by host country government.

12. Total military expenditures as a percentage of host country government expenditures.

13. Amount of United States military aid received by host country government.
14. United States military aid to host country government as a percentage of total military expenditures.

15. Number of hostile actions initiated against United States forces, or facilities on host country territory.

16. Scale and estimate of ability of insurgents to overthrow host country government by United States Government military experts.

17. Number of joint host country government and United States Government search and rescue missions.
C. Direction of Host Country Alliance Pattern

This area of concern encompasses actions designed to preserve present alliances and to prevent hostile alignments.

1. The number of formal treaties between the United States Government and host country government.

2. The percentage of treaties or other agreements proposed, or up for renewal, which did not emerge as treaties in the last year.

3. The number of military treaties or agreements between the United States Government and host country government.

4. The ratio of military treaties or agreements renewed, to the total number of treaties proposed for renewal.

5. The ratio of military treaties or agreements renewed to the number of United States-host country governmental treaties proposed or renewed.

6. Scale and estimate of the amount of United States commitment to host country (i.e., the aggregate strength of commercial, cultural, etc. treaties).

7. Scale and estimate of the 'casus foederis' of United States Government military alliances with host country.

8. Number of actual shared regional memberships in inter-governmental organizations with the United States and host country government.

9. Ratio of actual shared regional memberships in inter-governmental organizations with United States out of total possible memberships for host country government.

10. Ratio of actual shared regional memberships in inter-governmental organizations with Cuba out of total possible for host country government.

11. Scale by experts of various Cuban policies for Latin American countries and position of host country government on scale.

12. Scale and estimate of type of commitments in treaty by host country government to all countries.
13. Scale of degree or type of treaty commitments by host country government with communist countries.

14. Scale of degree or type of treaty commitments by host country government with Cuba.

15. Number of times country team felt in the last year that the host country did not meet its treaty obligations. (Country team may, for diagnostic purposes, wish to break this down by treaty area).

16. Estimate by country team of number of obligations in next year which will not be met.

17. The number of mentions Cuba receives in host country mass media.

18. The ratio of favorable to unfavorable mentions to Cuba in host country mass media.

19. Scale and estimate of activity of anti-Castro military groups in host country.
involves the examination of a score of definitions extracted from
the industrial, architectural, ecological, and design methodology
literatures. The definitions presented below by no means represent
an exhaustive set of design definitions, but do represent most of
the salient issues and reflect the intellectual histories of the
most recent work of designers. In addition, it should be noted
that designers in all areas have been going through a period of
change—one reminiscent of the paradigmatic shift described by
Kuhn (1962). Anomalies encountered in traditional design per-
spective and which are examined in greater detail later, concern:
1) The impact of design products; 2) the explicitness of the
design procedures; 3) the lack of design data or knowledge bases;
and 4) the anticipation of future design problems (Jones, 1970;
Murtha, 1967).

Design Definitions

1. The planning and patterned of any act towards a desired and
foreseeable end (Papanek, 1971, p. 1).

2. A problem-solving activity which produces an infinite number
of solutions where we can only choose the "correct" or most
right solution in terms of our goals or objectives (Papanek,
1971, p. 280).

3. [As an applied science] a logically systematic explanation of
reality which is motivated by human values (Rockey, 1965, p. 2).

It also implies that certain limitationsexist and that recourse
to any random action is not enough (Homans, 1969, p. 9).

5. [The job of a designer is] to develop products for manufacture
which will serve man better than their predecessors and to
create in the consumer the desire to possess. Its ultimate goal,
of course, is sales—at a profit (Van Doran, 1954, p. xi).
D. Use of Host Country Territory or Facilities

This area of concern envisions two main types of activities, 1) actions designed to prevent the installation of hostile domestic alignments, bases, forces, or materials; and 2) the use of host country territory or facilities by the United States.

1. Scale of the type of use of territories, bases, facilities, forces, or materials the United States currently enjoys with host country government.

2. Scale of the type of use communist countries enjoy with host country government of territory, bases, facilities, forces, or material.

3. Number of United States troops stationed in host country.

4. Number of bases in host country under United States jurisdiction.

5. United States armed forces usage rate of host country facilities (ports, airfields, etc.).

6. Number of United States armed forces flights over host country.

7. Number of hostile troops in host country (hostile to host country government).

8. Number of bases in host country under hostile control.

9. Hostile forces usage rate of host country facilities.

10. Number of hostile forces flights over host country.

11. Number of NASA stations or support facilities in host country.

12. Number of United States aircrafts stationed in host country.

13. Number of civil demonstrations concerned with the United States' strategic use of host country territory.

14. Number of host country nationals on United States armed forces payrolls.
15. Scale and estimate of adherence in forthcoming year to agreements establishing bases on host country territory.

16. Public opinion data referencing host country attitudes toward continuation of defense and base agreements.

17. Number of mentions of United States armed forces, maneuvers, and bases, in host country mass media, particularly the public press.

18. Ratio of favorable to unfavorable mention in above to United States armed forces.

19. Scale and estimate of host country government willingness to permit United States military installations if requested in next year.

20. Scale and estimate of host country attitude toward continued defense cooperation with United States.

21. Number of court cases or tribunals involving or contesting United States jurisdiction over United States armed forces personnel in host country civil or criminal cases.

22. Vote received in last election by a pro-communist or anti-American party.

23. Scale and estimate of probability of accession to power of a pro-communist or anti-American party.

24. Scale and estimate of access by United States armed forces to waterways under the jurisdiction of host country.
E. Popular Support of Host Country Armed Forces

1. The number of desertions.

2. The re-enlistment rate.

3. The number of national leaders with a military background (cabinet level and above).

4. Enlistment rate.

5. Percentage of host country armed forces recruited through a draft.

6. Country team scale and estimate of present host country government with military leadership.

7. Country team scale and estimate of host country military participation in host country elections.
F. United States Access to Host Country Strategic Materials

1. Host country petroleum exports to United States as a percentage of United States petroleum imports.

2. Scale and estimate of host country attitudes toward United States oil operations.

3. Host country iron ore exports to United States as a percentage of United States iron ore imports.

4. Host country bauxite exports to United States as a percentage of United States bauxite imports.
II. UNITED STATES ECONOMIC PROSPERITY

A. United States Trade with Host Country

B. United States Investments in Host Country

C. Fishery Resources

D. Disease Control

E. Most Favored Nation Status

F. Access to Canal

G. United States Stockpile Sales

H. Tourism
A. United States Level of Trade with Host Country

This area of concern includes efforts to maintain an optimum amount of United States trade with the host country, a favorable host country market with no discrimination against United States exports, to increase the United States' share of the host country market, and to seek solutions to commercial policy problems.

1. Dollar volume of United States exports to host country.
2. Volume of United States exports as a percentage of host country imports.
3. Volume of United States exports to host country as a percentage of all United States exports.
4. Volume of host country imports from two largest traders (excluding United States) as a percentage of host country imports.
5. Volume of United States imports from host country.
6. Volume of United States imports from host country as a percentage of all host country exports.
7. Volume of United States imports from host country as a percentage of all United States imports.
10. Scale and estimate of discrimination of host country governmental trade practices aimed at United States.
11. Scale and estimation of host country discriminatory trade practices.
12. Scale and estimate of host country discriminatory trade practices aimed at United States.
13. Public opinion data on host country attitudes toward United States trade.
15. Host country inflation rate.
16. Host country population increase rate.
17. Host country trade balance in dollars.
18. Host country governmental debt service in dollars.
19. Number of host country new housing starts.
20. Host country unemployment rate.
22. Host country currency exchange rate with United States dollar.
23. Percentage of United States-host country trade fixed by treaty or other long-term commercial agreements.
24. Country team estimate of commodities in United States trade profile most likely to be in increased demand by host country in next two years.
25. Country team estimate of which commodities in United States imports from host country will be in most increased demand by United States in next two years.
26. Scale and estimate of level of United States and Department of State trade promotion activities in host country.
27. Scale and estimate of level of third country trade promotion activities in host country.
28. Scale and estimate of level of fourth country trade promotion activities in host country.
29. Country team estimate of which United States goods might be subject to discriminatory trade restrictions in next two years.
30. Host country tariff level.
31. Country team scale and estimate of possibility of changes in host country tariff level in next two years.
32. In Department of State ranking of the countries of the world in terms of their tariff rates, what is their host country's rank.
**B. United States Level of Investment in Host Country**

Action in this area of concern deals with the protection of private United States financial interests, the development of a favorable atmosphere for investment, the optimum level of United States investment in host country, and the non-renewal of operating contracts or concessions.

1. Dollar value of private United States investments in host country.

2. Dollar value of private United States investment in host country secured by some form of a United States Government guarantee (e.g., AID).

3. Amount of private loans to host country from United States banks.

4. Amount of third country private investment in host country.

5. Amount of private loans to host country from United States banks secured by United States Government.

6. Amount of fourth country private investment in host country.

7. Amount of private bank loans to host country from third country banks.

8. Amount of private bank loans to host country from fourth country banks.

9. Develop a profile of investment sectors in host country and the percentage of United States investment in each.

10. Develop a profile of the percentage of third country investment in each sector of host country.

11. Country team estimate of desired percentage of United States investment in each investment sector.

12. Country team estimate of desired percentage increase in United States investments in each investment sector.

13. Country team estimate of probable United States investment pattern across investment sectors in next two years.
14. Scale and estimate of host country governmental restrictions on the outflow of monies earned from investments in host country.

15. Percentage of normal United States investment return outflow affected by host country governmental restrictions.

16. Percentage of third and fourth country investment return outflow affected by host country government restrictions.

17. Country team scale and estimate of the level of host country government activities designed to promote investment in host country.

18. Country team scale and estimate of the level of host country government activities designed to promote United States private investment in host country.

19. Country team scale and estimate of the level of host country government activities designed to promote third country investment in host country.

20. In each investment sector in host country, what percentage in each sector is foreign owned?

21. In each investment sector in host country, what percentage in each sector is United States owned?

22. In each investment sector in host country, what percentage in each sector is owned by third countries?

23. United States percentage of total foreign investment in host country.

24. Country team scale and estimate of level of OPEC in host country.

25. Average United States investment return rate in host country.

26. Average third country investment return rates in host country.

27. Average foreign investment return rate in host country.

28. Profile of foreign investment return rates across host country investment sectors.

29. Profile of United States investment return rates across host country investment sectors.

30. Profile of third country investment return rates in host country investment sectors.
31. Scale and estimate of United States Government restrictions on United States investments in host country.

32. Number of operating contracts or concessions to United States firms up for renewal.

33. Number of operating contracts or concessions not renewed.

34. Scale and estimate of host country government restrictions on United States investments.
The product designer is an artist, engineer, mechanic, model builder, salesman, merchandiser, production specialist, statistician and market analyst (Van Doran, 1954, p. xii).

Finding the right physical components of a physical structure (Alexander, 1963, p. 169).


Decision-making, in the face of uncertainty, with high penalties for error (Asimow, 1962, p. 16).

Simulating what we want to make (or do) before we make (or do) it as many times as may be necessary to feel confident in the final result (Booker, 1964, p. 1).

The conditioning factor for those parts of the product which come into contact with people (Farr, 1966, p. 10).

Engineering design is the use of scientific principles, technical information and imagination in the definition of a mechanical structure, machine or system to perform prescribed functions with maximum economy and efficiency (Fielden, 1963, p. 220).

Relating product with situation to find satisfaction (Gregory, 1966, p. 122).

The performing of a very complicated act of faith (Jones, 1970, p. 5).

The optimum solution to the sum of the true needs of a particular set of circumstances (Matchett, 1968, p. 31).

The imaginative jump from present facts to future possibilities (Page, 1966, p. 2).

A creative activity—it involves bringing into being something new and useful that has not existed previously (Reswick, 1965, p. 3).

Defining design by effect: the effect of designing is to initiate change in man-made things (Jones, 1970, p. 4).

A generic term encompassing efforts to deal with man-made environment (Murtha, 1967, p. 1).

The selection of components (Howland, 1966, p. 507).
C. United States Access to Host Country Fishery Resources

Activity in this area deals with United States access to host country territorial waters of the United States' fishing fleet.

1. Host country territorial claim (in numbers of miles) of surrounding seas.

2. Scale and estimate of host country laws and regulations covering fishing activities of foreign vessels in host country territorial waters.

3. Scale and estimate of host country enforcement of its fishing regulations.

4. Annual fish yield of host country territorial waters.

5. United States percentage of above.

6. Third and fourth percentage of their share.

7. Host country's percentage of the total catch.

8. Number of United States ships fined in past year for fishing violations.


10. Number of third and fourth country ships fined in past year for fishing violations.

11. Amount of fines paid by third and fourth country ships for fishing violations.
D. Disease Control

Disease control as it effects the import by the United States of host country products is the primary focus of efforts.

1. Number of incidents of United States-host country cooperation in the limitation of the export of host country goods to the United States.

2. Country team scale and estimate of the extent of host country disease control infrastructure.
E. Most Favored Nation Status

This area of concern has to do with the relative position occupied by the United States in terms of host country governmental regulation of foreign investment and trade.

1. Country team scale and estimate of the position the United States enjoys vis-à-vis host country discriminatory trade practices.

2. Country team scale and estimate of the position the United States enjoys vis-à-vis host country investment practices.

3. Country team scale and estimate of the position the United States enjoys vis-à-vis the host country capital repatriation policies.

4. Country team scale and estimate of the position third countries enjoy in host country discriminatory trade practices.

5. Country team scale and estimate of the position third countries enjoy in host country investment practices.

6. Country team scale and estimate of the position third countries enjoy in host country capital repatriation policies.
F. Access to Canal

1. Number of United States ships passing through canal.

2. Total number of ships passing through canal.

3. Number of violations assigned United States ships by host country.

4. Number of violations assigned to all ships by host country.
G. United States Stockpile Sales

1. Volume of key imports to United States from host country.

2. Volume of United States stockpile sales.


4. Volume of United States stockpile sales to host country.
H. Tourism

This area of concern deals with United States private transportation to and ownership of resort property in host country.

1. United States share of transportation market (a percentage of aggregate dollars spent by United States and other tourists on transportation to host country).

2. Host country share of transportation market.

3. Third country share of transportation market.

4. Percentage of United States ownership of host country resort areas.

5. Percentage of third country ownership of host country resort areas.

6. Percentage of host country ownership of host country resort areas.

7. Number of United States visitors to host country.

8. Total number of all foreign visitors to host country.

9. Number of host country visitors to United States.

10. Number of host country visitors as a percentage of all visitors to United States.

11. Number of new hotel and resort starts in host country.

12. Number of new hotel and resort starts in host country owned by private United States investors.

13. Number of new hotel and resort starts in host country owned by third and fourth country private investors.

14. Number of new hotel and resort starts in host country owned by host country nationals.
III. PROTECTION OF UNITED STATES CITIZENS AND PROPERTY

A. Violence Directed Against United States Citizens and Property

B. Discriminatory Treatment Against United States Citizens and Property

C. Violence Directed at United States Government Personnel and Property

D. United States Government Welfare Service Obligations to United States Nationals in Host Country

E. Non-Renewal of Operating Contracts or Concessions

F. Financial Obligations and Exchange

G. Expropriation
A. Violence Directed Against United States Citizens and Property

1. The number of demonstrations or acts of civil violence in host country.

2. The number of demonstrations directed at United States citizens or property.

3. A profile of the different types of violence directed against United States citizens and property.

4. The rank order of civil violence in host country, when host country is compared to other nations of the world.

5. The rank order position of host country when compared to the civil violence levels of other nations in geographic region.

6. The rank order position of host country when compared to the civil violence directed at American citizens and property compared to the other nations of the world.

7. The rank order position of host country when compared to the civil violence directed at American citizens and property as compared to the other nations of the region.

8. Dollar value of damage to United States owned property due to acts of civil violence.

9. Number of complaints filed by United States citizens concerning violence directed against United States citizens or property.

10. Number of protests or notes exchanged with host country government concerning violence directed against United States citizens or property.

11. Country team scale and estimate of the type of terrorist threat in host country.
12. Country team scale and estimate of the terrorist threat in host country directed toward United States citizens and property.

13. Country team scale and estimate of the type of terrorist threat in host country for next two years.

14. Country team scale and estimate of the terrorist threat in host country directed toward United States citizens and property for next two years.

15. Country team scale and estimate of host country government attitude toward the protection of United States citizens and property.

16. Country team scale and estimate of host country government ability to protect United States citizens and property.

17. Country team scale and estimate of United States Government's ability to protect United States citizens and property.

18. Country team scale and estimate of the advisability of the intervention of the United States Government in an attempt to protect United States citizens and property.

19. Country team scale and estimate of the probability that the United States Government will have to intervene in host country in next two years.

20. Public opinion data on host country attitudes toward violence directed against United States citizens and property.
B. Discriminatory Treatment Against United States Citizens and Property

1. Number of complaints or reports of discriminatory treatment received in United States embassy from United States citizens in host country.

2. Number of protests or messages sent to host country regarding discriminatory treatment against United States citizens or property.

3. Country team scale and estimate of host country response to official United States Government protests regarding the discriminatory treatment of United States citizens and property.

4. Dollar value of United States property in host country.

5. Host country tax rate(s) on United States property in host country.

6. Host country tax rate(s) on host country owned property.

7. Host country tax rate(s) on third country property in host country.

8. Host country tax rate(s) on host country citizens.

9. Host country tax rate(s) on United States citizens.

10. Host country tax rate(s) on third country citizens.

11. Dollar value of fines or other punitive financial measures against United States citizens or property.

12. Country team scale and estimate of the effect of host country financial reforms and policies upon United States private economic interests.
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The conceptual issues raised in the above definitions have been quite arbitrarily chosen and classified into seven categories. While other categorization schemes may be urged, this one should be sufficient to allow the preliminary disaggregation and reordering of design associated activities necessary to permit a reasonably robust stipulative definition of design to be advanced.

a. **Belief.** The very first component of design to be considered, and one upon which all modern design activities are based, is the belief that the world is knowable to the extent that man can consciously control his own destiny within certain margins of error and present resource limitations. Error and the importance of the resource base in determining design outputs and design outcomes will be considered in more detail below. It must be stressed here that until some kind of an explicit comparison and assessment of design successes and failures has been carried out, confidence in design presently rests on the belief that man can not only manipulate and control his environment, but that he can consciously plan and forecast the direction, scope, and magnitude of his control efforts. Since it seems unlikely, and indeed even unprofitable, to carry out such an evaluation and comparison at this stage in the development of design theory, design proponents will have to: 1) avoid the self-defeating proselytizing that accompanies most innovations which raise client expectations by promising the moon, but which fulfill them only to the extent of outlining how
13. Country team scale and estimate of host country financial reforms and policies upon third country economic interests.

