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Office of the Director

January 25, 1974

MEMORANDUM

TO: Environmental Council

VIA: R. E. Marland, Chairman

FROM: Jerry M. Johnson

The Temporary Commission on Statewide Environmental Planning (TCEP) was established by the Governor in response to a resolution of the Legislature, but the initial impetus toward its establishment came from the Environmental Council. It is, thus, quite appropriate that the results of a review of TCEP's report that Doak Cox undertook be made available to the Council.

The review is fairly extensive, as you will see even though we have not supplied you with copies of four appendices dealing with details. The extent will indicate, we expect, the importance that Doak assigned to TCEP's results. You will find in it evidence of his personal dissatisfaction with the report in several respects, but he wishes it known that he considers, overall, more could not possibly have been expected from an endeavor so large and complicated compressed into so limited an amount of time and supplied with such limited resources.

With respect to the specific pieces of legislation recommended by TCEP, Doak's opinions are as follows:

a) The bill on environmental policy should be considerably simplified. If this will not be feasible in time for the product to be considered at the present legislative session, it might perhaps be passed as is, or at least passed in the form of a resolution.

b) The resolution calling for conformity of federal actions to state environmental policy should be passed.

c) The bill calling for monitoring of environmental quality control should be passed, but consideration should be given to placing the charge directly on the OEQC rather than the Environmental Council. My reasons for this opinion are that the office is part of the administrative structure of the State, that it has a staff, and that it would use the advice of the Council.

d) The resolution referring to the Comm. on Operations, etc. should be passed.

e) The bill calling for a State Planning Council should be passed.

f) The bill calling for an environmental impact system should be passed as most recently revised by OEQC.

g) The proposed Constitutional amendment should be replaced by one recognizing a right to environmental quality placed alongside of other fundamental but qualified rights.

I believe that TCEP's work merits high praise from the Council.

Jerry M. Johnson, Acting Director

cc: A. A. Smyser
HESL

REVIEW OF TCEP'S

PLAN FOR HAWAII'S ENVIRONMENT

by Doak C. Cox
Principal Investigator
Hawaii Environmental Simulation Laboratory

and

Director (on leave)
University of Hawaii Environmental Center

January, 1974

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INTRODUCTION

This report represents an individual review of the report of the Temporary Commission on Statewide Environmental Planning (TCEP), "A Plan for Hawaii's Environment", November 6, 1973. In many ways individual reviews should carry less weight than group reviews, especially if the group reviews express and explain differences among multiple opinions. A group review of the entire TCEP report would, however, be very time-consuming, and the timely expression of individual views seems more useful. What is significant, in any case, is not explicit results of a coordinated review but legislative actions that will represent implicitly the results of review by legislators and the people they represent.

I undertake this review with considerable trepidation. The report was prepared by a commission that was well constituted for the task, but given an extremely short time and minimal resources for its accomplishment. Hence, although it is, at least potentially, a very important document, it has many shortcomings. In noting the shortcomings, I run the risk of appearing to detract from the overall value of the report, but if I did not note these shortcomings, my review would appropriately be dismissed as whitewash. Some simplification of technical concepts is essential in a report which is appropriately intended for non-technical readers. In criticizing the simplifications that seem to be misleading, I run the risk of alienating those who are interested only in the general concepts, but if I were not technically critical I would betray my own understanding and alienate those whose technical knowledge is equal to or greater than my own. In anticipation that this review will reach only those with either a high level of technical understanding or a high motivation to gain understanding sufficient to appropriate decision-making, I have indulged in a certain amount of technical criticism, but relegated this mainly to appendices.