14. Number of United States fishing boats seized or fined by host country.

15. Country team scale of host country social welfare services and estimate of those services readily available to Americans.

16. Host country governmental restrictions on the purchase of land by foreigners to be scaled and estimated by country team.

17. Public opinion data on host country attitudes toward discrimination directed against United States citizens and property.

18. The number of United States citizens arrested in host country.

19. A percentage distribution of United States citizens charged with crimes in each category of crime (country team profile).

20. The number of cases involving Americans in host country tribunals.

21. A profile of outcomes and estimate by country team of the outcome of the number of cases involving Americans in host country tribunals.

22. Scale and estimate of immigration restrictions by host country government.

23. Socio-economic profile of resident Americans.
C. Violence Directed at United States

Government Personnel and Property

1. The number of demonstrations or acts of civil violence in host country.

2. The number of demonstrations or acts directed against United States Government personnel and property.

3. A percentage profile of the different types of violence directed against United States Government personnel and property.

4. The rank order position of host country when compared to the levels of civil violence in other nations of the world.

5. The rank order position of host country when compared to the levels of civil violence of other countries in region.

6. The rank order position of host country when compared to the levels of civil violence directed against United States Government personnel and property, compared to other nations of the world.

7. The rank order position of host country when compared to the levels of civil violence directed against United States Government personnel and property compared to the other nations of the region.

8. Dollar value of United States Government property damaged due to acts of civil violence.

9. Number of protests or notes exchanged with host country government concerning violence directed against United States Government or property.

10. Country team scale and estimate of the terrorist threat in host country.

11. Country team scale and estimate of terrorist threat to United States Government personnel or property.
12. Country team scale and estimate of the terrorist threat in host country for the next two years.

13. Country team scale and estimate of terrorist threat to United States Government personnel or property for the next two years.

14. Country team scale and estimate of host country government attitude toward the protection of United States Government personnel and property.

15. Country team scale and estimate of host country government ability to protect United States Government personnel and property.


17. Country team scale and estimate of the advisability of the intervention of the United States Government in an attempt to protect United States citizens and property.

18. Country team scale and estimate of the probability that the United States will have to intervene in host country in next two years.

19. Host country attitude toward violence directed against United States Government personnel and property.
D. United States Government Welfare Service Obligations to United States Nationals in Host Country

1. Number of resident United States citizens in host country.
2. Average length of time resident United States citizens have been in host country.
3. Average age of United States citizen-residents in host country.
4. Profile of age distribution of United States citizen-residents in host country.
5. Country team scale and estimate of percentage in each category of reasons why United States citizens are residing in host country.
6. Average number of calls per week upon the United States embassy for service related reasons by United States citizen-residents.
7. Number of embassy man hours spent on servicing the welfare needs of resident United States citizens in host country.
8. Dollar value of direct payments to United States citizen-residents in host country by United States Government.
9. Number of references by embassy of resident United States citizens to host country welfare services.
10. Average number of calls per week upon the United States embassy for service related reasons by United States tourists in host country.
11. Number of embassy man hours spent on servicing the welfare needs of United States tourists in host country.
12. Dollar value of direct payments to United States tourists in host country by United States Government.
13. Number of references by United States embassy of United States tourists to host country welfare services.

14. Embassy man hours devoted to servicing United States armed forces personnel.
E. Financial Obligations and Exchanges

Action in this area of concern deals with host country policies as they affect commercial areas, profit remittances, and payment of host country official debts.

1. Total amount of host country foreign currency reserves in dollars.
2. Amount in dollars of reserves host country generally regards as fixed.
3. Profile of host country's debt payments to all nations in dollars.
4. Total host country's debt to all nations in dollars.
5. Host country's debt payments to United States in dollars.
6. Host country's debt to United States in dollars.
7. Scale and estimate of host country's governmental policy on capital outflow.
8. Percentage of normal United States investment return from host country, restricted to host country.
9. Average delay of host country in debt payments.
10. Credit rating of host country government by World Bank.
F. Expropriation

Action in this area deals with expropriation with or without compensation.

1. Dollar value of expropriated United States investments in host country.

2. Dollar value of United States investments expropriated without compensation.

3. Dollar value of United States investments expropriated with compensation.

4. Return on the dollar of United States expropriated investments.

5. Country team scale and estimate of the probability of expropriation of United States investments in the next two years.

6. Country team scale and estimate of type of political regime in host country.

7. Inflation rate in host country.

8. Host country government debt in dollars.

9. Percent profit return of expropriated United States investment(s).

10. Percent profit return of unexpropriated United States investment(s).

11. Percent profit return for foreign-owned investments in host country.


14. Growth rate of all non-expropriated investments in host country.

15. Country team scale and estimate of host country practice in settling compensation claims.
IV. CONTROL OF THE MOVEMENT OF GOODS AND PEOPLE TO AND FROM THE UNITED STATES

A. Control of Visitors and Immigration

B. Control of Narcotics Traffic

C. Control of Traffic in Illicit Goods

D. Extradition
A. Control of Visitors and Immigration

1. The number of immigration visa applications.
2. The number of immigration visas issued.
3. The number of immigration visas refused.
4. The ratio of visas issued to visas refused.
5. The length of waiting list for visas of host country nationals.
6. The average amount of time spent on waiting list.
7. Socio-economic status profile of immigration issued visas.
8. Socio-economic status profile of those refused visas.
9. Socio-economic profile of host country.
10. Scale and estimate of restrictions on immigration to host country.
11. Ratio of non-immigration visas issued to those refused.
12. Number of non-immigration visas applied for.
13. Number of flights to and from United States to host country.
14. Number of ship passages to and from United States to host country.
15. Number of student visas applied for to United States.
16. Ratio of student visas issued to those refused.
17. Extent of fraudulent travel documentation (number of reported cases).
in the best of all possible worlds the moon might be reached (see Voltaire's *Candide*); and 2) seek to build, invigorate and enrich the modern design methodologies in order that the case for design theory be judged on substantive performance and policy results (Homans, 1969). It should, however, be noted that while there have been major design successes (i.e. President Kennedy's decision to land a man on the moon by the end of the decade), our knowledge of the present "state of the art" does not permit us to urge design theory upon those not believing that man can systematically plan for and control his destiny (Braybrooke and Lindbloom, 1963).

b. Goals. One common feature of all modern design work is the realization that a necessary condition for problem identification, as well as the selection of a course of action to solve that problem, is the explicit consideration and articulation of the goals towards which the design product should seek to move or propel us. In industrial or product design the desired endstates have been rather explicit and have, until recently, been relatively free from dissension. In governmental policy processes, however, goals have not been so easily defined and agreed upon—a fact which a review of the history and adoption of the planning, programming, and budgeting system (PPBS) by the United States Government makes eminently clear (Held, 1969). Consider, for example, the explicitness and degree of value-based dissension
18. Number of United States tourists in host country.

19. Estimate by country team of next year's immigration caseload.

20. Country team scale and estimate of United States tourist promotional activities in host country.

21. Country team scale and estimate of third country tourist promotional activities in host country.

22. Number of host country tourists going to third countries.

23. Number of host country immigrations to third countries.
B. Control of Narcotics Traffic

1. Country team estimate of dollar value of narcotics produced in host country.

2. Country team estimate of dollar value of narcotics shipped to United States from host country.

3. Country team estimate and scale of host country government cooperation in the control of narcotics traffic.

4. Country team estimate of number of drug addicts in host country.

5. Country team scale and estimate of host country as a transit point for drugs.

6. Quantity (dollar value) of narcotics intercepted by host country authorities.

7. Country team scale and estimate of host country governmental ability to control drug flow.

8. Country team scale and estimate of host country governmental willingness to control drug flow.

9. Country team scale and estimate of United States Government ability to control host country drug flow.

10. Country team scale and estimate of United States Government effectiveness in controlling host country drug flow.

11. Country team scale and estimate of United States Government willingness to control host country drug flow.

12. Country team scale and estimate of feasibility of United States Government-host country cooperation in drug control efforts.
1. Country team construction of profile of illicit goods and estimated dollar value in each category.

2. Country team scale and estimate of United States-host country cooperation in the control of the flow of illicit goods.

3. Country team scale and estimate of host country ability to control illicit flow.

4. Country team scale and estimate of host country willingness to control illicit flow.

5. Country team scale and estimate of probability that host country will be able to stop flow within two years (or this could be rephrased to indicate the reduction expected within two years).

6. Country team scale and estimate of United States Government ability to control flow of illicit goods.

7. Country team scale and estimate of United States Government willingness to control flow of illicit goods.

8. Country team scale and estimate of the probability that the United States Government will be able to stop flow within two years.
D. Extradition

1. Country team scale and estimate of United States-host country relationship vis-à-vis extradition.

2. Country team scale and estimate of host country cooperation with United States extradition requests.

3. Number of United States extradition requests.

4. Number of successful extradition proceedings.
V. OPEN CHANNELS OF COMMUNICATION

A. Access to Host Country Leaders

B. Maintenance of Appropriate Level of United States Presence in Host Country

C. Collaboration Between United States and Host Country Military

D. Communication Between United States Government and Host Country Opposition Political Leaders
A. Access to Host Country Leaders

1. Number of employees in the host country foreign affairs office or bureau.

2. The percentage of civil service positions in upper levels of foreign affairs office.

3. Is the head of host country foreign office a member of the host country leaders cabinet?

4. The ratio of the number of messages sent to host country officials to the number of messages received by embassy from host country officials (these messages may or may not include memoranda of conversation).

5. The number of visits in which high level United States Government officials not normally assigned to host country visit with host country leaders.

6. Country team scale and estimate of the type of government and regime in host country.

7. Educational profile of where host country leaders received their education.

8. Service profile of where host country's home foreign office spent their careers.

9. Socio-economic status profile of the family background of host country leaders and foreign office officials.

10. Ratio of United States Department of State embassy personnel proficient in host country language to those not proficient.

11. Tenure profile of United States Government embassy personnel (number of years in Department of State service).
12. Tenure profile of United States Government embassy personnel in host country (number of years spent in host country).

13. Country team scale and estimate of accessibility of host country government leaders to host country nationals.

14. Country team scale and estimate of accessibility of host country government leaders to United States embassy personnel.

15. United Nations roll call agreement score of United States with host country.

16. Country team scale and estimate of accessibility of host country leaders to third country embassy personnel.

17. Country team scale and estimate of openness of discussions with host country leaders on substantive problems.

18. Number of United States mentions in host country press.

19. Ratio of favorable to unfavorable mentions of the United States in the public press.
B. Maintenance of Appropriate Level of United States Presence in Host Country

1. Size of United States embassy in host country.
2. Size of third country embassy in host country.
3. Average size of embassies accredited to host country.
4. Rank order of size of United States embassy in host country, compared to all United States embassies.
5. Rank order position of United States-host country commercial trade, compared to all United States trading partners.
6. Rank order position of United States-host country aid, compared to all United States aid dispersals.
7. Population of host country.
8. Size of United States resident population in host country.
9. Ratio of State Department personnel in host country to host country foreign office personnel.
10. Ratio of AID officials to AID recipient host country agency personnel.
C. Collaboration Between United States and Host Country Military

1. Country team scale and estimate of the degree of access to top and mid-level host country military officers.

2. Country team scale and estimate of the degree of host country reliance upon United States military personnel and material.

3. Country team scale and estimate of official United States military presence in host country.

4. Country team scale and estimate of third country military advisors.

5. Country team scale and estimate of the degree of host country reliance on third country military assistance and material.
D. Communication Between United States Government and Host Country Opposition Political Leaders

1. Number of host country opposition parties receiving 50% or more of the popular vote.

2. Profile of the percentage of the vote received by all political parties in host country.

3. Percentage of the vote received by host country leader's political party.

4. Country team scale and estimate of the number and activity of 'underground' parties in host country.

5. Number of United States embassy contacts with opposition party leaders.

6. Country team scale and estimate of the openness of meetings with opposition leaders.

7. Country team scale and estimate of host country leaders attitude toward meetings between host country opposition party leaders and United States embassy personnel.
contained in the two following goals: 1) building a ball-point pen which can be mass-produced, last for two months of ordinary use, and be produced at a profit; and 2) letting each become all he is capable of being. Clearly, the goals in the first statement provide an outline for action dependent only upon the creativity of the designer, the level of available resources and technology, and the applicability of the body of scientific principles in which the designer has received his training.

The goal contained in the second end-state statement does not either lend itself for use as a guide to action or provide more than a lowest possible common denominator for value consensus. Simply stated, using the goal of letting each become all he is capable of being has produced several quite different and distinct plans of action. Under the first plan, an open university system with minimal tuition, open admissions, and non-graded courses has been contemplated; whereas under a second plan rather high university curriculum standards have been advocated in order that each student might attain through work and discipline the educational successes which would be lacking in the "indulgent" university system contained in the first proposal.

It should be cautioned that we have not, and will not, argue that the lack of consensus and the explicitness of goals in the more social or political arenas of action limit us to failure in our attempts to design. Rather, the political process can provide us with the means to determine consensus (i.e. majority
VI. HUMANITARIAN ASSISTANCE

A. Host Country Receptivity to United States Humanitarian Assistance

B. United States Assistance to Host Country Organizations Operating in Humanitarian Assistance Arena

C. Disaster Relief

D. United States Developmental Assistance
A. Host Country Receptivity to United States

Humanitarian Assistance

1. Per capita income of host country in dollars.
2. Host country gross national product in dollars.
3. Host country central government expenditures in dollars.
4. Host country central government expenditures as a percentage of host country gross national product.
5. Total dollar-value of all United States aid to host country.
6. Total dollar-value of all non-military United States aid to host country.
7. Country team construction of host country needs or missions profile in humanitarian assistance area and the percentage of host country expenditures in each mission.
8. United States aid contributions in each host country mission category.
10. Host country birthrate.
11. Host country industrial and agricultural productivity increase rate.
12. Level of host country food stocks (i.e. grain sufficient for two years).
13. Country team scale and estimate of host country official attitude toward United States humanitarian assistance.
14. Country team scale and estimate of host country citizens' attitude toward United States humanitarian assistance.

15. Country team scale and estimate of level of publicity accompanying United States humanitarian assistance.

16. Country team profile and estimate of the sources, including non-governmental, of host country humanitarian aid.
B. United States Assistance to Host Country Organizations

Operating in Humanitarian Assistance Area

1. Dollar-value of United States assistance to private humanitarian organizations in host country.

2. Country team profile of dollar value to private humanitarian organizations receiving United States aid in host country.

3. Country team profile of United States aid to private organizations according to different humanitarian missions.

4. Dollar-value of United States assistance to host country government humanitarian agencies.

5. Country team profile of dollar value of United States assistance to host country government humanitarian agencies.

6. Country team profile of United States aid to host country government agencies according to humanitarian mission.

7. Dollar value of requests from host country private organizations to United States Government for humanitarian assistance.

8. Dollar-value of requests from host country government to United States for humanitarian assistance.

9. Country team scale and estimate of the ability of host country government infrastructure to funnel humanitarian assistance to intended targets.

10. Country team scale and estimate of the ability of private organizations in host country government to funnel humanitarian aid to intended targets.
1. Country team profile and estimate of the sources of disaster aid to host country (include aid from host country government).

2. Country team profile and record of the types of disasters faced by host country in last twenty-five years.

3. Country team profile and record of host country government and all other sources of aid expenditure patterns across all disaster categories.

4. Country team profile and estimate of host country government expenditures aimed at preventing or lessening the effects of disasters in each disaster category (e.g., construction of flood levys).

5. Country team profile of United States Government expenditures designed to prevent or lessen the impact of disasters in each disaster category.

6. Country team profile and estimate of all third and fourth party expenditures aimed at preventing, or lessening, the impact of disasters in each disaster category.

7. Dollar value of loss due to disasters by category.

8. Country team scale and estimate of the ability of host country government infrastructure to funnel disaster assistance to disaster victims.

9. Country team scale and estimate of the ability of private organizations in host country to funnel disaster assistance to disaster victims.
D. United States Developmental Assistance

United States actions in this area of concern, while properly classified under Humanitarian Assistance are primarily designed to foster, assist, encourage and even initiate change.

1. Country team scale and estimate of the extent of malnutrition in the host country population.

2. Country team profile of the dollar value of the sources of aid designed to end malnutrition.

3. Average caloric intake of host country population.
VII. ECONOMIC AND SOCIAL DEVELOPMENT OF HOST COUNTRY

Social Quality of Life

A. Crime and Public Safety

B. Education

C. Family Planning

D. Health Conditions

E. Housing

F. Pension and Welfare

G. Public Services

H. Rural Life

I. Urban Life
1. Country team profile and estimate of the number and types of reported crimes in host country.

2. Country team estimate of arrests in each crime category.

3. Country team estimate of the median jail sentence in each crime category.

4. Country team index of number of crime headlines, their position and size, on front page of major newspaper.

5. Size of police force in host country.

6. Country team scale and estimate of level of training in host country police force.

7. Country team profile of the types of police missions and the percentage of manpower in each.

8. Country team estimate of host country government budget allotment to each police mission.

9. Total host country government police budget.

10. Does police chief report directly to president?

11. Unemployment rate in host country.

12. Inflation rate in host country.

B. Education

1. Literacy rate in host country.
2. Percentage of host country governmental budget devoted to education.
3. Country team profile of host country governmental educational missions.
4. Host country governmental allocations per educational mission.
5. Percentage of school-aged children enrolled in school.
6. Host country governmental expenditure per pupil.
7. Number and types of teachers.
8. Pupil/teacher ratio.
9. Host country enrollment figures (K to post-doctoral).
10. Number of host country students studying abroad.
11. Profile and number of countries where host country students are studying.
12. Profile and estimate of sources of financial support for study abroad by host country students.
13. Profile and estimate of sources of foreign aid for host country educational system.
14. Country team profile of educational achievement level of host country school teachers.
C. Family Planning

1. Host country birthrate.
2. Host country birthrate by income strata.
3. Birthrate of all women of child-bearing age in host country.
4. Average family size in host country.
5. Host country governmental expenditures on birth control (this includes salaries, advertisements, etc.).
6. Country team profile and estimate of the volume of monies from other sources for birth control.
7. Age profile of host country.
8. Number of participants in family planning programs.
9. Number of birth control pamphlets distributed.
10. Percentage of fertile-age females using family planning services.
11. Number of abortions in host country.
12. Average life expectancy in host country.
value position) and policy scientists can help explicate these goals. A programmatic parliamentary party system is one example of a system that presents unambiguous evidence of the goals of the majority of the voting electorate.

Concern with end-states also presupposes some idea of the trends which will affect the position of a desired value in the future. Design strategies, in short, are fashioned in the present to control trends or events in the future. A prediction of the effect of increased automation upon worker frustration, for example, requires efforts be made now to avoid an undesired level of worker frustration in the future.

Although a rather pessimistic picture of the degree of consensus and explicitness in many social and political goal statements has been presented, in a later section it will be indicated how a remarkable degree of consensus and explicitness was achieved in the Department of State regarding the definition of the national interests or goals which the United States seeks to pursue.

c. Activity. One central feature of the definitions of design presented above has been the stress upon the activities undertaken within the design process. The activities have been described as planned, problem-solving, logically systematic, creative, and as initiators of change. It is important to note that design activities are aimed at producing a product which will control the authoritative allocation of values at some future point.
D. Health Conditions

1. Infant mortality rate.
2. Birthrate.
3. Death rate over age profile.
4. Hospital beds ratio.
5. Doctors ratio.
6. Nurses ratio.
7. Man-days lost due to sickness.
8. Percentage of population covered by public health insurance.
9. Percentage of population covered by private health insurance.
10. Number of school children attending public health or hygiene course in school (lasting at least four months).
11. Percentage of births at home.
12. Ratio of deaths unattended by physicians.
14. Percentage of host country governmental budget devoted to public health.
15. Country team profile of amount and source of foreign aid for host country health care programs.
16. Country team profile of host country health missions and expenditure pattern.
17. Country team profile of foreign aid according to health missions.
19. Average life expectancy.
20. Per capita caloric intake per day.
22. Percentage of population immunized against infectious disease.
23. Milage profile

<table>
<thead>
<tr>
<th>% of population</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
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<td>miles to travel</td>
<td>.5</td>
<td>1</td>
<td>10</td>
<td>15</td>
<td>20</td>
<td>40</td>
<td>50</td>
<td>90</td>
<td>100</td>
<td>137</td>
</tr>
</tbody>
</table>

read: 10% of host country population are within one half mile of a hospital (or doctor)
1. The percentage of occupant-owned housing.

2. Country team profile and estimate of the percentage of the host country population in each type of housing.

3. Country team estimate of the condition of the housing in each category.

4. Country team profile and estimate of the percentage of rural population living in each type of housing.

5. Country team profile and estimate of the percentage of urban population in each type of housing.

6. Number of new housing starts.

7. Country team scale and estimate of the availability of mortgages.

8. Rate of population increase.

9. Dollar value of host country governmental expenditures for low-cost housing.

10. Country team profile and estimate of foreign sources of aid for low-cost housing in host country.
1. The percentage of the population covered by social security system.
2. Total host country governmental expenditures for social security.
3. Percentage of the retired host country citizens receiving social security payments.
4. Average life expectancy.
5. Accident rate in industry.
6. Host country governmental expenditures on job training programs for welfare recipients.
7. Inflation rate.
8. Percentage of the yearly increase in social security payments.
9. Country team profile of people receiving social security payments.
10. Country team profile of people paying taxes into the social security system.
11. Age profile of population.
G. Public Services

1. Percentage of the population with public water in home.
2. Percentage of the population with public sewage service in home.
3. Percentage with public water and sewage service in home.
4. Kilowatt hours of electricity produced by host country government as a percentage of all electricity produced in host country.
5. Birthrate.
6. Percentage increase in yearly usage of electricity use.
7. Percentage of population serviced by public or private garbage collection.
8. Number of police per 10,000 citizens.
9. Number of firemen per 10,000 citizens.
10. Number of judges per 10,000 citizens.
11. Number of social workers, welfare caseworkers per 10,000 citizens.
12. Number of host country government public health personnel per 10,000 citizens.
13. Number of host country government personnel per 10,000 citizens.
14. Percentage of host country government personnel covered under civil service examinations.
15. Dollar value of host country disaster prevention work.
16. Dollar value of host country government meteorological efforts.
17. Country team profile and estimate of the host country government public service expenditures according to missions.
1. Country team profile and estimate of the percentage of the host country population employed by sector in rural areas.

2. Percentage of the host country population living in areas designated as rural.

3. Percentage of the rural population with public water, sewage, police, fire protection, social workers.

4. Rural population density.

5. Rural birthrate.

6. Rural to urban migration rate per 10,000.

7. Country team profile and estimate of the percentage of the rural population attaining various levels of education.

8. Percentage of the rural working-age population unemployed.


10. Rural income profile.

11. Distribution of birth control devices per 10,000 fertile age women.

12. Rural hospital beds per 10,000.

13. Percentage of the rural population receiving social security payments.

14. Crime rate per 10,000 in rural areas.
I. Urban Life

1. Country team profile and estimate of the percentage of the host country population employed by sector in urban areas.

2. Percentage of the host country population living in urban areas.

3. Percentage of the urban population with public water, sewage, police, fire protection, social workers.

4. Urban population density.

5. Urban birthrate.

6. Urban to rural migration rate per 10,000.

7. Country team profile and estimate of the percentage of urban population attaining various levels of education.

8. Percentage of urban working age population unemployed.


11. Distribution of birth control devices per 10,000 fertile age urban women.

12. Urban hospital beds per 10,000.

13. Percentage of the urban population receiving social security payment.

14. Crime rate per 10,000 in urban areas.
VII. ECONOMIC AND SOCIAL DEVELOPMENT OF HOST COUNTRY

Economic

A. Economic Growth

B. Equitable Distribution of Income

C. Full Employment

D. Sector Development
   - Industry
   - Tourism
   - Agriculture
   - Science and Technology
   - Foreign Trade
   - Banking and Finance
   - Transportation
   - Communication
   - Entertainment

E. Private Sector Development

F. Foreign Trade

G. Regional Economic Integration
1. Host country gross national product in dollars.
2. Rate of increase in host country gross national product.
3. Rate of inflation in host country.
4. Host country gross national product per capita.
5. Dollar value of domestic capital investment in host country.
6. Dollar value of foreign capital investment in host country.
7. Transportation infrastructure index:
   
   miles of: navigable rivers, canals, paved roads, unpaved roads, railroads, regularly scheduled airline routes

   total land area of host country

8. Communications infrastructure index:

   number of telephones, radios, televisions

   total host country population

9. Banking and financial infrastructure index:

   dollar value of deposits in savings, loans, and credit banks

   host country gross national product in dollars

10. Government services index:

    number of government employees

    total host country labor force
Design activities, in short, are undertaken because there exists a problem or need which, if left unattended or uncontrolled, will delay, increase the costs, or even prohibit the attainment of desired goals. Hence, the cluster of problem-solving or design skills outlined above are invoked to fill a need.

The immediate object of all the activities outlined above is the initiation of change. Reswick's (1965) definition of design as the creation of something new and useful which has not previously existed strikes at the heart of design activity. Design comes about when the solution to a problem or need is not presently available and must be created. Here the distinction between design and control becomes particularly relevant. Design involves the creation of the parameters for control in the face of a problem according to some set of goals. In a steam-driven engine if pressure exceeds a given level, then automatically a man or a machine act to restore pressure within the desired set limits. This is a control action. If, however, it were noticed that the steam engine constantly had to be regulated and that this regulation drastically lowered efficiency, then a new steam engine with a larger steam capacity and lower heat conduction (our goal) might be designed.

d. Selection of a Course of Action. The selection of a particular course of action to reach a desired goal is perhaps the most complicated portion of any design effort. This stage repre-
11. Country team construct a profile of the growth rate of the basic industries of host country.

12. Country team estimate dollar value of capital investment in each sector of basic industry.

13. Volume of trade in host country stock market (dollar value).

14. Distribution of stock ownership in host country (percentage of host country population owning stocks).

15. Number of new housing starts in host country.

16. Prime bank interest rate in host country.

17. House mortgage interest rate in host country.

18. Country team scale and estimate of the availability of mortgages to working and middle class families.

19. Unemployment rate in host country.

20. Percentage of population (working age) employed.

21. Number of new entries to job market.

22. Dollar value of all host country debts (public and private).

23. Number of patents issued to host country inventors.

24. Number of new cars built in host country.

25. Average number of advertising message units per media air time (radio, television).

26. Average number of advertising message inches per newspaper inch.

27. Percentage of occupant-owned dwellings in host country.

28. Host country corporate tax rate.

29. Host country personal income tax rate schedule.

30. Host country gift and estate tax rate schedule.
31. Host country government total tax income.
32. Host country government tax financed expenditures.
33. Host country government debt as a percentage of host country government tax income.
34. Host country foreign exchange reserves in dollars.
35. Host country consumer price index.
36. Capital outflow from foreign investments in dollars.
37. Capital outflow from domestic investments in dollars.
38. Dollar value of savings in host country banks.
39. Country team profile and estimate of host country government investment priorities.
40. Country team scale and estimate of host country government managerial and developmental planning skill.
41. Host country population density.
42. Host country population growth rate.
43. Percentage of population served by public water and sewage.
44. Population age profile.
45. Labor productivity index.
46. Percentage of population engaged in each economic sector.
47. Host country literacy rate.
48. Percentage of school age population receiving technical training.
49. Percentage of host country population outside the money economy.
50. Percentage of population covered by host country social security system.
51. Percentage of population with union membership.
52. Country team profile and estimate of the percentage of host country ownership in each economic sector.
B. Equitable Distribution of Income

1. Country team profile and estimate of the distribution (in percentages) of people in host country earning classes.

2. Country team profile and estimate of the distribution of property ownership in host country.

3. Country team profile and estimate of the distribution of occupant owned dwellings in host country.

4. Country team profile and estimate of the educational level obtained by income strata in host country.

5. Country team profile and estimate of the distribution of unemployment by income strata in host country.

6. Host country unemployment rate.

7. Host country gross national product per capita.

8. Host country birthrate.

9. Country team profile of income distribution by regions within host country.
1. Percentage of host country working age population unemployed.

2. Percentage of unemployed host country working age population receiving unemployment compensation.

3. Country team profile and estimate of unemployment levels in each host country economic sector.

4. Host country seasonal variation in unemployment.

5. Country team profile and estimate of union membership across host country economic sectors.

6. Country team profile and estimate of unemployment levels of union members across host country economic sectors.


8. Country team profile and estimate of labor productivity across host country economic sectors.

9. Country team profile and estimate of investment rate across host country economic sectors.

10. Rate of inflation.

11. Union membership as a percentage of the host country working age population.

12. Country team profile and estimate of the percentage of working age population under-employed.


15. Percentage of union members covered by collective bargaining contracts.
D. Sector Development

The environmental indicators in this section will not cover each of the sectors in depth and will provide instead a few more general indicators and an illustrative list of possible indicators for the host country economic sectors. One reason for the lack of exhaustive coverage is the probability that one or two sectors might be key sectors upon which the country team may wish to focus because of the implication the growth of these few sectors may have upon the rest of the host country economy.

1. Country team construct a profile of the...
   a. Employment
   b. Investment
   c. Profit rate
   d. Growth rate
   e. Union membership
   f. Contribution (in percentages) to host country economy
   g. Tax rate
   h. Labor productivity
   ...of each sector of the host country economy.

2. Country team scale and estimate of the planning and managed capacity of host country development officials.

3. Country team estimate of the investment needs by sector in next two years.

4. Country team estimate of the availability of investment monies by sector in next two years.

5. Country team estimate of the sources of investment monies by sector in next two years.

6. Inflation rate.

7. Number of tourists.

8. Number of scientific publications.


10. Percentage of host country gross national product devoted to foreign trade.
11. Dollar value of savings.

12. Number of new miles added to host country highway network.

13. Domestic mail flow (number of pieces processed).

14. Cinema attendance per 10,000.

15. Percentage of population dependent on agriculture for their income.
E. Private Sector Development

1. Country team profile and estimate of the percentage of host country governmental ownership in each sector of the economy.

2. Country team estimate of anticipated level of increased host country governmental ownership in each sector of the economy for next two years.
F. Foreign Trade

1. Foreign trade (imports and exports) as a percentage of the host country gross national product.

2. Foreign imports as a percentage of the host country gross national product.

3. Foreign exports as a percentage of the host country gross national product.

4. Commodity profile of host country imports (dollar value and percentage of gross national product).

5. Commodity profile of host country exports (dollar value and percentage of gross national product).

6. Host country’s four largest import partners (rank and dollar value).

7. Host country’s four largest export partners (rank and dollar value).

8. Host country balance of payments deficit in dollars.

9. Host country government foreign currency reserves in dollars.

10. Price trend of host country exports (percentage increase).

11. Price trend of host country imports (percentage increase).

12. Total dollar value of host country debts to foreign banks or lending institutions.

13. Total dollar value of private host country debts to foreign banks or lending institutions.


15. Dollar value of mineral resources stored for export.
1. Dollar value of host country trade with CACM.  
2. Dollar value of host country imports from CACM.  
3. Dollar value of host country exports from CACM.  
4. Dollar value of CACM trade with Latin America.  
5. Dollar value of CACM imports from Latin America.  
6. Dollar value of CACM exports to Latin America.  
7. Dollar value of CACM imports from United States.  
8. Dollar value of CACM exports to United States.  
9. Dollar value of CACM imports from world.  
10. Dollar value of CACM exports to world.  
11. Combined (\bar{r}) growth rate of CACM nations.  
12. Growth rate (\bar{r}) of non-CACM Latin American nations.

CACM is an abbreviation for the Central American Common Market
sents, more than any other, a fusion of science and value preferences. From a value perspective, and one long indicated in the history of philosophical thought, the choice of the means or strategies chosen to achieve desired ends is as important as the selection of the ends themselves (Leys, 1962; Schubert, 1960; and Flathman, 1966). Consequently, the means chosen suffer from the same problems of consensus and explicable as do goals. This is true not only because values will influence the means employed (i.e., Will the 1946 Employment Act's goal of full employment be achieved by cutting off all unemployment benefits or by offering a government job to all unemployed?), but also because a given goal may be a means to achieve another goal. For example, the goal of a college degree may become the means to a good job.

A good job thus becomes the means to live in high style, which in turn could be the course of action best designed to meet important people. A nation's desire for economic development might lead to more democratic political development, which might lead to increased stature in the United Nations.

The area in which scientific or technological concerns exert the most influence in the selection of means has to do with the limitations or constraints imposed upon all courses of action by the environment and the problem itself. The most obvious observation is that if limitations or constraints do not exist, or if nothing is blocking or otherwise impeding the desired rate of achievement of a particular goal, then there is no need for design
VIII. POLITICAL DEVELOPMENT OF HOST COUNTRY

A. Growth and Maintenance of Democratic Institutions

B. Respect for Human Rights

C. Effective Government

D. Maintenance of Host Country Government Friendly to United States

E. Capacity of Extremists to Overthrow Host Country Government

F. Communist Party Influence

G. Trade Union Involvement in Politics

H. Role of Military in Host Country Government

I. Growth of Local Government

J. Future Political Status of Host Country
A. Growth and Maintenance of Democratic Institutions

1. Country team scale and estimate of the extent of electoral franchisement in host country.
2. Age in years of host country constitution.
3. Number of amendments to host country constitution.
4. Number of times martial law or the emergency powers' clause of host country constitution has been employed to suspend rights guaranteed by host country constitution.
5. Percentage of eligible voters who voted in last presidential election.
6. Percentage of eligible voters who voted in last congressional or parliamentary election.
7. Profile of country team of vote by political party for president in last election.
8. Country team profile of vote by political party for congress or parliament in last election.
10. Number of cases of fraud charged by all political parties concerning the voting and vote counting.
11. Percentage of host country officials of cabinet or agency head rank or higher who are military career officers.
12. Country team profile of acts of violence and types of civil violence in host country.
13. Country team estimate of number of political prisoners in host country.
14. Voter turnout in rural areas.
15. Voter turnout in urban areas.

16. Number of cases of harassment charged by political parties against the host country government or its political party in the normal process of recruitment, financial contributions, strategy planning, and advertising.

17. Country team scale and estimate of the reliability of host country election results.

| Extensive voter fraud by one party | Extensive voter fraud by all parties | Limited voter fraud | Inefficient Poll lation complaints |

18. Country team scale and estimate of level of political freedoms in host country.

19. Country team scale and estimate of amount of terrorist and radical activity.

20. Percentage of host country governmental employees under civil service system.

21. Country team profile of the sources and extent of intervention in host country political processes by non-host country participants.

22. Number of host country political exiles.

23. Country team scale and estimate of the adherence to constitutional norms by host country government.
C. Effective Government

1. Percentage of host country government employees under civil service.

2. Country team profile and estimate of educational level of host country government employees.

3. Percentage increase in number of host country government employees.

4. Percentage of the host country population increase.

5. Host country government budget.

6. Country team profile and estimate of host country government budget by mission area.

7. Percentage of increase in host country government budget.

8. Percentage of increase in budget in each mission category.

9. Country team scale and estimate of corruption in host country government.

10. Country team scale and estimate of host country government ability to plan or manage economy.

11. Trial backlog in host country courts (number of cases awaiting trial).

12. Percentage of taxes assessed that are collected.

13. Host country government debt in dollars.

14. Percentage of host country government debt increase.

15. Number of officials directly reporting to host country president.

16. Inflation rate.

17. Difference between official host country exchange rate for United States currency and black market rate.
D. Maintenance of Host Country Government Friendly to United States

1. Host country roll call agreement score with United States in United Nations.
2. Amount of United States aid received by host country government.
3. Percentage of host country exports which go to United States.
4. Percentage of host country imports which come from United States.
5. Percentage of the vote received by host country government.
6. Number of years host country government has been in power (same party).
7. Country team scale and estimate of extent of terrorist activity in host country.
8. Country team scale and estimate of likelihood of host country government ouster at next election.
9. Inflation rate.
10. Unemployment rate.
12. Trade deficit in dollars.
13. Host country government debt in dollars.
14. Country team profile and estimate of acts of civil violence in host country.
E. Capacity of Extremists to Overthrow Host Country Government

1. Country team scale and estimate of capacity of extremists to overthrow host country government.

2. Country team profile and estimate of the sources of financial and material support for extremists.
F. Communist Party Influence

1. Country team scale and estimate of legal status of communist party in host country.

2. Percentage of the vote received in last election by communist party.

3. Country team scale of communist affiliation with extremist or terrorist groups in host country.
1. Percentage of host country working age population in unions.