Bases for Review

It seems important that I try to identify the bases for my review. One is, obviously, the charge given to the Commission in the 1972 Senate concurrent resolution SCR 14 HD 1 that led to TCEP's establishment (TCEP report, p. 29). Omitting those parts of the resolution dealing with the composition and organization of the Commission and the offices to which it was to report, this resolution read:

> "WHEREAS, the quality of the environment is vitally important to the welfare of the people of Hawaii; and
>
> "WHEREAS, the early adoption of a strong State-wide environmental policy is necessary for the optimal protection of our environment; and
>
> "WHEREAS, such State-wide policy must be made specific and explicit in providing directions to actions which can control growth to assure that the optimum quality of environment and life style are preserved; and

"WHEREAS, it is necessary to integrate the development of these policies into the public planning process of the State if these goals are to be achieved; and

"WHEREAS, such integration calls for action by the public planning agencies to consider alternative specific environmental policies for applicability, feasibility and effectiveness; now, therefore,

"BE IT RESOLVED . . . that the Governor appoint a Temporary Commission on Statewide Environmental Planning . . .; and

"BE IT RESOLVED that the function of the Temporary Commission on Statewide Environmental Planning is to provide policy guidance for State General Planning by incorporating into State and County plans those specific policy statements which assure fullest consideration of the environment and human life styles and to assign responsibility to the appropriate agencies for implementing the plans and policies; and

"BE IT FURTHER RESOLVED that the Temporary Commission shall accomplish its function by November 1, 1973; . . ."

Generality and responsiveness

TCEP could not have been expected to respond fully to this charge. It could not have incorporated any policy statements into State and County plans and it could not have assigned any responsibilities to government agencies. The adoption and amendment of governmental plans is a prerogative of the duly constituted legislative bodies of government, and responsibilities can be assigned to government agencies only by the same legislative bodies or the chief executives of government. TCEP could have been expected, therefore, only to make recommendations as to policy and assignments of responsibility.

The oral charge of the Governor was more appropriately phrased (p. 31). "Governor Burns told the Commission at its opening meeting to develop something that could be written into law as a basic environmental policy of the State . . . a comprehensive plan for the restoration, protection, and enhancement of our natural and man-made environment."

The results of TCEP's efforts may be evaluated objectively in relation to the following set of questions pertaining to its charges:

(a) Has TCEP provided guidance to the comprehensive planning processes of the state with particular regard to environmental aspects?

(b) More specifically, has TCEP developed a statement of general environmental policy that might be enacted into law?

(c) Still more specifically, has TCEP proposed detailed policy statements regarding the environmental and human life styles that might be incorporated into state and county plans; and

(d) Has TCEP recommended assignments of responsibility for implementing such policies?

A second set of questions whose answers must be generally subjective seem likely ultimately to be more important in evaluating TCEP's products:

(e) Has TCEP adequately discerned and elucidated the nature of the man-environment system to which the policies it proposes pertain?

(f) Has TCEP identified the basic objectives in terms of which policies should be evaluated?

(g) Is the overall policy guidance which TCEP has provided of sufficient generality to be valid in all cases?

(h) Do specific policies TCEP has recommended provide definitive guidance in resolving current conflicts?

(i) For issues in which it could not resolve the conflicts, has TCEP identified the tradeoffs that must be made and elucidated the values to be reconciled?

(j) Has TCEP dealt with all current environmental issues?

(k) Has TCEP provided guidance as to how future issues should be dealt with?

(l) Is the list of responsibilities TCEP has identified complete?

(m) Are the assignments of responsibilities TCEP has recommended appropriate?

A third set of questions will be objectively answerable, but only after the legislature has responded to the TCEP report:

(n) Was TCEP sufficiently responsive to community concerns?

(o) Is the TCEP's presentation of the rationale for its recommendations sufficiently convincing; and

(p) Will its recommendations be considered sufficiently lucid, specific, and precise, to assure their adoption by the legislature?

Two final subjective questions are also important:

(q) Could TCEP have been expected to produce anything both more comprehensive and more definitive, considering its limitations of time and resources?

(r) What results has TCEP achieved beyond those incorporated in its report?

The pertinence of the bulk of this review to these questions will, I trust, be perceived by the reader, even though I will not return explicitly to most of them until I attempt to summarize my conclusions.

General Comments

TCEP has been criticized for its declared policy of seeking consensus and for the resultant generality in its propositions. I cannot totally subscribe to this criticism. There are certainly needs for the bold expression of novel, farsighted propositions that are initially unlikely to be generally accepted. If such propositions possess genuine merit, their repeated statement and defense will eventually lead to general acceptance. However, a set of propositions so audacious as to be unacceptable to the community and the legislators representing it would not have been response to TCEP's charge. In response to its charge, TCEP has attempted to define those propositions about which public opinion might expeditiously be crystallized.