2. Country team profile and estimate of the union orientation of host country political parties.

3. Country team profile and estimate of union contributions to host country political parties.

4. Percentage of union members in host country parliament.

5. Percentage of labor backed candidates elected in last election.

6. Country team scale and estimate of communist influence in host country trade unions.

7. Country team scale and estimate of the participation of union members in union electoral process.

8. Percentage of host country union members covered by collective bargaining agreements.

9. Number of man days lost to union strikes.

10. Number of man days lost to union political strikes.

11. Percentage of increase in pay for union members.

12. Percentage of increase in income for host country population.

13. Country team scale and estimate of scope of union benefits to members (health care, old age, unemployment, etc.).

14. Country team profile and estimate of the percentage of union membership across economic sectors.
H. Role of Military in Host Country Government

1. Percentage of host country government officials of cabinet, agency head, ambassadorial or appellate judicial rank who are military career men.

2. Is host country president a military career man?

3. Was host country president elected or instituted via an actual or threatened military coup?

4. Percentage of host country government budget allocated to military.

5. Percentage of military budget allocated to suppression of terrorist groups in host country.

6. PICA freedom of press index.

7. Inflation rate.

8. Unemployment rate.


10. Country team scale and estimate of the professionalism of host country military.

11. Country team scale and estimate of the military's relationship with the general public.
(Papanek, 1971). Design requires as a necessary condition the existence of a problem or a need, a challenge, or an opportunity which will influence the rate at which a goal is reached. If we are not troubled by the rate of economic growth of underdeveloped nations, then we need not change our present course of action. If we are concerned, however, the institutions might be designed, such as the World Bank, AID, and UNESCO, to act to increase the rate of economic development in underdeveloped nations.

Limitations of time, finances, skill, and the level of technological resources available constrain the vista of means open to the designer to achieve his goals. Time constrains the length of the period available for design planning, implementation, achievement, and assessment. Particularly important is the amount of time assigned by decision-makers to designers to achieve their goals (i.e., Will unemployment be reduced in one or five years?). Indeed, a review of the decision-making literature would seem to suggest that if time is short, the response of the designers will be incremental, more reliant upon standard operating procedures and available technologies than if more time were available (Helmar, 1966; Hermann, 1969). The level of available finances limits the range of alternatives proposed by designers to implement goal achievement strategies. In addition, if the pool of skills which the designers may use in implementing design plans is low or limited in size, or if desired technological resources or means are not available, then the design response to the
J. Future Political Status

1. Number of years host country has been independent.
2. Country team scale and estimate of host country autonomy.
3. Country team scale and estimate of host country attitude toward regional economic integration efforts.
4. Country team construct a profile of host country trading patterns.
5. Country team profile of host country alliance patterns.
6. Host country—United Nations agreement score profile for host country with United States and four largest trading partners.
7. Level of civil violence in host country.
I. Growth of Local Government

1. Country team scale and estimate of the extent of local government in host country.

2. Percentage of local government officials directly appointed by central government.

3. Percentage of local officials who hold office due to local elections.

4. Percentage of local government officials covered by civil service.

5. Country team profile and estimate of the percentage of public services provided by central or local governments.


7. Country team profile and estimate of the sources of finances for central government.

8. Number of local government employees.

9. Number of central government employees (minus military).

10. Size of combined local government debt.

11. Size of central government debt.
IX. FAVORABLE DISPOSITION TOWARD UNITED STATES

A. Disposition of the General Populace Toward United States

B. Disposition of Specific Groups in Host Country Toward the United States

C. Use of United States Information Service Facilities

D. Use of United States Media

E. Major Issues
A. Disposition of General Populace Toward the United States

1. Country team scale and estimate of level and types of civil violence in host country.

2. Country team scale and estimate of civil violence, by types, directed against United States citizens or property.

3. Response, by types of civil violence, by United States embassy to violence directed against United States citizens or property.

4. Percentage of each host country economic sector owned by United States investors.

5. Unemployment rate in each host country economic sector.

6. Inflation rate in host country.

7. Growth rate in each sector of host country economy.

8. Host country-United States balance of payments in dollars.

9. Number of United States mentions in host country media.

10. Number of favorable/unfavorable United States mentions in host country media.

11. Percentage of host country college students trained in United States.

12. Percentage of military officers trained in United States.

13. United States aid to host country as a percentage of host country government budget.

14. Number of host country visa applications to United States.

15. Number of cabinet level or higher visits between host country and United States officials.
16. Utilization of USIS facilities (per day).

17. Country team scale and estimate of public acceptance of United States programs and activities.

18. Country team scale and estimate of public support of anti-United States demonstrations.

19. Country team profile of use of United States media entertainment by type of media.
In this area of concern ten general indicators have been constructed to tap the disposition of different sectors of host country society toward the United States. Note that due to cost and considerations of the political feasibility indicators of attitudes drawn from public opinion polls have not been considered. Subgroups in each sector which we might wish to control for are included in parentheses.

Sectors

1. Agriculture (property owners and workers)
2. Business (size, family or public ownership, type)
3. Cultural groups
4. Intellectuals (occupation, residency abroad)
5. Labor (economic sector, union members, union leaders)
6. Media (owners, employees, type of media)
7. Military (branch)
8. Police
9. Politicians (party)
10. Professionals (occupation, residency abroad)
11. Religious (leaders, priests, lay members, foreign missionaries)
12. Scientific and technical community
13. Students (grade, major)
14. Upper class (occupation, residency abroad)

Sector Indicators

1. Country team scale and estimate of United States Government accessibility to sector leaders.
2. Country team scale and estimate of sector's role in anti-
United States demonstrations.

3. Country team scale and estimate of direction and strength of
attitude toward United States in sector.

4. Country team estimate of size of each sector.

5. Country team scale and estimate of the contribution of each sector
to host country political scene (i.e., 1) participation, 2) financial
resources, and 3) cohesion).


7. Utilization of USIS facilities by sector.

8. Country team scale and estimate of sector acceptance of United
States programs and activities.

9. Use of United States media entertainment by sector.

10. Number of visits to United States by sector leaders.
C. Use of United States Information Service Facilities

1. Number of host country nationals using USIS facilities.
2. USIS budget in host country by mission.
3. FICA freedom of press score for host country.
D. Use of United States Media

1. Dollar value of sales or rentals of United States media to host country by type of media.

2. Number of hours of United States media programming per week in host country.
perceived problem will be correspondingly constrained. Indeed, as any explication of these factors quickly reveals, the constraints are closely interrelated in terms of their effect on the selection of design choices or strategies. Perhaps the most fruitful way to think of these value and resource constraints is as costs to be assessed against each proposed means. Thus conceptualized, cost is a negative concept, something which the optimal means or strategy will seek to minimize. There is always the danger that inertia will set in as new control or design efforts are envisioned as drains upon present resources, but this should be minimal once policy makers realize the greater costs which will be assessed against them in the future if desired goals are not reached.

Choice of the means or course of action to be implemented in order to achieve a particular goal must, however, still be made in terms of the values of the designer and his client. The initial efforts taken under the guise of scientific analysis by the systems analysts and PPBS advocates tended to obscure the value-laden nature of the selection process by bootlegging cost-benefit criteria as a substitute for other value considerations (Hitch, 1969). Armed with the cost-benefit decisions rule it was argued that the best courses of action could be chosen by determining the solution which produced the greatest return for the dollar. Design methods, on the other hand, have sought to produce a product which explicitly reflects client goals and not some set of arbitrary efficiency goals.
E. Country Team Selection of Major Issues

In this set of environmental indicators, the country team will select the five major substantive issues over which the United States and host country have disagreed (perhaps indicated by the exchange of 'negative' notes) in the last five years. For these issues the country team will construct a scale reflecting the possible range of United States-host country position vis-à-vis the particular issue and will estimate the present position of the United States Government and host country government.

For example: Renewal of Military Base Agreement:

<table>
<thead>
<tr>
<th>Renewal of agreement</th>
<th>Renewal not popular, unless U.S. Government offers more</th>
<th>Renewal not visible, but host country government feels that</th>
<th>Economy depressed.</th>
<th>New jobs welcome.</th>
<th>Host country government officials feel threatened by third party and visible signs of U.S. presence.</th>
</tr>
</thead>
<tbody>
<tr>
<td>country</td>
<td>money to host country nationals.</td>
<td>U.S. Government should increase payments and stop U.S. jets from breaking sound barrier over city.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
X. WORLD ORDER

A. Free Passage on High Seas, Through International Straits, and International Airways

B. Adherence to International Law and Conventions

C. Intergovernmental and Nongovernmental Memberships

D. Peaceful Settlement of Disputes

E. Protection of International Environment

F. Regional Economic Integration Efforts

G. Level of Arms Purchases
A. Free Passage on High Seas, Through International
    Straits and International Airways

1. The extent (miles claimed) of host country territorial seas.

2. Country team profile of the volume of ship traffic by nationality
    through international straits in territorial seas claimed by
    host country.

3. Country team scale and estimate of the degree of host country
    control (or harassment) of United States vessels in contradiction
    to law of seas.

4. Dollar value of fines paid by United States ships for territorial
    violations to host country.

5. Country team profile of host country position on major issues at
    Law of the Seas Conference.

6. Number of United States air violations reported by host country.
B. Adherence to International Law and Conventions

1. Number of treaty abrogations.

2. Number of treaty abrogations with United States.

3. Is host country a signatory of nuclear non-proliferation treaty?

C. Intergovernmental and Non-governmental Memberships

1. Number of intergovernmental organizations host country belongs to.

2. Ratio of host country intergovernmental organization memberships to total possible intergovernmental organization memberships.

3. Number of regional intergovernmental organization host country memberships.

4. Ratio of host country regional intergovernmental organization memberships to total possible regional intergovernmental organization memberships.

5. Host country total payment of dues to intergovernmental organizations by each intergovernmental organization.

6. Host country payments received from each intergovernmental organization.

7. Host country loans granted to each intergovernmental organization.

8. Host country loans granted from each intergovernmental organization.
D. Peaceful Settlement of Disputes

1. Country team profile of territorial disputes involving host country and third country and the present status of the dispute.

2. Host country conflict/cooperation events flow ratio.

3. Number of host country military buildups along frontier.

4. Number of host country combat deaths.

5. Amount of property damaged in third nation caused by host country.

6. Number of third country combat deaths caused by host country.

7. Amount of property damage in host country caused by third country.

8. Country team list, scale and estimate of host country outstanding disputes with third countries.

9. Country team scale and estimate of probability that host country government will be in war in next two years.
E. Protection of International Environment

1. Country team profile and estimate of host country government position on list of environmental issues drawn up by Department of State.

2. Country team scale and estimate of the level of activity of ecology action groups in host country.
F. Regional Economic Integration Efforts

1. Country team scale and estimate of the attitude of host country government officials toward regional economic integration.

2. Country team scale and estimate of the efforts the host country has made in the direction of increased regional economic integration.
G. Level of Arms Purchases

1. Country team profile of dollar value of host country arms purchases abroad, by country.

2. Country team scale and estimate of the reason for host country arms purchases abroad.

3. Target (if country team believes there is one) of arms purchases.

4. Country team scale and estimate of likely use of arms.

5. Level of ammunition and spare parts.
XI. ADVANCEMENT OF OTHER UNITED STATES INTERESTS

A. Law Enforcement

B. Improvement of Scientific Research

C. Health

D. Central American Economic Integration

E. Safety of United States Vessels in Host Country Water

F. Water Resources

G. Internal Revenue Service

H. Areas of Joint Cooperation

I. Host Country Support of United States in International Organizations

J. Host Country Adherence to Treaty Commitments

K. Specific United States Interests of Concern in Areas Other Than Latin America
e. The Knowledge Base. The design knowledge base has three parts: 1) the body of scientific principles from which solutions are drawn; 2) the data provided by indicator systems on present and future areas of control; and 3) the body of design methodologies available to designers. We will briefly discuss only the first component, reserving for later portions of this chapter the discussion of modern design methodologies and information systems.

Industrial and architectural design have acquired the greatest corpus of established principles and substantive knowledge of any area in which design has been implemented. The reason for the accumulation of this substantial body of knowledge lies in: 1) the relative ease with which measurement can be made; 2) the ability to undertake controlled experiments; 3) the general lack of disagreement over goals; and 4) the degree of guidance available in the design, control, and evaluation stages of product design. Although social science design efforts have a less extensive body of knowledge to draw upon, what does exist is expanding in the area of measurement (Webb, 1966; Robinson, 1950; Tuftee, 1968), specification of the structural and contextual environments of knowledge (Eulau, 1969; Singer, 1969; Burgess, 1970; Lasswell, 1971), value consensus (Bloom, 1956), and through operations research theory (Saaty, 1972).

f. Error. Error in design problems simply signifies the extent to which, in a specified period of time, the design efforts
A. Law Enforcement

1. Country team scale and estimate of extent of host country cooperation with United States.

2. Size of host country police force.

3. Country team profile of areas of cooperation of host country officials and United States law enforcement officers.
B. Improvement of Scientific Research

1. Country team scale and estimate of value of United States space program.

2. Country team scale and estimate of host country cooperation with National Science Foundation's International Decade of Ocean Exploration.

3. Country team profile of use of scientific installations and facilities.
C. Health

1. Country team scale and estimate of success of host country efforts to control the spread of hoof and mouth disease.

2. Country team profile and estimate of exchanges of information and control procedures between host country and United States.

3. Percentage of host country budget allocated for medical research.

4. The ratio of hospital beds per 10,000 population.

5. The ratio of trained doctors per 10,000 population.

6. The number of people served by host country public health services.
D. Central American Economic Integration

1. Country team scale and estimate of the attitude of host country officials toward increased Central American Economic integration.

2. Dollar value of host country trade with Central American nations.

3. Country team scale and estimate of likelihood that host country will participate in increasing Central American economic integration.
E. Safety of United States Vessels in Host Country Waters

1. Number of United States pleasure and commercial vessels entering host country waters.

2. Number of United States vessels in distress in host country waters.

3. Country team scale and estimate of host government capacity to assist merchant or pleasure vessels in distress.

4. Country team scale and estimate of host country government ability to maintain navigation aids.
F. Water Resources

1. Country team scale and estimate of host country position on sub-surface water rights.

2. Percentage of host country population serviced by municipal water systems.

3. Total kilowatt hours of electricity produced by hydroelectric plants in host country.
G. Internal Revenue Service

1. Host country tax revenues as a percentage of the gross national product.

2. Country team scale and estimate of the degree of cooperation between host country officials and the United States Internal Revenue Service.
H. **Areas of Joint Cooperation**

1. Country team scale and estimate of the extent of United States and host country cooperation in scientific research.

2. Country team profile of the number of United States citizens working in host country.
I. Host Country Support of United States in
   International Organizations

1. Roll call agreement score of United States and host country in
   United Nations.

2. Profile of roll call agreement scores between host country and
   United States for all shared memberships in international
   organizations.
J. Host Country Adherence to Treaty Commitments

1. Total number of treaties in force between the United States and host country.

2. Profile of length of time treaties have been in force between the United States and host country.

3. Country team scale and estimate of the probability that host country will continue to adhere to treaty commitments with the United States.
did not achieve the desired goal. Unanticipated events, changes in basic trends, and "faulty" design are the principle sources of error. Trend changes in resources available, time, the magnitude of the problem, and the value profile of decision-makers (Ilke, 1971), may cause original goal achievement strategies to be inappropriate. Faulty design can only be determined in a post hoc fashion. In this case, the designers do not recognize or plan for an event or trend foreseeable at the planning stage. This does not include unforseen events, but rather explicit design decisions to choose theory A over theory B. In addition, faulty design does not include design efforts in which designers were forced to apply insufficient resources toward a goal.

g. **Intellectual History.** There appear to be approximately five major substantive areas which have produced important design efforts. These areas are product design, architecture, art, environmental psychology, and the design for social consequences. Product or industrial design deals with the creation of new products or commodities, such as a color television set, or high tensile steel, and is characterized by high manipulability and control and low salience of value choices. Architectural design has been concerned with the utilization of space and function. Artistic design has largely dealt with the principles of scope, focus, harmony, contrast, and space. Environmental psychology has been concerned with designing the interface between men and machines in
K. Specific United States Interests of Concern in Areas Other Than Latin America

1. Host country support for United States policies as measured by votes in the United Nations and statements by government.

2. Country team scale and estimate of host country participation in World Health Organization.
Appendix C: Events Data Coding Routine
In order to obtain events data which indicates the amount of activity that has been undertaken in each national interest area, it was necessary to recode McClelland's WEIS events data set according to the United States' national interest categories provided by CASP. The recoding was carried out in the following manner:

1. The CASP Procedural Guidance (Department of State, 1973), and other supporting documentation were examined to determine the types of activity subsumed under each national interest category.

2. A list of key words was then derived and employed to classify the events contained on the WEIS descriptive deck.

3. Events that were not coded on the first pass, were then examined and additions were made to the original list of key words.