TCEP certainly cannot be criticized for failing to be responsive to public concerns. The publication (pp. 51 et seq.) of a large number of specific strategies proposed by a wide variety of persons indicates their cognizance of such concerns. TCEP has clearly attempted to identify a policy framework within which these strategies might fit or at least on the basis of which they can be evaluated. Further, the changes from the first publicly available draft of the TCEP report indicate significant response to the comments provided at the series of public meetings at which this draft was reviewed. (I recognized several changes responsive to my criticisms of that draft.)

The comprehensiveness, balance, and specificity of TCEP's recommendations and their accompanying rationale do deserve critical review. The review ought to be concerned not just with generality but with accuracy and lucidity of expression. Comments on inadequacies resulting from the limitations of TCEP's resources and time must be regarded as recognition of need for furtherance of this type of effort and not criticism of TCEP's performance.

Acknowledgments

Because I am on leave from the Environmental Center of the University of Hawaii, I have of necessity taken the time required for the review from my allocations of time to my family and to the Hawaii Environmental Simulation Laboratory (HESL) whose focus is, at present, much more restricted than the statewide concerns of TCEP. I am grateful for the forbearance of my family and of HESL's Core Group that has made this possible. HESL has, in addition, arranged for the final typing of this report. In spite of my leave status, I have drawn heavily from the Environmental Center for draft typing by Winifred Ohama and the editorial assistance of Jacqueline Miller, help for which I am most thankful. Although in the interests of time I have not submitted for widespread review the results of my work, it is based on discussion of TCEP's endeavor and products with people too numerous to identify individually, who nonetheless deserve mahalo.

POSITIVE ACCOMPLISHMENTS

TCEP's positive accomplishments should be emphasized.

The legislature recognized in 1970 that "the quality of the environment is as important to the welfare of the people of Hawaii as is the economy of the State" and in 1972 that "the quality of the environment is vitally important to the welfare of the people of Hawaii". No official bodies had expanded on these statements, and the latter was only in the form of the resolution that led to TCEP's establishment and had little permanent force. In its "Basic Assumptions" (pp. 7-8), TCEP has elucidated the basis for this claim that the environment is of vital importance.

Among its significant accomplishments, TCEP has pointed out

(a) the composition of the environment by natural and man-made components,

(b) the interactions between natural and man-made components,

(c) the limitations of the natural environment,

(d) the important distinction between renewable and non-renewable resources,

(e) the trade-offs between the material aspects of human well-being referred to as our standard of living, and the non-material aspect of environmental quality,

(f) the importance of technology and economic activities to our standard of living,

(g) the potential reorientation of technology toward conservative rather than exploitative ends,

(h) the interrelationships among population, technology and environmental quality,

(i) some areas of critical concern with respect to environmental quality,

(j) the importance of communities to our well-being, and

(k) the importance of individual ethics in the essentially subjective value judgments involved in planning decisions.

TCEP has, I believe quite properly, described the spirit of aloha as a significant though intangible guide to environmental ethics and has

identified something for which I have been searching, a Hawaiian term denoting the appropriate conservation ethic, Malama.

In accordance with its charge, TCEP has drafted an environmental policy act, and has made a number of recommendations for implementation of the policies that would be proclaimed in that act, all of which (with certain qualifications mostly as to details) are appropriate and significant. In its recommendations it recognizes needs to:

(a) incorporate environmental planning in comprehensive planning processes, and the need to coordinate planning processes generally,

(b) pay particular attention to environmental effects of fiscal plans,

(c) assess specifically the environmental effects of actions before they are undertaken,

(d) to monitor the effects of the policies and strategies adopted in the light of environmental aims and make such corrective changes as are necessary.

TCEP's concept of "carrying capacities" and "overloads" is particularly valuable, though it appears to deserve some sharpening. The recommendation that criteria be developed for establishing carrying capacities and identifying overloads will challenge the capabilities of the Hawaiian community.