4. This procedure was repeated until ninety percent of the events contained on the WEIS descriptive deck were able to be coded according to the national interest categories. The final list of key words is found on the following pages, organized according to the ten national interest categories.
<table>
<thead>
<tr>
<th>United States National Defense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naval vessel</td>
</tr>
<tr>
<td>Bases</td>
</tr>
<tr>
<td>Troop</td>
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<tr>
<td>Military</td>
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<tr>
<td>Communist aggression</td>
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<tr>
<td>Infantry</td>
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<tr>
<td>Battalion</td>
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<tr>
<td>Garrison</td>
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<tr>
<td>Division</td>
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<tr>
<td>Naval</td>
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<tr>
<td>Navy</td>
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<tr>
<td>War game</td>
</tr>
<tr>
<td>Commitment</td>
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<tr>
<td>Equipment</td>
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<tr>
<td>Communist guerrillas</td>
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<tr>
<td>USA rangers</td>
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<tr>
<td>Sea</td>
</tr>
<tr>
<td>Casualties</td>
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<tr>
<td>Psychological warfare</td>
</tr>
<tr>
<td>Capture</td>
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<tr>
<td>Alliance</td>
</tr>
</tbody>
</table>
United States Economic Prosperity

Export
Trade
Import
Foreign exchange costs
Sale
Drug
Tariff
Gold
Safety and Protection of United States Citizens and Property

Brainwashing
Indebtedness
Arrest
Damage
Evacuation
Annuity payment
Death
Slaying
Expropriation
Detainment
Jail
<table>
<thead>
<tr>
<th>English</th>
<th>French</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discontinue</td>
<td>Visiting</td>
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<tr>
<td>Cultural exchange</td>
<td>Defect</td>
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<tr>
<td>agreement</td>
<td>Arraignment</td>
</tr>
<tr>
<td>Exchange</td>
<td>Entrance</td>
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<tr>
<td>Visa</td>
<td>Refugee</td>
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<tr>
<td>Banned travel</td>
<td>Persona non grata</td>
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<tr>
<td>Duty</td>
<td>Extradition</td>
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<tr>
<td>Asylum</td>
<td>Travel ban</td>
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<tr>
<td>Detain</td>
<td>Bar</td>
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<tr>
<td>Release</td>
<td>Deport</td>
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<tr>
<td>Restrict</td>
<td>Tax</td>
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<tr>
<td>Sanction</td>
<td>Transfer</td>
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<tr>
<td>Regulation</td>
<td>Embargo</td>
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<tr>
<td>Expel</td>
<td>Culture</td>
</tr>
<tr>
<td>Expulsion</td>
<td></td>
</tr>
<tr>
<td>Travel documents</td>
<td></td>
</tr>
</tbody>
</table>
Open Channels of Communication

Called on
Calls on
Met
Tour
Consultation
Attend
Talk
Meet
Visit
Greet
Comment
Confer
Consultation
Host

Receive
Arrive
Trip
Note
Tell
Told
Message
Letter
Inform
Consular
Diplomatic
Mission
Invite
Conference
Humanitarian Assistance

Aid
Brought
Rescue
Lend
Lent
Loan
A.I.D.
Food
Help
Relief
Supplies
Supply
Economic and Social Development of Host Country

Shipping
Oil
Lithium
Asbestos
Dam
Project
Commerce
Coal
Pipeline
Credit
Grain
Debt
Wheat
Deficit
Union
Rice
Agricultural
Development
Scientific
Birth control
Economy
ACTION IN THE NATIONAL INTEREST

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

Raymond Warren LawtonIII, B.A., M.A.

The Ohio State University
1973

Reading Committee:

Philip M. Burgess
James E. Harf
Charles F. Hermann

Approved By:

Philip M. Burgess
Adviser
Department of Political Science
terms of reducing fatigue and stress, and increasing the efficiency of machine operators.

The most recent area of design is the design for social consequences. This area has two major intellectual streams. The first represents a hybrid of all of the fields mentioned above, and the second the more traditional focus of policy scientists upon human concerns. In the first area, the impetus to design for human needs stems from a revolt against "Madison Avenue," the desire to be relevant, and the belief that if present trends are not controlled, the future will be distinctly unpleasant (Forrester, 1972b; Meadows, 1972). In short, many practitioners in areas not previously consciously or aggressively concerned with social needs have developed social consciousness and have sought to bring to bear their technical skills on social ills.

In the second area, the concern of policy scientists in policy evaluation, impact, social indicator systems, forecasting, and systems analysis has increasingly led to a concern with the problem of design (Helmar, 1966). Although the design for social consequences is in an embryonic state, the scope of the activities under its purview can still be sketched in outline form. First, the concern with policy output and societal outcomes will constitute a main area of concern. Second, design students will increasingly gather, assess, and encode the data-making, data analysis, and substantive predictive models existing throughout the social sciences. Third, increased attention will be given to the development of in-
Political Development of Host Country

Government
Riot
Overthrow
Overthrew
Election
Exile
Rebel
Prisoner
Prison
Government
Politician
Democratic
Diplomatic regulations
Withdraw trade mission
Presidential candidate
Liberalization
Voters
Liberty
Social justice
Human dignity
Censorship
Political freedom
<table>
<thead>
<tr>
<th>Favorable Disposition Toward United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Television</td>
</tr>
<tr>
<td>Deny</td>
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<tr>
<td>Protest</td>
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<tr>
<td>Funeral</td>
</tr>
<tr>
<td>Comment</td>
</tr>
<tr>
<td>False</td>
</tr>
<tr>
<td>Deplore</td>
</tr>
<tr>
<td>Reject</td>
</tr>
<tr>
<td>Regret</td>
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<tr>
<td>Explain</td>
</tr>
<tr>
<td>Praise</td>
</tr>
<tr>
<td>Sympathy</td>
</tr>
<tr>
<td>Criticize</td>
</tr>
<tr>
<td>Anniversary</td>
</tr>
<tr>
<td>Support</td>
</tr>
<tr>
<td>Explain</td>
</tr>
<tr>
<td>Agree</td>
</tr>
<tr>
<td>Assail</td>
</tr>
<tr>
<td>Concern</td>
</tr>
</tbody>
</table>


World Order

Peace
Bombing
U Thant
International control commission
Aggression
Cease-fire
Ceasefire
War
Security council
Arbitration
Thant
Nuclear race
Kennedy round
European unity
UNO
Truce
Attack
Nuclear
Solution
Nonproliferation
Non-proliferation
Limitation
Tension
Fishing rights

Occupation
Invasion
Cooperation
Arms talks
Arms ban
Humanity
Settlement
Cze reform movement
Cze situation
Disarmament
GATT
Negotiate
Diplomat
Violation
Fight
Fire
Firing
Pope
Invade
Occupation
International
Forum
Atomic
Selected Bibliography


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indicator systems to monitor the impact of design actions (Burgess and Lawton, 1972). Fourth, an increased effort will be placed on developing control strategies emphasizing leverage points and actionables (Bauer and Gergen, 1968; Bellman, 1967). Fifth, policy evaluation routines will be developed and attempts undertaken to incorporate evaluation routines directly into the policy process. Sixth, and the most difficult and the most promising, will be the effort to encourage clients to articulate their goals and objectives as a precondition for the application of design strategies.

The definition of design presented below is not intended to serve simply as an overly large umbrella under which to gather widely disparate and divergent intellectual activities. Its purpose, rather, is to identify the crucial components of any design activity such as those exhibited in the definitions examined above.

**Design:** a conscious problem-solving activity intended to meet the needs generated by a present or anticipated problem in terms of present values, resources, and desired end-states, by creating a new design product from a body of knowledge and data.

Design, in short, exhibits the following characteristics:

- Conscious activity
- The existence of a perceived problem
- Activity designed to solve the problem
- Desired end-states or goals
- The creation of a design product
- A body of knowledge


The central theme or thread which ties the design activities together is purpose—a conscious desire to steer the present in the desired direction for the future. Teleology is not design under our definition. For example, while a goldfish's tapered shape may allow it to cut swiftly through the water it is not the result of a design process. No purposeful, conscious act was responsible for its shape. Rather, if we are to believe Darwin, its shape is due to the happenstance of genetic selection, mutation, and natural selection in a gene pool. Likewise, the sparkling interior of a geode or the incredibly intricate and patterned mineral traces found in cross sections of petrified wood do not represent design. The design we are concerned with is purposeful. Designed products, in short, are man-made.

2. Modern Design. The traditional areas of design are undergoing a transformation not at all unlike the paradigmatic shift undergone in the social sciences with the advent of the behavioral approach (Dahl, 1963; Kuhn, 1962). The center of the disturbance, or impetus to change traditional design puzzle-solving procedures, lies in the dissatisfaction of a significant minority of the design community with: 1) the lack of publicly available and explicit design procedures; 2) the impact or consequence, their design products have had upon society; 3) the desire to acquire a public knowledge and data base; and 4) the anticipation of future design problems.
The central theme in the effort to transform design theory lies in the desire to make design procedures specific (Murtha, 1967). Hitherto, design traditionally had been a private act of creation between the designer and the problem. Those advocating the construction of modern design theory argue that if design is ever to be a profession, then it must have a corpus of knowledge, principles, procedures, and data upon which to obtain intersubjective agreement and which can be employed to initiate new members into the profession and to set research agendas for those already in the profession (Jones, 1970). Interestingly enough, just as many social scientists look fondly and with anticipation at the concepts and methodologies developed in the "hard" sciences, so too do many of the advocates of modern design look with anticipation to the social sciences to provide them in like fashion with usable concepts and methodologies (Murtha, 1967).

Under traditional design procedures a designer might be instructed to build a simple chair, functional building, or a spacious subway platform. Modern design theorists\(^1\) would argue that design problems, methods, and products must be phrased in discursive language if they are to serve as a common intellectual stream for the profession. Non-discursive descriptions refer not

\(^1\)The term modern design theory is not used:
1) in a pejorative sense
2) to indicate a formally organized group
3) to indicate people who have, as yet, actually constructed design theory. Instead, it refers to those who desire to build explicit design methodologies similar to those advanced here.
to a common meaning between sender and receiver, but to the meaning assigned by the respective intellectual frameworks of the sender and receiver. Non-discursive words do not, necessarily, add new information to that already possessed by the receiver. Hazen (1969) has argued for the adoption of quantitative measures as a basic invariant experience to which all designers can refer and use to convey information to colleagues, students, and clients.

Murtha (1967) has argued that the two major needs of design are 1) reliable information on the relationship between the designed environment and the human user; and 2) a way of organizing or systematizing design decision-making around a unifying set of theories or principles.

Modern design has also been characterized by a concern for the impact of design products upon society (Papanek, 1971). This concern has not yet, however, reached the stage where indicator systems are envisioned to measure impact. Rather, stress seems to be upon broadening the traditional method of producing design products to include the consideration of societal outcomes according to (although this is implicit) some set of goals. Should the designer, Papanek (1971) asks, be concerned with the development of a transistorized portable color television set with simulated woodgrain or the development of an inexpensive television set that can be mass-produced for eight dollars apiece for educational and entertainment purposes in underdeveloped countries?

Churchman (1968) provides us with a simple, yet compelling,
outline of what one feature of a design theory might look like.

Consider the following equation:

\[ E = f(x_i, y_i) \]

or

Effectiveness of the system = is a function of
1. The variables subject to control \((x_i)\)
2. The variables not subject to control \((y_i)\)

Churchman's equation, based on his experience in operations research, advances the principle that portions of the system to be controlled will not be immediately susceptible to manipulation. The concept of a manipulable variable will be discussed in much greater detail later, suffice it for the present to indicate the promise and the probability that a body of principles can guide activities in their specification of control actions.

3. The Design Process. The design process is a problem-solving process which seeks to determine an optimal solution based upon client goals and resources. Investigation and explication of the stages of the design process serves to organize design knowledge and to focus designer concerns on the types of intellectual activities associated with each phase of design and the interrelationship of each phase to the whole design process. The necessity to identify these phases and to categorize the types of activities contained in each can be easily drawn from the classical statement of the seven
stages of the scientific method and the pedagogical and research payoffs garnered from this classification.

It might well be argued that the decision to differentiate and to explicate the stages of the design process is premature and must first await the development and consolidation of design concepts, principles, and theories. A strong case can be made for attempts, however premature, to focus upon and order the various intellectual components of the design process. First, such a strategy will force those practicing design or undertaking design research to react and to articulate exactly what it is that he likes or dislikes about a particular schema. Second, such a process will increase communication between designers and speed the recognition of the need for, and the development of, design concepts and methodologies. Third, the development of a common language will enable students and clients to more easily assimilate the design principles and provide feedback to professional designers regarding their needs. Fourth, it will enable the designers to identify the core of their activities and help to set research agendas.

One of the main problems in disaggregating the design process lies in determining the number of stages which will accurately classify the design problem-solving process. Comparisons between different design classification schemes is correspondingly difficult. Presented below are the results of two such efforts to disaggregate the design process, although no claim is made as to how representative they are of all such efforts.
Jones (1970) has characterized design as a three-stage process consisting of:

1) Analysis, which breaks the problem into pieces;
2) Synthesis, which puts the pieces together in a new way;
3) Evaluation, which tests to discover the consequences of putting the new arrangement into practice (Jones, 1970, p. 63).

The analysis stage is characterized by divergence and seeks to enlarge the search space to discover what may or may not be changed due to values, available technologies, time, and resource limitations. Jones argues that in this stage no orderly pattern should be imposed and that decisions which will limit or constrain future choices should be delayed until the synthesis stage. The designer is ordered by Jones not to over-speculate and instead to do the tedious leg-work and fact-finding necessary to form the basis for decisions at a later stage. The purpose of the centrifugal nature of the divergent intellectual activities at this stage is to confront the designer with as wide a vista of data and experience as is possible, to increase the probability that the designer will see the problem in its entirety and counteract initial, possibly false, assumptions about the problem. In short, the designer in this stage is "open to suggestions" and seeks to gather information on competing solutions to the problem.

The synthesis stage is one of transformation. The main object of this stage is the imposition upon the results of the divergent search of a pattern precise enough to permit convergence to a single
design solution. Pattern-making, Jones observes, is the creative act of turning a complicated problem into a single one by changing its form and deciding what to emphasize and what to overlook. The choice of a particular design solution is made on the basis of the data gathered on relevant values, available time, resources, and technologies.

Evaluation is a convergent activity in which uncertainties concerning the impact of the design product, or the feasibility of new combinations of design components are reduced until agreement is reached upon one design as a final solution. Machine simulation is one of the most frequently employed tools in many areas of industrial design in the evaluation stage.

A second effort to note the stages involved in design comes from Koontz and O'Donnell (1964). Koontz and O'Donnell have cast their analytical net a bit differently and seek to emphasize more discrete design planning steps than does Jones:

1. Determining needs: asking why and looking at conditions

2. Establishing objectives: determining the goals of the activity

3. Premising: gathering factual data to describe the external environment

4. Determining alternative courses: specifying all possible means for achieving design objectives

5. Evaluating alternative courses: determining the alternative cost benefits of the different courses of action

6. Selecting a course

7. Formulating derivative plans: operationalizing or implementing design plans (Koontz and O'Donnell, 1964, p. 87).
It is particularly significant that the two categorizations all focus upon values, data gathering, evaluation of alternative courses of action, and the selection of a single design course of action. The commonality of focus lends some support to the hope that there is a genuine area of common intellectual concerns which might form the basis and substance matter for a modern design discipline.

Several additional observations about the nature of the intellectual activities associated with the design process deserve further attention. First, the design process involves an interaction between the problem or need, design constraints, and the creativity of the designer. Archer succinctly identifies the nature of this interaction when he asserts:

There can be no solution without a problem; and no problem without constraints; and no constraints without a pressure or need. Thus design begins with a need. Either the need is automatically met, and there is no problem, or the need is not because of certain obstacles or gaps. The finding of means to overcome these obstacles or gaps constitutes the problem. If solving the problem involves the formulation of a prescription or model for subsequent embodiment as a material object (and requires a creative step), then it is a design problem. The skills required for its solution depend upon the nature of the predominating constraints. These determine whether the problem is called architecture, engineering, applied science, industrial design, or an art and craft.

(Archer, 1965, p. 4)

Efforts to build a theory of design must articulate and differentiate the ways in which the nature of the problem itself influences the design process and the technologies, resources, and
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I would also like to thank Philip M. Burgess for generously making available staff help and other resources. The events data set employed was provided through the Polimetrics Laboratory of the
value constraints associated with its solution. Work of the type undertaken by Lowi (1966) and Rosenau (1969) in classifying types of policy outputs, or issue-areas, and their impact upon the policy process must also be undertaken if design theorists are to establish criteria and guidance for policy action. Thus, for example, a design theorist might be able to offer as a principle of action the observation that regulative policies cause less disruption than do policies which require the redistribution of valued objects.

Second, designers need an explicit statement of the problem if they are to undertake the expensive search, analysis, and evaluation required by the design process. Hazen (1969) provides us with a good example of a relatively explicit statement of a problem:

Scientists and computer technicians have developed computer programs to analyze television pictures of the moon. With this technology it might be possible to submit photographs to represent a pedestrian visual field to a computer which would measure information quantities using a program similar to those used in pattern recognition. Further, it seems feasible that a designer could specify a hypothetical building interior and instruct the computer to predict the relative success or failure of the building to communicate, or make sense, to the average pedestrian.

(Hazen, 1969, p. 1)

Explicit problem statements will be progressively harder to formulate in the social sciences than in many areas of industrial design, where it is generally possible to construct a problem statement replete with quantitative specifications.

Third, designers need to know the objectives or goals of their clients (Starr, 1963). Design theorists will have to develop
routines which can be employed to differentiate between types of substantive goals; the instrumental nature of the goals; and the hierarchy of end-states or goals if they are to be effective (i.e., to construct designs which will be implemented and have a reasonable probability of achieving the desired goals).

Fourth, as Jones (1970) has observed, one of the fundamental problems of design is that designers are forced to use information presently available to predict and plan for future states which will come about only if the predictions are correct. Russett (1969), for example, has listed the different types of possible errors involved in the extrapolation of trends into the future. Thus, a system such as the World Dynamics computer simulation produced by Forrester (1972b) and popularized by Meadows (1972) in *The Limits to Growth*, which seeks to forecast future trends in order to educate policy makers about the possible consequences of their present ecological policies is heavily dependent upon yesterday's and today's data to predict future trends and conditions.

Clearly design is a risky profession. Consider the hypothetical case of the designer who planned for steam as a principle source of power, invested resources in the pony express, or designed the Queen Mary II in anticipation of a post-war tourist boom in ocean travel. The sensitivity of the design product to changes in trends in the environment and the sensitivity of the environment to the design product are critical factors which should be assessed and evaluated at the design stage (Jones, 1970).
Fifth, design activities are expensive. They consume man-power, resources, and creativity which could easily be spent accommodating other needs of the control organization. The decision to design, in the best of all possible senses and ignoring the tendency of any organization—even one designated an an "efficiency" monitor—to create the work necessary for its own survival and growth, should be undertaken only when the cost of not knowing the impact of certain actions exceeds the cost of discovery and re-design.