Few, if any, of the concepts and recommendations incorporated in its report are original with TCEP. Some are in fact identified in the resolution which led to TCEP's establishment. The title of that resolution, "Providing for the optimal protection of the environment" indeed conveys an optimization concept that underlies all of TCEP's work, yet was not fully exploited in it. The declaration of environmental policy, the provision of direction under that policy, and the integration of that policy in comprehensive planning were all recognized as needs in the resolution. However, no attempt in Hawaii to enlarge on these needs and means to meet them has had results even remotely comparable to TCEP's, and few attempts have been made with equivalent success elsewhere.

Flaws have to be expected, and may be found, but this does not detract from the remarkable overall success of the effort conducted in so short a time with such limited resources.

KEY CONCEPTS AND OBJECTIVES

TCEP recognized that "To fulfill its mandate the Commission had to find a key which will lead to a balance between man and nature and resolve conflicts between the man-made and natural environment. These conflicts place society in the role of aggressor against nature as we seek to fulfill human desires." The key identified was "overload", which TCEP defined as being in excess of "the carrying capacity of the environment", a process resulting in "a diminished quality of life and environment" (p. 8).

The concepts of carrying capacity and overload are extremely important ones, but they merit further discussion than TCEP has given to them, and they ought to be defined more precisely than TCEP has defined them and to be related to an objective that seems fundamental though it remains implicit in TCEP's report.

Carrying Capacity and Overloads

Because overloads are defined in terms of carrying capacity, the meaning of carrying capacity in TCEP's usage is critical.

Carrying capacity has been used in a number of ways. In technology the term is used to describe the load limits or intended load limits of technological units such as vehicles. A five-passenger car or a one-ton truck, for example, are designed to carry five persons or one ton of freight, respectively. Such vehicles can carry overloads beyond the design carrying capacities, but with reduced comfort or safety. Planners use the term in an equivalent way to indicate desirable limits to the loadings on technological systems. A highway, for example, can carry efficiently a certain number of vehicles per unit of time. Overloads can occur, but these result in an increasing delay -- a decreased "level of service".

In biology, the term carrying capacity denotes the population or population density of some species that is ecologically sustainable in a particular area, in other words the population or density that is attained in equilibrium with the natural physical environment and the rest of the natural biota.

In animal husbandry, the term is used to denote the maximum population or population density of some form of livestock that can be maintained on a particular range, usually the maximum that can be maintained over the long term using some ranching technology.

The TCEP report made it clear that, as the Commission used the term, carrying capacity is not determined by natural ecology alone but depends on technology. It points out that carrying capacity depends on consumption practices, and that we should be able to reorient our technology toward the

aim of conservation rather than mere exploitation (p. 9). Some of TCEP's suggested indicators of overload (pp. 9-12, 42-48) suggest the usage of the term in the engineering and planning sense as related to a particular technological system, but the general context indicates its usage in a broader way as referring to the entire natural-technological-social system. The referral to carrying capacity as representing "the limits of the environment's ability to support human activities at present levels of technology" (p. 8) would suggest usage of the term to denote the maximum sustainable population or population density in the animal husbandry sense. However, an optimum rather than a maximum is suggested by the recommendation that criteria be developed "to determine the optimum population level for counties and districts" (p. 13), and the recognitions that overloads result in "a diminished quality of life and environment" (p. 8) and that an element in the "enhancement of our quality of life is the limitation of population" . . . so that the interaction between the natural and man-made environment and the population is mutually beneficial" (p. 13). The concern of the legislature with an optimum rather than a maximum is indicated by the title of the resolution under which TCEP was established: "Providing for the optimal protection of the environment." This reflects the finding of the 1970 legislature that "The legislature further finds that the determination of an optimum balance between economic development and environmental quality deserves the most thoughtful consideration, and that the maintenance of the optimum quality of the environment deserves the most intensive care."

Through conversations with several TCEP members, I am satisfied that TCEP was concerned with the determination of carrying capacities in the optimum, not the maximum sense, and with the identification of overloads beyond these optimum capacities. The establishment of the basis for optimization leads me to a discussion of the fundamental objective of environmental planning and management.

Objectives

TCEP has explicitly identified two major objectives: "Conservation of our natural resources" and "Enhancement of Our Quality of Life."