Sixth, the relationship between design and control must be realized. A plan, for example, constitutes the main output of the of the design process, whereas action is the primary control output (Emery, 1969). The immediate purpose of design is the preparation of an outline or plan which the control organization will use to initiate the behaviors necessary to keep outputs within desired design goals.

Next, design theorists must consider the political processes and values involved in the design process. The perception of problems, the selection of goals, the availability of resources for premising or implementation, the choice of a particular design course of action, the employment of evaluation routines, and even the commitment to implement the design product are all components of the design process which are especially vulnerable to the political and social needs of the control organization. Designers thus must be concerned with the "art of the possible" and seek to
discover as early as possible the political and social milieu in
which the client control organization exists (Archibald, 1971).

Lastly, design theorists must explicitly recognize and adopt
as a basic component of the design process the principle that
design efforts should only be directed toward those components
of the problem space susceptible to social control or manipula-
tion. Actionable variables are those variables which are directly
changeable through the actions of the control organization(s)
within a short period of time such as two to five years (Burgess
and Lawton, 1972). Given the needs of a policy maker, it is more
valuable to know that a cultural exchange program will increase
favorable host country opinion of his nation by one percentage
point than to know that the negative opinions nations hold of
each other increase with the geographical distance between them.
The reason for this is quite practical. While the policy makers
can do little to change the geographical distance between nations,
they can initiate a cultural exchange at a relatively low cost.

Two related points require further attention. First, information
on the non-actionable milieu in which the control organization
operates is important to policy makers when they assess their
fundamental principles of action or control, but it rarely features
directly as a component of control. For example, the non-actionable
factor that the United Kingdom is an island, or that Switzerland
and Peru are landlocked states; or that the tundras of the USSR
and Canada are not available for commercial scale farming are facts
that a policy maker will have to accept as "given" and ones which are unchangeable for the immediate future. Second, in our example of the cultural exchange and, as may be the case with most actionable variables, the variation explained is considerably less for actionable than for non-actionable variables. This is a simple fact of life that design theorists will have to accept until the strength of available control actions is considerably increased.

In practice it is impossible to divide all variables into two distinct categories—actionable and non-actionable. Perhaps a more profitable means of organizing policy variables would be on a continuum from those variables readily susceptible to manipulation to those not immediately susceptible to manipulation. The figure below gives a good indication of the gradation between the two polar types:

**Figure 1: Actionable Continuum**

<table>
<thead>
<tr>
<th>Federal Reserve Prime Lending Interest Rate</th>
<th>Oil Shortage in the U.S.</th>
<th>Election of the U.S. President Every 4 Years</th>
<th>Distance of U.S. from Export Markets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actionable Variables</td>
<td></td>
<td>Non-Actionable Variables</td>
<td></td>
</tr>
</tbody>
</table>

It might be argued that the emphasis upon actionable variables is the key to the distinction between basic science and engineering or science and policy or science and design. Non-policy oriented scientists do not necessarily consciously choose to focus on non-actionable variables, rather they simply have not chosen to take
as their first and primary analytical focus the variables or levers which the policy maker may manipulate. Riekin (1969) illustrates this point quite concisely in his example of the street riot. Scientists, he notes, are more likely to ask, Where and under what conditions are young men and women in urban environments likely to riot?, whereas the policy maker needs to know whether on March 21st at 7:00 P.M. a riot will occur on 47th street. It is the function of the policy scientist, designer, or engineer to act as the interface or broker between the two groups (ideally) helping to mediate and transform the flow of information and perceived needs of both communities.

The role of the policy-maker in determining whether an actionable variable exists is also important. If, for example, a process needs to be implemented and completed within a two week period, its actionables would differ considerably from those employed to ease the oil shortage in the United States. Thus, the needs and perceptions of the policy maker play an important part in identifying actionables. Actionables, in short, must produce results in the time period identified by policy makers.

Another basic component of design theory is the distinction and relationship between rate or flow variables and stock or level variables. Rate variables control the volume or speed of action into a level variable. A level variable's value or score represents the difference between the net input from rate variables, minus the net outflow.
Consider the diagram presented above, extracted from Forrester (1969), of a simple closed-loop system. Let us assume that Nation A's goal is to admit, for immigration purposes, nationals from Country B only to the extent that the number of former B nationals does not exceed 5% of Nation A's total population. To fulfill this goal a monitoring system must be designed to convey the information on the number of B's living in A as well as the latter's total population. In addition, the regulative or control function must be designed in order to keep the number of B's in Nation A at the desired level. This function is assigned to the rate variable. Thus if the number of B's in Nation A rises above 5% whether due to immigration or birthrate the number of new emigrants from B is cut by a predetermined number. As the number of B's begins to drop, then the restrictions imposed by a pre-determined rate schedule are relaxed and the flow of new emigrants is renewed. The basic system presented above may be considerably
expanded by increasing the number of level and rate variables and adjusting their ratio. (see Forrester, 1966).

Conceptually, for design theorists, level variables furnish information about the impact of control (rate) actions. Depending upon how the indicator system is designed, information may also be available for the client goals or for the trends which affect the progress toward the desired goals. The control function of the rate variable is also a crucial component of design since design only has purpose if it is implemented. The design process furnishes the parameters of diagnostic action for the control agent and the selection and monitoring of level variables or indicators.

B. Control. What is control? What is the scope and range of its activities? And how is control determined? An attempt will be made to answer these and other similar questions below. First, it might be profitable to look at several areas men have attempted to control. The following list was generated from a topic search through the Library of Congress card catalogue under the heading of "control." While the following list is by no means exhaustive, the type of actual and possible control activities it contains does indicate the wide range of substantively different cross-disciplinary activities which men have attempted to control. Although part of the listing might be due to the use of the term control in certain disciplines, it is instructful to note the predominance of the applied sciences of business, environmental, and industrial control.
Atmospheres
Diet
Business Activities
Exercise
Fusion
Humidity
Hypotension
Industrial Production
Pollination
Reading Speed and Comprehension
Thermonuclear Reaction
Outerspace—Usage of
Antarctica—Usage of

Aggressive Personalities
Handwriting
Disarmament
Aliens
Business Cycles
Disease
Consumer Credit
Noise
Narcotics
Roadside Advertising
Unions
Insects
Zone Ordinances

1. Control Definitions. Several definitions of control which indicate the scope of control actions and which will help us to more concisely explain exactly what is meant by the term control have been advanced.

1. A control system is a device in which an output variable, called the response, is adjusted as required by a reference input or control input (Eveleigh, 1972, p. 3).

2. Optimal control seeks to optimize the responses of the controlled variables to disturbances of the system to be controlled (Oldenburger, 1969, p. vi).

3. The conversion of policy into action (Rothery, 1971, p. 171).

4. Any process in which a person or group of persons or organizations of persons determines, that is, intentionally affects, the behavior of another person, group, or organization (Tannenhaus, 1968, p. 3).

5. Control is a special case of social causation (Tannenhaus, 1968, p. 7).
A number of conceptual issues are raised in the above definitions which must be identified and disaggregated before proceeding to a new definition of control. The first is the concern with the control of output. Control actions typically compare the output of a system (e.g., its actual performance) with desired performance and then adjust the input accordingly. Optimal control is a bit more complex as it accepts as given the system disturbances and then, given these disturbances, seeks to maximize the production of output. If, for example, the production of steel required 3% nickel, then traditional control procedures would decrease the flow of nickel if the amount in the system exceeded this percentage. Optimal control procedures, on the other hand, would seek to correspondingly increase the flow of iron ore, lime, and coke to match the increase and then seek, if this new level of activity were uneconomical (i.e., not optimal), to restore the system to its original level of action (Bellman, 1967; Eveleigh, 1972). Both types of control are the products of conscious design. In the ideal control system, the designers will have provided the control engineers with the charts, principles, and alternative scenarios necessary for every possible contingency or disturbance. The NASA manned-flight back-up system which aborted, replanned, and successfully returned the voyage of the crippled Apollo 13, is a signal example of this ideal type of control system. Redesign of the control system occurs when the system's control strategies are no longer sufficient
Ohio State University's Political Science Department. I alone am responsible for any errors of analysis that may have occurred.

My greatest debt is to my wife, Ev. We have shared a number of experiences in our marriage and this is but a small part. I have freely made use of her analytical skills and her emotional support, for which I can never repay her. To her I dedicate this paper.
to produce desired outputs for an acceptable cost, or if the goals of the control system are altered.

A second control perspective envisions control as the implementation of policy plans into action. Design, as noted before, does not necessarily have a direct impact on the activities it seeks to control. The output of the design stage is a plan for action and not control action itself.

A third aspect of control deals with causation. Clearly, control efforts are designed to cause a desired change in the performance of a system. While the control actions may not achieve their purposes because of resource limitations or faulty planning, the intent of these actions nonetheless is to effect a desired change in output. Even allowing for the philosophical discussions on the determination of cause and effect (Hospers, 1967), it is readily apparent that the areas of industrial production have a much greater ability to cause desired outputs (to produce a steel alloy with 3% nickel) than do social control agents. This difference is due in part to the ability of the hard sciences to control the environment and inputs of their activities and the correspondingly greater body of scientific principles available to support both design and control decisions. Social control efforts are just beginning to develop the concepts and methodologies to enable them to assess and evaluate the effects of their control actions (Zurcher and Bonjean, 1970). Determination of the effect of social control actions will have to await further development of opera-
tional social indicator systems and evaluation routines.

Related to the problem of causality is the emphasis of control engineers upon actionable variables. Control engineers place a high premium upon variables which are strategically located and manipulable. The effectiveness of a control system depends upon the ease with which desired changes in output may be obtained through changes in actionable variables. Control systems require actionable variables, or levers, for their operation, whatever degree or level of effectiveness the organization might obtain. The ideal control system thus possesses strategically located actionable variables which in a short time produce the desired changes in system outputs.

Unlike design, best described as a process—even though an organizational structure is always involved—control must be envisioned and defined as a system and as an action.

1. A control system is the result of a design process and seeks to insure that a system produces desired outputs.

2. A control action compares the actual output of a system with the desired output and adjusts the input or behavior of the system to the degree necessary to achieve desired performance.

The International Red Cross, for example, is a control system which seeks to keep the suffering and human misery which accompanies large-scale disasters within tolerable limits. When a flood destroys a community, the Red Cross provides temporary housing and basic services until the affected area can provide its own basic
services. As the basic services are restored, the Red Cross relief effort is correspondingly reduced and placed on inactive status until another intolerable disturbance is produced.

2. Control Process. Just as designers differed over the specification and detail with which they sought to characterize the design process, so too do the control engineers. Below, eight models of the control process are reproduced. Each stresses different components of the control process. Consistent with the concern with design and control, and with the distinction between design and control that has been developed in this chapter, also presented below is a diagram indicating the position and role of control and design in any control system.
Figure 3: Eight Models of the Control Process

1. Input: process or operation → deviation detection → output (goal) → feedback → corrective action → correction processes

(Homans, 1969, p. 85)

2. Input: error → equalizer → plant → controlled response

(Eveleigh, 1967, p. 6)

3. Input: system → output → control

(Bellman, 1967, p. 6)

4. Input: system → output → control → sensing devices

(Bellman, 1967, p. 6)
6. Closed system:

- Input → Controller → Plant or process → Output
- Measuring element

(Ogata, 1970, p. 4)

7. Open system:

- Input → Controller → Plant or process → Output

(Ogata, 1970, p. 6)

8. Controller
   Input Specification of task
   Requirement

    Comparator
    Compares actual and desired performance

    Regulator
    Adjusts component performance

    Basic System
    Tactical units

    Output

    Monitor
    Provides comparator with information on actual system performance

(Bellman, 1967, p. 6)

(Howland, 1966, p. 511)
From the models, it appears that the key descriptive components of the control process are input, a process which needs to be controlled, output, error detection, and regulation. In each of the closed control systems the output of a system is compared with the desired output, with either the input or the process itself being modified to the degree necessary to obtain the desired output. Incorporating these basic principles with our design perspective has produced the following model of the design and control process.

**Figure 4: The Design and Control Process**

The two most important components of the control process are error detection and control decision-making. Error detection is crucial because it supplies the information necessary to activate the control decision process. Control decision-making is important because it initiates the regulatory action necessary to restore the difference between observed and desired output, within some predetermined margin of error.
Error detection occurs in the output stage of the process. It is important to note that error detection mechanisms are not necessarily located at the source of the disturbance. The two possible sources of error lie in the input stage and in the process or operation itself. Error detection mechanisms function only to note these disturbances as measured by deviation from the normal output and then to pass this error information on to the control regulator (Howland, 1966, 1970).

Ogata (1970) has persuasively argued that the control process requires the construction of an index or profile of signals if system output is to be monitored and controlled. The use of multiple indicators of performance (Oldenburger, 1969) thus allows the designer to provide the control decision-maker with information in a prescribed frame of reference and helps guard against mistakes in the error detection mechanisms due to the random variance or malfunction of a particular error measure.

The corrective steps undertaken by the control system originate in the decision-making or problem-solving stage and are directed at system inputs and the system's process itself. Control actions might require that inputs of resources be increased, decreased, or otherwise modified. The system processes may be sped up, slowed down, or reorganized, so that output goals are reached. The problem-solving aspect of control deals with the source of system disturbance directly. Stabilization of system outputs is the primary goal of the control system (Ogata, 1970).
If the system's outputs consistently vary from the needed outputs and if control efforts are inadequate or too expensive to be consistently applied, then a third possible control action—feedback to the design process—may result. Oldenburger (1969) has noted the ability to control depends upon the parameters of the disturbance. In addition, if resources are limited, or if the basic system process is inappropriate or inefficient, then the design process may be called upon to produce a new or modified process or stream of inputs so desired goals might be obtained. It is possible that if system regularity or predictability is valued over efficiency, the means used for control, or the system process itself may still be retained even if inefficient (Rothery, 1971). A good example of this lies in the premise behind the statement, 'Democracy is an efficient form of government, but it's the best we've got."

The key as to whether system design or control is required lies in the type of solution required for the elimination of present system disturbances. If the solution requires a significant reassessment of the goals of the activity, it is a design process. If the solution of the problem is to be found by examining predetermined correction schedules, then the activity is one of control, or problem-solving. In applying this distinction two points should be noted. First, control systems may differ as to how well they are designed—i.e., how complete their correction schedules are in the face of actual sources of
disturbance. A poorly designed control system will spend a greater amount of its time dealing with designers than will a well-designed system. Second, it must be remembered that what is a control action on a given level in a system may function as design for those working on lower levels. It is impossible for a given level to specify or issue control regulations to a lower level that the lower level does not have to design solutions for their implementation.

Control systems, more than design systems, are dependent upon a flow of information or feedback regarding their activities. It may be stated uncategorically that while information is a necessary condition for control as we have defined it, it is not, however much it might be desirable—even prudent—a necessary condition for design. Simply stated, design is a goal-based response to a perceived problem whereas control has, at its most basic level, a comparison of actual output with desired output. In both processes information is desirable, but it is only a necessary condition for the control process.

C. Information. The role of information or data supplied by indicators in the design and control process is a complex one which will be dealt with in greater detail later. First, however, it is necessary to define exactly what is meant by an indicator system. An indicator system is a set of ongoing measurements designed to provide the score on selected variables. Two
points are worth noting. First, an indicator system is designed, and second, the variables to be monitored are selected.

The assertion that indicator systems are designed is bound to raise the question as to whether statistical data such as the national, social, and economic account data, which were gathered before data were needed and for other purposes can or cannot be used. The answer is by no means simple and involves several interrelated points. First, as Bauer (1969) has mentioned, there is a tendency to use economic accounts data to measure the social needs of people simply because the economic data are available. The extreme use of economic data to measure social needs has been appropriately dubbed the "New Philistinism." Second, the availability of data sets constantly entices unwary researchers to uncritically modify the operationalization of their concepts in order to get on with the business of research (Burrowes, 1970; Sartori, 1970). Third, in principle it does not matter if the actual data are collected before or after the operationalization of the concepts of interest, as long as a high degree of fidelity is maintained between the concept and its operationalization. Fourth, given the pressing need to get on with design and control activities, and the state of theoretical knowledge in the social sciences, if the researcher can articulate the conceptual link between his indicator and concept, and if he further feels that in doing so he has the best data available, then the basic criteria of design are met.
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Information supplied by indicator systems plays different roles in the design and the control process. Although it has been noted that in principle design does not require an indicator system, we will assume that the development of a modern design theory requires the information supplied by an indicator system. The design process can use indicator data in two main ways—in initial planning and in redesign. In planning, the development of a control system designed to increase the rate or level obtained by desired objects, and an assessment of the trends in the environment which will directly effect progress toward desired end-states are required. In the divergent phase of this search, selection of trend indicators is generally based on the availability of data sets. Successful design—i.e., design products which achieve specified goals—would seem to require a close correspondence between the designer's perception of important concepts and their operationalization. In the synthesis and convergent stages, once a design product has been achieved, the designer will be able to formulate a more finely attuned indicator system system which has the capacity to more closely monitor the trends most likely to effect the design product's successful achievement of the designer's goal(s).

In redesign, the design product—now the present control system—may require modification or transformation due to unfavorable environmental trends such as resource limitations or faulty design. Redesign generally will only occur in policy
systems in which the design and control processes have been integrated. By integration we mean that the action system regularly and consciously undergoes a periodic reassessment of its progress towards its goals.

In control systems, data provided by indicator systems provides the incentive for corrective action. The goal of a control system is stability in the production of outputs. The control indicator system is thus designed to detect deviation or error present in system output. Once corrective action has been undertaken, the control system will return to its stable equilibrium, until deviation is again detected. Unlike the design process, the control system requires information if it is to act to eliminate error (Rothery, 1971).

Another distinction may also be made in terms of indicator systems designed to monitor system outputs and outcomes. An ideal-type design and control system will have an indicator system which provides information on the action outputs of the control system and the impact or outcome of these activities upon selected societal trends. Characteristically, outcome indicators will be the hardest to establish since a control action may have secondary and tertiary effects (Bauer, 1969). Thus a government program might have as its goal decreasing the number of disadvantaged youths which drop out of school. An output measure would tap the number of youths enrolled in the program and the nature of their activities. First-order outcome measures would establish the
change in dropout rate for boys enrolled in the program. Second and third-order consequences might measure the teacher turnover rate or the improvement of reading level skills for affected school districts (Zurcher and Bonjean, 1970).