Our present constitution and laws already speak of resource conservation, but always coupled with development. I use conservation as TCEP does as meaning a wise balance between utilization and preservation. Coupling conservation with development, then, overweights development and utilization and underemphasizes preservation. TCEP avoids the unbalance. The value of the concept of the "quality of life" is not diminished by the current popularity and sometimes questionable usage of the phrase. Its very popularity seems to me an indication that something that has always been very dear to us, but that we have not thought to be much worried about, now seems threatened. The identification of these objectives carries the recognition of environmental importance beyond the statement in present law that "The quality of the environment is as important to the welfare of the people of Hawaii as is the economy of the State" (HRS 341:1).

I find it useful to differentiate between goals, which we can expect or at least hope to attain, and aims, toward which we should head but with

respect to which we may not expect lasting achievement. Although the two objectives cited were designated as goals by TCEP, it is as aims, in the sense of this distinction that their identification by TCEP seems especially appropriate.

These aims are open to some criticism on the grounds of logic, pragmatism, and balance but I must admit that I see no way in which TCEP could have satisfied simultaneously the logical and the pragmatic objections.

The only serious question I raise with respect to balance has to do with the temporal emphasis. I am sure TCEP was not concerned just with the present or with the present generation. Yet there is no hint of future needs in the second aim save in the mention of limits on population which implies future limits. The only substantive importance of the preservation aspect of conservation lies in retention of resources to meet future needs, hence the first aim does imply a concern for the future. Although I grumble about the present effects of environmental degradation caused by past actions, I am much more concerned about the effects of present and future actions on the environment of succeeding generations. Hence I would have preferred a statement of aims that explicitly recognized the needs of the future.

The pragmatic objection to the two TCEP aims is that, as they have been stated, they give little guidance to strategy decisions. For example, they do not give any indication of the means by which a particular water quality standard may be judged too stringent or too lenient. In part the lack of definition in pragmatic terms stems from unresolved inconsistencies within the aims. For example, a standard that would represent the nearest approach to natural conditions and thus satisfy the preservation aspect of conservation might severely impede economic activities contributory to material aspects of the quality of life. Let me then turn to the logical objection to the TCEP statement of aims.

It is, in general, impossible to aim simultaneously in two directions. I do not believe that TCEP really considered its two aims as separate, but as two aspects of one fundamental aim. If this is the case, it would have been useful if TCEP had shown this, and to have attempted an explicit expression of that one aim. If we look tothe past for guidance as to the fundamental aims, we find such such expressions as the "glorification of God" in the Judeo-Christian tradition, and more-or-less equivalent expressions in other traditions. I do not object to such statements, but each of them seems to have been interpreted in very different ways by different people, and in a pluralistic society like ours, they do not seem to very helpful in guiding our policies and practices.

The fundamental aim implied by most of the practices of western civilization for more than a century has been the immediate improvement of the standard of living--the material aspects of the quality of life. Changes in policy during the last decade indicate clearly an increased concern with the non-material aspects of the quality of life, somewhat less clearly an increased concern with the quality of life of future generations, and an awareness that there are some inescapable tradeoffs between material aspects and non-material aspects and between present and future gratification of needs and desires.

The guidance to these changes is often expressed in terms of a return to natural environmental quality. As Barry Commoner puts it in his proposed "laws of ecology": "Nature knows best." There is a great deal of validity in this statement, but I hold that the restoration and preservation of nature is not an appropriate objective for a public program unless nature is regarded as including man and all his works. The effects of tens of millenia of human existence can never be eradicated by either nature or man, and the greatest return to natural conditions that would be possible at this point could be accomplished only the elimination of the human race. I doubt that the legislature would accept this.

I see no alternative but to express the fundamental objective of environmental management in humanistic terms, in spite of the fact that we must distinguish the appropriate objective from the human, but short-term, self-serving, and materialistic aims that have been implicit in much of our behavior and whose pursuit has led us into our environmental difficulties. In other contexts, I have suggested something like the following: "recognizing man's biological nature and needs, his aesthetic and ethical concerns with natural quality, and the probable needs of his species over its expectable life span."