Information gathering is a costly business. Not only are there direct resource costs involved in terms of time and money spent in the construction and maintenance of indicator systems, but also costs in terms of the amount of the organization's structure which may be required for control and the amount of information which its top officials may be able to handle. Emery (1969) has warned that increases in information beyond a certain value will yield reduced returns. An information system must be able to perform the functions of sensing, classification, transmission, storage, retrieval, transformation, and information display, as well as providing the appropriate level of information aggregation for each level in the organizational structure. It is a basic principle in the distribution of information in an organization that high-level officials use aggregated indicators, sacrificing detail to gain scope and overview, while lower-level officials require the disaggregation of information to the level required by their duties (Emery, 1969).

The sampling and simulation procedures developed in the social sciences and industrial design provide less expensive ways of supplying the information needed for design and control. Simulation is primarily a tool of design and enables the designer to
posit possible scenarios to see how the design product might affect and be affected by environmental trends. Sampling the output of a control system lowers the expense of monitoring and is as reliable as the prior methods (Eveleigh, 1972; Emery, 1969). Another crucial factor in lowering the cost of information gathering deals with the designer's ability to locate key indicator variables which will enable him to more quickly locate the source of the disturbance.

Conclusion. Clearly the use and utility of a design perspective is greatest in the engineering professions. We need only look at the dictionary definition of engineering, "the art or science of making practical application of the knowledge of pure sciences such as physics, chemistry, and biology" (Barnhart, 1966, p. 398), to note the common thread of transformation and application of general knowledge to specific situations that occurs in all engineering work. Designers, in short, seek to produce a plan or product which will allow a client control organization to either hinder or enhance favorable and unfavorable trends in the environment.

The United States Constitution, for example, may be considered as a design product which resulted from design planning sessions called by the United States colonists (i.e., the Continental Congress) in order to meet perceived threats to their goals. The purpose of the Constitution was to control or define as acceptable
the most significant governmental interaction patterns. Thus, two hundred years later, the Constitution controls the powers of the branches of government by requiring that the President ask Congress for the monies he needs to carry out his program, to declare war, or to ratify treaties. The framers of the Constitution also provided a specific procedure for redesigning or amending portions of the original design product, should the circumstances or values change.

The United States Congress, federal bureaucracy, National Security Council, governmental agencies, Supreme Court, and many other rule-making organizations, when viewed from a design perspective, are thus engaged in designing products (i.e., the Federal Reserve System) or plans (i.e., the Civil Rights Act) which will control trends affecting, for example, the location and availability of cash and credit, as well as the political rights of all portions of our population.

Designers, however, can only act to aid a client control organization once goals are known, since solutions to problems require goals. The goal of the colonists to avoid "taxation without representation" found itself manifested in the constitutional requirement that the president seek congressional approval for his budget. Likewise, the goals of "states rights" and "individual rights" found their expression in the first ten amendments (especially the 10th) which left all powers not specifically delegated to the federal government to the states.
and individuals. In short, the designers of the Constitution sought to create an instrument which would maximize several goals—equal representation of states, control of the purse, etc.—by creating a congress, presidency, court system, sovereign states, and a bill of rights to control or propel the future political life of the United States in the direction of a decentralized federal system of government. The establishment of organizational goals thus becomes a necessary and vital pre-condition for the work of designers.

This brief introduction to design, control, and information theories has been undertaken for two reasons. First, to identify the concepts, issues, and interrelationships included in the work of those engaged in design, control, and information systems. Identification is important because most of those working, teaching, or doing research have been "designers," or "control theorists," or "information specialists" and have not fashioned a comprehensive overview of the total design-control-information process which characterizes all application, engineering, or knowledge to action routines.

The five axioms presented below neatly summarize the most salient features and interrelationships of the design-control-information process:

- Design is undertaken in order to control
- Goals are necessary for problem identification
- Goals are necessary to identify solutions to problems
- Modeling of the system is a pre-condition for control
- Information is a necessary condition for control
The second reason for this examination of the design-control-information process, has been to provide a conceptual framework against which the concept of a "national interest" may be examined as an intermediate step to the examination of the Department of State's Country Analysis and Strategy Paper (CASP) policy planning system. Stated simply, it is the contention of this paper that the CASP planning system exhibits most of the characteristics of the design-control-information process identified in this paper. The purpose of this chapter, then, is to serve as an introduction to the concepts and issues necessary to facilitate such a comparison and examination.
CHAPTER III: DESIGN AND THE NATIONAL INTEREST

In this chapter the concept of a national interest will be examined via a survey of the national interest literature and the design principles discussed in Chapter II. Specifically, the national interest literature reviewed will focus upon the early work of Charles A. Beard, the realist-idealist debate of the 1950's, the behavioral critique, as well as the work of several other authors who have sought to clarify the national interest concept. Each of these focal points will then be discussed in terms of their use as goals in the design process. Given the importance of goals in design and control efforts, it is intended that this examination will further differentiate and elaborate, 1) the role of goals in providing guidance for designers; and 2) some of the problems faced by the use of goals or interests in guiding behavior.

A. Charles A. Beard. The national interest concept has proven to be one of the most durable concepts in the study of international relations. Its earliest usage has most generally been attributed to Charles A. Beard's effort (1934) to trace the origins of the interest concept, from the dynastic will of the Prince to the present interest concept. Beard's thesis was quite simple,
arguing that the "...national interest--its maintenance, advancement, and defense by various means and instrumentalities of political power--is the prime concern of diplomacy (1934, p. 21). Support for this thesis was garnered from an examination of the role and evaluation through time--concurrent with the development and rise of the national commercial state and the evolution of republican control over national affairs--of the will of the Prince, dynastic interests, raison d'etat, national honor to its present form, the national interest.

Beard's work, especially his assertion that "...the primary motive of American statecraft is the national interest" (1934, p. 293) was not well received in the idealistic New Deal era. The idea of a pure, selfish, national interest repelled New Deal liberals. In a further statement of his thesis, Beard (1935) urged that the United States adopt an isolationist position and recognize that its primary interest lie in the development of its own natural resources and industries at home to the exclusion of "...wasteful, quixotic and ineffectual..." efforts abroad (1935, p. 352).

In spite of Beard's failure to convert New Dealers to a positive conception of the national interest, his work nonetheless made the important point that the primary task of national decision makers is the advancement of the national interest.

B. The Realist-Idealist Debate. After its rather inauspicious beginnings in the work of Charles A. Beard, the concept of a national
interest next came to the forefront in the debate between the realists and idealists which occurred in the early 1950's.

Echoing the theme developed by Beard, Hans J. Morgenthau (1951), the leading spokesman for the realist position, argued that the foreign policy decisions of the first half of the twentieth century were utopian and based on moral principles completely divorced from consideration of the national interest. Such policies, fluctuating between isolationism and interventionism, were certain to weaken the United States because they attempted to define United States national interests as identical with world interests (1952). Because national interests were selfish (i.e., they were intended to advance a nation in a certain area) possible acquiescence to the goals of other nations, as advocated by the idealists, simply did not make good sense.

The realist position on national interest has been best identified and articulated by Hans J. Morgenthau in a series of books and articles, which include his seminal work, *Politics Among Nations*. Stated simply, Morgenthau's theory posits that:

The main signpost that helps political realism to find its way through the landscape of international politics is the concept of interest defined in terms of power.

(Morgenthau, 1967, p. 5)

Under Morgenthau's theory, then, foreign policy makers are to define and assume only those interests in which it is within their power or capability to pursue, promote or advance.
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Unfortunately, Morgenthau's admonition to define interests in terms of power has not led to any further research or conceptual clarification of the national interest concept. The reason for this is fourfold. First, when Morgenthau's historical examples are closely examined, it becomes readily apparent that Morgenthau is often only urging policy makers to undertake those policies which will be successful—an admonition which provides little guidance for either policy makers or scholars. Second, the methodology employed to identify historical instances where interests were defined in terms of power and were successful, and those instances when interests were not defined in terms of power and were unsuccessful, are susceptible to other interpretations and the product of historical hindsight. Political realism, in short, does not provide the policy maker with concepts or methodologies sufficient to enable an accurate prediction of whether his interests are correctly defined in terms of power.

A third criticism of Morgenthau's power principle concerns the fact that in seeking to define interests in terms of power, interests become identical with power (Rosenau, 1968; Coplin, 1964). Once defined in this manner, the principle of power loses whatever analytical utility it may have possessed and instead becomes a tautology—power defined in terms of power. In addition, Morgenthau has sought to solve in subsequent editions of Politics Among Nations the elusive nature of the concept of power. For, as noted above, if nations are to gauge their interests in terms
of power, they must first be able to measure their power. If they are to measure their power they must be able to identify the components of national power. Morgenthau's original operationalization of the power concept in his 1948 edition focused primarily upon economic and military capabilities (see Part III, National Power). Subsequently, Morgenthau's conception of power has been elaborated to include more intangible aspects of power such as charisma, political culture, and national morale (1967, pp. 106-143). Although his most recent efforts to further differentiate and identify the components of power have been successful, Morgenthau has yet to provide the analyst or the policy maker with a coherent methodology sufficient to measure national power.

In a more positive light, one reflecting the design perspective outlined in Chapter III, Morgenthau, along with Beard, advances the concept of interests as objectives which should be advanced. National interests are, Morgenthau notes, selfish or desirable goals which a state seeks to obtain or advance. They should not be defined beyond the ability of the state to achieve them, lest the goals not be fulfilled. Interests, in short, serve a guidance function. Policy makers, once they have identified them, can gauge specific policies in terms of their effect upon promoting national interests.

To understand Morgenthau's work in its fullest context it is necessary to examine his historical survey of the role of interests in American history and its coincidence with the most successful
foreign policies. In the first period, around the time of our
independence, a spirit of realism prevailed in which the inter-
ests of the United States were clearly recognized in regard to our
appreciation of power and built around three main interests:

1. The position of the United States in the Western
    Hemisphere.
2. The maintenance of the European balance of power.
3. The maintenance of an Asiatic balance of power.

(Morgenthau, 1952, pp. 4-6)

In the next period, the major portion of the nineteenth
century, precepts of moral law and conceptions of the national
interest (i.e., the three interests identified above) happily
seemed to coincide. In the first half of the twentieth century,
however, a period which Morgenthau identifies as utopian,
foreign policies were not defined in terms of power, but were
advanced instead on the basis of moral principles divorced
from considerations of national interest. Utopians, Morgenthau
notes, alternately fluctuated between isolationism and intervent-
ionism and weakened the United States by abandoning the three
interests identified by the founding fathers.

Morgenthau's presentation of a realist theory of politics
was intended to counter the utopian or idealist philosophy by
advancing a rational perspective which sought to recognize the
world as it was--consisting of competing and conflicting interests.
His power principle was advanced to provide guidance,"...a
signpost..." in the identification and selection of the interests
to be advanced. A survey of historical evidence—especially the rather dramatic failures of the League of Nations, and the rise of Nazi Germany in the West and Imperial Japan in the East—provided ample evidence that the "...universally abstract moral principles..." which guided the idealists, produced failures which weakened the United States by permitting the balance in Europe and Asia to deteriorate and result in World War II and the Cold War (Morgenthau, 1967, pp. 4-5).

The idealists do not have either as coherent a position or clearly recognized a spokesman as do the realists in the person of Hans Morgenthau, because their part in the debate came about largely as a defensive reaction to the work of Morgenthau (Algasabi, 1965; Cook and Moos, 1953; Corbett, 1952; and Osgood, 1960). The idealists' reaction to realism is most succinctly articulated by Robert Osgood:

National self-interest is understood to mean a state of affairs valued solely for its own benefit to the nation....This is self-love transferred to the national group....Self-love may be a universal characteristic of human existence. But love and not self-love, is the law of human existence.

(Osgood, 1960, p. 599)

Most of the efforts to criticize the realist position seemed to end with admonitions to decision makers to strike a balance (i.e., an enlightened self-interest) between realism and idealism which recognizes that the interests of nations could be complementary to those of other nations (Osgood, 1960; Feller, 1952; and
When viewed from a design perspective focusing upon the importance of goals in setting the overall tone and direction of possible solutions to foreign policy problems, both the realist and idealist perspectives and the debate itself become somewhat denatured and detoxified. Nations have a number of goals or interests which they seek to pursue and the evaluative hierarchy in which they are contained at one point in time may be modified at a subsequent point in time. Several things can be said, given this statement. First, it is not important in terms of description, explanation, prediction, or as part of the policy planning process, whether a nation's goals are self-centered or other-oriented. Instead, what matters is that they are goals which the nation and the designer will seek to enhance and protect. Hannerieder (1965) makes a similar point when he notes it is unimportant whether the source of goals is internal or external to the nation, as long as it is recognized that it constitutes the values which nations seek to advance.

Second, it is indeed possible for a researcher to identify and describe the goals or interests of a nation for a given time period and determine which ones are most important. Debates on which interests ought to be pursued can then be replaced by descriptions of policies actually adopted. Third, in a related point, national goals may change over time and certain periods (e.g., the 1920's) may be characterized as idealist, isolationist, or interventionist.
Goals are not either easily or automatically selected. In
indeed, the realist-idealist debate served to mask the fact that
realists and idealists were urging particular interests be mod-
ified or changed according to some normative end (e.g., balance
in Europe vs. isolationism or non-involvement). As will be further
elaborated, the political process, rather than some body of abstract
design principles, will furnish the goals necessary for design
and control processes. The design and control agents, however,
may initiate or be involved in efforts to propose new or alter-
native goals. Such an example concerns the recent efforts of the
Environmental Protection Agency to regulate and produce clean air
in certain urban corridors; or even just to promote consistency
between competing goals—shortage of building lumber for low-cost
housing versus the need to preserve our national forests.

C. The Behavioral Critique. Occurring at a later point in time
than the realist-idealist debate, the behavioral critique of the
national interest has constituted the most telling criticism of
the concept. The first point, although general in nature, has
to do with the value-laden nature of the national interest concept.
In short, the behavioral approach to politics originated out of:
1) the urge to experience the same successes achieved in the
other disciplines which had employed "scientific analysis;" and
2) the desire to avoid the polemical debates over values which
had yet to produce usable analytical tools in political science.
In part because of the realist-idealist debate, and because of the perceived requirement to exclude values from consideration in scientific analysis, values were eschewed and virtually ignored in most subsequent research conducted under the behavioral approach. Emphasis, instead, focused in international relations research upon attribute and interaction-based explanations of inter-nation behavior (Rosenau, 1966; Singer and Small, 1968; North, Holsti and Brody, 1968; Deutsch, 1957; Galtung, 1968; Rummel, 1963; and Kaplan, 1957).

The second observed weakness of the concept of a national interest had to do with who would determine the national interest(s) of a nation. Clearly, United States national interests have been differently defined by realists and idealists, Democrats and Republicans, big business and labor, and urban-industrialized vs. rural-agricultural areas. The selection of who will determine the national interest will have a direct impact upon the interests the United States will define as vital and defend.

One analyst, Rosenau (1968), has identified two approaches associated with the identification of the national interest of a nation—the objectivist and subjectivist approaches. Objectivists argue that competent analysts could objectively identify the national interests of a nation. Subjectivists, on the other hand, have sought to define the national interest as whatever the officials of a nation seek to preserve and enhance—"The national interest is what the nation, i.e. the decision-maker, decides it
In the following analysis of United States national interests, the subjectivists' perspective in the definition of the national interests of a nation and the objectivists' perspective in the description of the actual behavior in respect to each national interest area will be employed. As will become clear in Chapter IV, the consensually defined national interest categories employed in the Department of State's Country Analysis and Strategy Paper (CASP) system will be considered as representative of the goals or national interests followed by the official representatives of the United States government and, by definition, the United States.

It is important to stress that despite admonitions to the contrary (Sprout and Sprout, 1969), national governments do have goals. The first point supporting this observation stems from the fact that governmental action represents a preference ordering which is aimed at determining the authoritative allocation of values or who gets what there is to get. As Wildavsky has noted, this continual preference ordering is nowhere more important, or so visible, than in the budgetary process.

...budgeting is concerned with the translation of financial resources into human purposes. A budget, therefore, may be characterized as a series of goals with price tags attached. Since funds are limited and have to be divided in one way or another, the budget becomes a mechanism for making choices among alternative expenditures.

(Wildavsky, 1964, pp. 1-2)

Second, it is important to note that politics--particularly
the electoral process—is importantly concerned with both the selection of goals as well as the people who will interpret, adjudicate, and enforce them. National goals or interests thus may change due to the electoral process which brings into power a new set of decision makers advocating new goals. Kennedy's security gap, Johnson's Great Society and Nixon's peace with honor all represent choices—however imperfectly expressed—made by voters between opposing candidates.

Third, repeating two statements made earlier, it is possible to establish official actor goals for a given time period. The Employment Act of 1946, for example, set as an official United States goal full employment. In addition, laws passed by Congress contain explicit, albeit broad, goal statements in their preamble. For example, PL 480 contains the goal of distributing agricultural surpluses abroad. Second, actor goals may, and do in fact, change over time. An excellent example of a change in goals over time has been the position of the United States vis-à-vis official diplomatic representation and admittance into the United Nations of the People's Republic of China.

Even from a design perspective it is evident that the behavioral critique of the national interest concept, particularly its focus on the value-laden nature and the issue of who will define the national interest, was correct regarding the identification of the key components of the concept. The difference, however, occurs in the fact that the design perspective recognizes
these features as positive and necessary virtues in any attempt to solve problems or seize upon opportunities in the international arena. Nations will, through their extant political processes, articulate, select, and define the goals or interests they seek to pursue. Problems or opportunities have meaning and can find their solution only when they are related to a goal by decision makers.

It should be cautioned that the use of goals for guidance by policy makers does not presuppose a direct involvement of the electorate in the goal selection and operationalization process. To do so would be quite naïve and inaccurate. Rather, for present purposes, it is only necessary to deal with the goal preferences of decision makers and to accept them as the ends which the decision maker will seek to advance.

D. Additional Examinations of the Concept. In addition to the work of Beard, the realists, idealists, and the behavioralists, a number of scholars have independently undertaken serious investigations and analysis of the concept of the national interest. Thomas Cook and Malcom Moos (1953), for example, in their examination of the national interest, have observed that statesmen are often helped in their identification and formulation of the national interest by the inheritance of traditional policies and stereotypes. Britain's interest in free access to the lowlands of Europe and Japan's interest in expanding her export market are but two examples of the types of goals which undergo relatively
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minor changes even when successive sets of decision makers differ significantly on other issues (Corbett, 1952).

Another component of the national interest concept not fully explored, is the hierarchy of values contained in any collection or comparison of interests of a nation. Van Dyke (1962) has attempted to clarify the importance of various interests by noting that there are two kinds of interests—-independent and dependent. Independent interests representing the goals we pursue are assumed, postulated, and accepted on faith. Dependent interests are those which will serve or aid in obtaining the independent interests.

In short, any examination of national interests must contain the awareness that some interests or goals are the means for attaining higher goals. Acquisition of a warm water port for a nation thus becomes the means for increased trade which, in turn, becomes the vehicle to raise the capital to build the infrastructure necessary for future economic development.

In a related point, Frankel (1969) has argued that national interests can be thought of as aspirational, operational, or polemical. Aspirational interests involve the nation's vision of the good life, or the goals to be attained. These long-term goals are determined by the political will or desires of the nation, such as becoming a major center for commerce. Operational interests, on the other hand, represent the sum total of all those actions or policies actually pursued or implemented. Operational
interests, unlike aspirational interests, are determined by the resources or capabilities actually available to the nation. Operational interests, given the above aspirational goal of commercial development, might entail the negotiation and lowering of tariff barriers, monies spent, giving tax credits to enlarge port facilities, and channeling governmental monies into increased foreign language training in the nation's primary and secondary school systems. Polemical interests explain, evaluate, rationalize, or criticize behavior undertaken by the nation or other nations. Its main purpose is to provide the symbols necessary for debate and public discourse.

Frankel (1969) employs the distinction between aspirational and operational interests to explain the dynamism or activity of a nation's foreign policy. If a nation's aspirational goals are too high and operational goals are too low, or if aspirational goals are so low as to actually equal operational goals, public discourse and involvement in foreign policy decision making will be low. Frankel's implicit model of an optimal or healthy situation occurs in those occasions where high aspirations are being pursued by medium to high levels of activity.

The issues raised by Frankel and Van Dyke are important ones from a design perspective and represent quite practical problems which must be solved in any attempt to design in the real (i.e., open system) world. It is not sufficient to articulate a single end-state or goal, or to implement the goal(s), without
seriously considering: 1) the other goals which may be influenced by the attainment of a given goal; 2) the relative importance of each national goal; and 3) the manner by which the means or instrumentalities are related to the goals or interests which a nation seeks.

Although it has often been obscured in debates about the national interest, it is nonetheless quite clear, that nations can and do pursue a number of goals simultaneously. National interests are often interrelated in a zero-sum manner with the attainment of one goal precluding or limiting another interest. Thus, establishing a massive defense establishment at a particular point in time in the name of national security might limit economic growth (Russett, 1969), but later may further world order and access to other national decision makers.

Although the establishment and elaboration of routines and procedures permitting the identification of both the goals and the interdependencies between them, may constitute a major portion of the research agenda for design theorists, it is important for designers to recognize there is a practical limit to the number of goals or interests which can and should be considered when engaging in design work. It is quite easy for designers to become swamped and overloaded considering all effected goals. Design theorists, in conjunction with policy makers, will have to begin articulating explicit procedures enabling designers to limit the number of goals considered to those importantly influenced.
In the second point concerning the importance or hierarchy in which goals are embedded, the designer is faced with the twin dangers of reductionism and organization. Morgenthau's use of the power principle in his exposition on the national interest is a clear example of the reductionism that can occur when a single interest—national security—occupies the position as the most important interest. As Coplin (1964) has noted, the definition of the situation by decision makers occurring when security is the most important of the several national interests, tends to denigrate other substantive interests (e.g., economic development, etc.) by considering them *only in the light of national security*. National security thus becomes—a point which has constituted one of the main criticisms of Morgenthau's work—the national interest. It seems perfectly clear that sailing the ship of state with only the star of national security to guide it, will result in a situation in which the ship of state must either sail in circles or limit its operation to that finite area from which the star is clearly visible. Simply stated, design solutions which consider only a simple goal—a hard chair, large dam, free health care, or collective security system—may be thwarted because of the pressure which other goals (e.g., consider the whole cluster of economic concerns of the taxpayer or stockholder) will exert.

Although reductionism is a clear and present danger in all efforts to organize the multitude of independent and dependent,
or aspirational, operational, and polemical interests a nation may have, it is clear that the many national interests of a nation must be organized in some fashion if design activities are to be undertaken. The question becomes one of organizing the interests maximizing the identification and interrelatedness of interests and minimizing the extent to which a single interest may dominate the hierarchy and become the national interest.

In Chapter IV the Country Analysis and Strategy Paper (CASP) will be examined in detail. It is appropriate here, however, to briefly introduce some of the organizing principles of the Department of State's CASP which allow the national interests of the United States to be hierarchically organized, without leading to the domination of a single interest.

The first principle, having its root in the efforts of educational theorists such as Bloom (1956) to classify educational goals or objectives, asserts that a number of separate and discrete goals may exist for an organization and that it is not necessary or desirable to consolidate these goals. Educational objectives for a particular course may be concerned with cognitive, affective, and psycho-motor objectives. Characterizing or summarizing the content of the above course using only cognitive objectives, would be inaccurate and misleading in respect to the behaviors and activities actually engaged in by the instructor. Similar work by Rosenau (1966), Dahl (1963), and Lowi (1969) suggest that separate issue areas with different structures
and processes may exist. The CASP system has organized the goals or interests of the United States into the following eleven interests:

- United States national security
- United States economic prosperity
- Fair treatment and safety of United States citizens and property
- Control of the movement of people and goods to and from the United States
- Favorable disposition of other peoples toward the United States
- Open channels of communication between the United States and host country leaders
- Economic and social development
- Political development
- Humanitarian assistance
- World order
- Advancement of other United States interests

Each of the above interests is envisioned as containing activities distinct enough to warrant separate classification.

The second organizing principle asserts that within each of the eleven interest areas, there is some vertical differentiation. National interest economic and social development is, therefore, further subdivided into the following sub-interests or areas of concern:

- Birthrate
- Literacy
- Agricultural diversification
- Development of vocational education
- Communication system
- Inflation

The third organizing principle concerns the express linkage of
what is defined as control actions to each of the United States national interests. Thus, every proposed action is referenced by the goal it is to advance.
CHAPTER IV: THE COUNTRY ANALYSIS AND STRATEGY PAPER: 
AN EXERCISE IN DESIGN AND CONTROL

As noted earlier, one event which occasioned the writing of this paper was the continuing development and implementation of the Country Analysis and Strategy Paper (CASP) planning system at the Department of State. The impetus resulted because CASP reflects many aspects of the design and control perspectives developed in Chapter II. CASP further refines the concept of a national interest developed in Chapter III. CASP, in short, provides an opportunity to observe design and control 'in action.' The design and control concepts, on the other hand, provide an opportunity to gain a clearer perspective of the dynamics of the CASP system itself.

A. CASP. What is CASP? CASP represents an attempt by the Latin American Bureau (ARA) of the Department of State to develop a policy planning routine which will assist in identifying: 1) whether changes in the international environment represent challenges (i.e., threats) or opportunities to enhance specific United States goals in a particular country or region; and 2) the specific courses of action the United States might undertake to protect or promote affected United States interests. CASP is the Latin American component of the worldwide Policy Analysis and Resource Allo-
cation (PARA) policy planning system at the Department of State. Because the CASP component is the most fully developed part of PARA, it was chosen as the most appropriate part of the system to examine.

As elaborated below, the CASP components and planning-to-action routines encompass many aspects of design and control. Under CASP, policy actions are designed to control the opportunities or challenges evidenced by the environmental indicators, and seek to resolve those changes in the manner most favorable to United States national interests.

**Figure 5: CASP Planning Hierarchy**

National Interest

Area of Concern

Environmental Indicator

Challenge or Opportunity

Level of Concern

Issue

Goals

Objectives

Course of Action

Resource Allocation Estimates

In the following discussion on the components of CASP, it will be useful to keep in mind the flow depicted above. The flow is from the more general and abstract categories, such as national interest, to the more concrete and specific acts of control, such
as resource allocation estimates.

1. **National Interests.** The Latin American Bureau of the Department of State has developed a set of eleven United States national interests, which have been accepted and approved by the National Security Council. The eleven national interests are:

- United States National Security
- United States Economic Prosperity
- Fair Treatment and Safety of United States Citizens and Property
- Control of the Movement of People and Goods To and From the United States
- Favorable Disposition of Other Peoples Toward the United States
- Open Channels of Communication Between the United States and Other Countries
- Economic and Social Development of Other Countries
- Political Development of Other Countries
- Humanitarian Assistance
- World Order
- Advancement of Other Interests

Each United States national interest represents a goal area in which the United States has over time devoted effort and resources. Each interest encompasses a set of separate and distinct activities and is not further summarized under a super-goal. CASP recognizes that an organization or activity may, and indeed most often does, have a number of separate and equal goals.
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This is not to say, however, that some goals may from time to time differ in their importance or the amount of activity associated with them, but rather that particular activities encompassed by an interest are separate and distinct enough to stand alone. Thus, Fair Treatment and Safety of United States Citizens and Property is not a subcategory of some more encompassing United States national interest.

From a design perspective, the use of separate and conceptually independent interests or goals serves several purposes. First, it provides the designer with an overview of the different arenas in which his organization or activity operates. Second, it enables the designer to be aware of the multiple goals his control activities may effect. It may also make the designer more aware of the effect control actions taken to advance other goals may have on the achievement of the particular goal in which he is interested.

The position the national interests hold in the CASP planning hierarchy also reinforces the notion that the subsequent development of control actions (e.g., an AID loan) is specifically intended to promote particular United States national interests. It reaffirms the principle that actions undertaken by the United States have as their purpose the advancement or protection of our national interests.

Two weaknesses are apparent in the CASP national interests scheme: 1) The eleventh interest, "Advancement of Other United
States Interests," seems to function as a grab bag of health and science oriented goals and as such offers little guidance; and 2) the interdependencies between the national interests are not fully articulated.

2. Area of Concern. Each United States national interest is subdivided into more specific and discrete goals. The United States goal of political development for the host country, for example, has several areas of concern such as growth of democratic institutions, and respect for human rights. Specification of national interests into more specifically targeted goals serves three purposes. First, it allows the designer to recognize and circumvent the broad nature of the interests listed above by focusing on more specific goals. Interests become recognized for what they are—a complex of particular sub-goals involving similar activities and occurring in a given subject area. Secondly, once the eleven United States national interests are accepted as being composed of a cluster of sub-goals, it is clear that control activities must be fashioned to deal with a significant portion of the several areas of concern associated with that interest.

The vertical relationship of interests to areas of concern permits an ordering of goals more advantageously than schemes which advocate national security as the most important goal. CASP recognizes that although each of its eleven national interest
areas are distinct at their level of aggregation, each can serve to summarize a number of sub-goals such as democratic growth and human rights in the one major interest of Political Development. This organization allows the analyst to summarize without the danger of reducing or subordinating all goals to one major interest.

Lastly, the areas of concern permit the policy maker to link each country or region to the particular portion of the United States national interest concerning a given country. For example, in one country United States national defense may involve two areas of concern—1) the use by the United States of host country military forces and facilities, and 2) prevention of alignment with powers hostile to the United States. In another country, United States national defense may require only the prevention of hostile alignments by that country.

One weakness of the CASP areas of concern is that unlike the national interests which are standardized and exhaustive, no such effort has been authoritatively applied to the sub-interests constituting the areas of concern. The establishment of standard areas of concern will greatly aid in policy evaluation routines under the CASP planning system.

3. Environmental Indicators. These are indicators selected to provide information on the trends or conditions in the planning period which may effect our national interests. The environmental
indicators are keyed to specific areas of concern. Selected indicators may also tap the activities of third countries, international organizations, or private businesses which may bear on United States interests.\(^1\)

One advantage of environmental indicators is that specification of indicators allows the designer to make explicit exactly what kinds of events or trends are unacceptable and to mark with relative certainty the occasion for control action. Second, indicators permit the policy maker to make more accurate and more precisely pinpointed diagnoses in his assessment of the progress the United States has made toward its goals. For example, although an aggregation of indicators may reveal the United States economic position with the host country as stable, disaggregation in terms of specific indicators might reveal that United States private investments were increasing, but that the United States was suffering an unfavorable trade balance. Corrective action, rather than a frontal assault upon the whole of the United States economic relationship with the host country could then be taken to remedy the trade balance.

\(^1\)National interest: United States economic prosperity

Area of concern: Optimal level of United States trade with host country

Environmental indicator: Volume of United States exports to host country

Volume of third country exports to host country
One possible danger that exists in the use of environmental indicators, Bauer (1969) pointed out in his seminal discussion on social indicators, is that of philistinism. Bauer noted there is a tendency to use economic indicators because of their ready availability to measure all areas or interests, rather than embark upon the more expensive task of collecting new indicators.

Other more explicit problems exist for the CASP environmental indicators. First, unlike the national interest areas, standardized indicators for given areas of concern have not yet been advanced. Second, a significant number of indicators which have been proposed in actual CASP's have been too imprecisely stated to permit measurement--thus making specification by the designer noting the occasions for initiating diagnostic control actions hard to ascertain.

The most significant weakness of the CASP environmental indicator system lies in its lack of concern with the explicit development of impact or outcome indicators. Concern, instead, has focused upon identifying the signals (e.g., trade imbalance) that will occur in the future and constitute a challenge to United States interests. This type of crisis management system leaves unanswered the important question of how far United States interests have been advanced in a given time period.

Fortunately, many of the indicators actually employed can be easily fashioned to serve as indicators of the status of United States interests once the decision is made to implement an impact
or outcome oriented indicator system. The ability to accurately assess the status of United States interests constitutes a basic condition for the assessments that accompany CASP-planning for each fiscal period. An explication of one possible indicator system will occur in Chapter V.

4. **Level of Concern.** A level of concern represents an assessment of the priority of a given United States interest in a fiscal year. The level of concern may be high, medium, low, or none. If the level of concern is low or none, the specific area of concern is not further analyzed in the CASP planning documents.

The advantage accrued from the use of the level of concern is tremendous in terms of the analysis and evaluation possibilities open to the designer. For example, he may sum all the levels of concern within each interest to determine the most important interest for a particular country or region. Interests coded in this fashion provide the policy maker with the ability to fashion a hierarchy of priorities to employ when various interests are in conflict.

5. **Identification of Challenges and Opportunities.** The projection of each environmental indicator into the future enables the policy maker to identify challenges and opportunities. A challenge refers to a future situation or set of circumstances
in the host country or environment directly threatening one or more United States interest. An opportunity refers to a situation the United States may be able to capitalize upon to advance one or more of its interests.

Identification of problems according to goals or interests represents an important antecedent to the design axiom that solutions to problems require goals, since problem identification requires goals. Challenges or opportunities occur when an interest or goal of the United States is threatened and not from an inductive search of the environment.

6. Issues. An issue outlines how the United States should plan to meet one or more projected challenge or opportunity. It therefore summarizes the control actions necessary to advance United States interests.

7. Goals. Goals are conditions achievable only in a time period extending beyond two fiscal years. They represent conditions which if realized would advance or preserve a United States interest.

8. Objectives. Objectives are achievable in a fiscal year by undertaking one or more specific United States course of action.
9. **Course of Action.** The course of action details specific control actions to be undertaken by each involved United States agency to accomplish or reach a specific objective. These actions will then be further broken down and implemented by each involved United States agency.

10. **Resource Allocation.** Program costs are determined for each course of action and are assessed out of a number of United States foreign affairs funds such as MAP or PL 480.

**B. CASP Design and Control.** In the preceding discussion of the Department of State's CASP policy planning system a number of the CASP components and the planning process constituting the CASP system importantly mirror the most salient characteristics of the design and control processes described in Chapter II. In the following discussion a number of these similarities will be examined in terms of: 1) how design and control concepts can clarify the role and interrelationship of the various components of the CASP system; and 2) the insights that an ongoing policy planning system such as CASP may provide for design and control theorists.

1. **The Referencing of Control Actions by Goals.** One of the most fundamental design axioms is that design is undertaken in order to control. Ideally, each control action is designed to
accomplish a certain task which will either prevent unfavorable trends or enhance favorable trends so goals will be achieved. In this fashion each control action is referenced by the goal it is to advance. Again, under ideal circumstances, control actions are designed only to meet goals. If a candidate control action does not further a goal of either the designer or his clients, it need not be invented or included in the final design product.

In the CASP system each course of action (i.e., control action) is undertaken to advance a specific goal. In the CASP Procedural Guidance booklet the planning sequence for the actual construction by the country team of its CASP clearly is established by first identifying goals and then specifying the courses of action intended to accomplish that goal.

2. Specification of Control Action. In addition to being referenced by goals, each control action is purposive. Control actions are carefully designed and set into motion in order to achieve specific tasks. In the previous example of the 3% nickel-steel alloy, only certain levers are moved in a prescribed fashion to divert specific amounts of undesired ores from reaching the furnaces. All levers are not jiggled randomly until the desired 3% level of nickel is reached.

Control actions are specified because designers have, however imperfectly, modeled the process(es) that is (are) to be
controlled. In the example of the 3% nickel alloy, and in most industrial assembly line processes modeling of involved processes and specification of the *levers of control*, are relatively straightforward and are the most outstandingly successful examples of the design and control theories to date.

In the CASP planning system courses of action are designed to ameliorate foreseen challenges or opportunities. The CASP planning sequence, Issue statement (i.e., how should the forecasted problems be met), requires the country team draw upon its expertise to model a solution to the foreseen challenges or opportunities. In addition, assumptions which provide for outlining the type of conditions expected implicitly provide criteria for outlining why proscribed control actions may be modified or deleted (i.e., if original assumptions about the state of the environment are not met).

Although the observation that country team members must, and do in fact, model solutions to their problems, may seem extreme at first, several of the following points lend support to this observation. First, to allay some fears, the modeling indicated here does not require the rigorous math modeling efforts found in the arms race, deterrence, or alliance literatures. Modeling, instead, requires the country team member simply and concisely identify those factors and their interrelationships that directly effect the favorable resolution of the issue. Thus, a country team predicting a decline in United States automobile exports to its country might recommend a United States subsidized inspection