This may be a bit too ambitious and general for the environmental plan of a single state. A more appropriate unifying objective for TCEP, therefore, might have been: "To restore, protect and enhance the environment of Hawaii so as to optimize the overall, long-term well-being of its people."

I do not believe that this statement is inconsistent with TCEP's intent, but I wish that TCEP had incorporated something like it in its report as a unifying fundamental purpose.

In many cases it is not clear what practices are in line with our overall, long-term well-being. I have found such a statement useful in a negative way, however, through the identification of some inappropriate present or proposed practices, laws, regulations, and standards. While it fails to provide guidance the failure is not in the statement but in our knowledge of what is best. In those cases I see no alternative but to follow a consensus opinion, based on all of the information available to use as to what is likely to be best. I do not think it possible to provide much more precise guidance without making statements which as applied to particular cases will be found inconsistent with overall, long-term human well-being.

Cautions

I believe that it will be stimulating and extremely valuable to attempt to determine criteria for defining carrying capacities in the sense of optima in terms of overall, long-term well-being of the people of Hawaii and for determining overloads and potential overloads beyond such optimum capacities. However, I expect that few indications of overload will be both

completely valid and objectively measurable, and that attempts to make most appear to meet both criteria simultaneously will be shibai.

On the one had, it will not be difficult to identify a considerable number of objectively measurable parameters that are connected with overloads. Many, indeed are being monitored. TCEP has itself identified several. But these easily measurable parameters will be found, I think, not actually to be indications of overload. They will be found not to be linearly correlated with overload nor even in many cases monotonically related to overload. On this score I have criticized TCEP's supposed indicators.

On the other hand, it should be possible to identify values that contribute to the quality of our lives and that, if diminished are indicators of overload. But these values will, in general, be much less tangible--much more difficult or even impossible to measure in any objective fashion.

The importance of the combination of subjective and objective values in the estimation of carrying capacities and overloads is so essential that an unusual combination of input from those with professional skills and from the broad community will be needed in the effort. Being involved in an effort of this kind, I can speak feelingly of the frustrations involved.

Further, while the effort is being made, the technology and value structures on which it is based, will be changing. Hence it must be a dynamic and continuously on-going effort.

Thus, even though the support provided may be and perhaps should be considerable, it should not be expected to produce much in the way of specific objectives and definitive criteria and indicators, but mainly general and subjective guidance, and the principle costs may be frustration generated in both participants and their supporters.

Self Sufficiency

In its recommendation that "criteria be developed whereby the carrying capacity of Hawaii can be determined" (p. 18), TCEP has suggested investigation of "the impact on Hawaii of attaining self-sufficiency through the use of only renewable natural resources." It seems to me most unlikely that the optimum carrying capacity of Hawaii can possibly be one that is self-sufficient in the sense of relying purely on local non-renewable resources.

We are fortunate in the extent to which our technology does not exploit local non-renewable resources, but we are thus fortunate only because through national and international trade, we have been able to exchange agricultural products, visitor recreation, and military bases for goods and raw materials whose production is conditional upon exploitation of non-renewable resources elsewhere. Although local exploitation of such resources is thus minimized, it is not insignificant. For the cement of concrete we mine carbonate rocks, for the coarse aggregate we mine basalt, and for the fine aggregate we remove sand from beach systems faster than it is manufactured by nature. We use forest products faster than nature replaces them. We have lost soil through our agricultural and particularly our

construction practices. Through the construction of buildings, the laying of payments, and the accumulation of dumps we have reduced significantly the open-space resources of our islands. We do indeed need to examine to what extent we can reduce the waste associated with these practices so that the reserves will remain adequate to meet future needs.

However, neither a completely non-exploitive technology nor a self-sufficient one would be optimal.

Hawaii once had a self-sufficient technology, and it might well be profitable to investigate further whether the population based on this pre-Cook Polynesian technology, believed to have reached 2 or 3 hundred thousand, had attained equilibrium, and hence the practices of population limitation that were part of that technology had the effect of maintaining population at an optimum. However, it seems quite improbable that a return to the Polynesian technology would now be feasible and, in any case the post-Cook exploitation of Hawaii's resources and the importations of pests would now render that technology incapable of sustaining the same population. Some other self-sustaining technology might perhaps be considered, one that included a limited use of ceramics and of iron and other metals produced from Hawaiian natural resources through the use of forest and agricultural fuels. It seems to me quite unlikely, however, that such a technology could sustain anything like the present population of the Islands, and quite impossible for the population of Oahu.

The importance of external trade makes our present technology highly vulnerable to depletions of world resources and to social disturbances of domestic, national, and international scale. This vulerability of our present technology would perhaps best be illustrated by reference to our enormous Hawaiian energy imbalance. In spite of this vulnerability, I see no reason for assuming that the best life for the people of Hawaii will not continue to involve trade with the rest of the world, although we may wish to control this trade much more than we have to date. If our interest is in a carrying capacity determined by a technology which allows, facilitates, and is dependent upon imports and exports, then we need to be concerned with world-wide technological developments, world natural resources, world capacities for waste assimilation, external balances, and world politics, not just internal economic and resource balances.

POLICY ISSUES

The aims which TCEP has identified (p. 13) will serve as useful general guides to some policy determinations, especially if they are clarified in relation to the fundamental objective of optimizing the overall long-term well being of the people of Hawaii. In its discussions of policy (pp. 13-15) and its implenentation (pp. 17-19) TCEP has provided some useful recommendations on the determination of policies and strategies. However, the question must be raised whether TCEP went as far as it could in responding to its charge to be specific in its policy recommendations, and even whether it went as far as it could in analyzing the tradeoffs involved in making the stated policy decisions. Each reviewer, and probably each member of TCEP itself, considers TCEP's report in the light of his own set of priorities as to problems, and most would find inadequacies in that light. The issues discussed here reflect just a sample of those whose discussion by TCEP seems somewhat inadequate.

Population policies

Among important policy issues, TCEP has perhaps discussed most extensively the issue of population control The discussion focuses on the feasibility of deliberate restriction of immigration. I wonder whether attention might not well have been given to the reduction of stimulants to immigration.

Only a very few years have passed since the State sponsored a conference on immigration, at which it appeared that the major interest was in stimulating the immigration of cheap labor. It is hardly credible that such a conference would now be held, but it seemed hardly credible then, and the question seems legitimately raised whether there are not still some immigration-stimulating state policies dating from times when immigration was considered desirable. Certainly the practices of some private concerns have stimulated immigration. Despite contrary promises, some new enterprises have provided employment primarily to malahinis rather than to kamaainas, even in areas of labor surplus.

It would be logical if we assure ourselves that we do not still engage in strategies that encourage immigration before, or at least while, we undertake strategies to discourage it.

Land-use policies

Among its recommendations (pp. 13-15) TCEP advocates the preservation of open space and natural beauty (policy 5), the retention of recreational areas (policy 6), particular protection of coastal areas (policy 7), watersheds, forests, and natural preserves (policies 10 & 11), and the maintenance of agricultural lands (policy 15). In its discussion of community environment policy issues (pp. 20-21), TCEP asks whether a moratorium should be declared on urban zoning (issue 8), whether low density in development should be encouraged by taxation policy (issue 2), and whether the more restrictive policies of State and counties should prevail in considering zoning changes (issue 9). Yet in recognizing a need for housing TCEP merely

asks"should the state initiate a massive program to meet the unsatisfied housing needs of its residents?" (Issue 17).

The housing issue is perhaps second in importance only to the issue of population control that is more extensively discussed in the TCEP report. It seems to me personally that "a massive program" to meet the needs is inescapable. However, even the affermative answer to TCEP's question does not settle all of the problems. Additional housing can be provided only by: i) increasing population density in present urban areas; ii) expansion of urban areas on the islands other than Oahu (Population Issue 2, p. 20), iii) deliberate creation of new towns (Community environment Issue 21, p. 21), or iv) the continuance of "urban sprawl." TCEP has discussed neither this limitation of alternatives nor the clear environmental detriments associated with each alternative.

With increased population density there are clearly social hazards which can be minimized with sound planning but not eliminated. With the dispersal of population to the neighbor islands, a dispersal of economic opportunities, industries, and hence increased environmental loadings, will be inescapable. With the creation of new towns there must be either the same sort of dispersal of economic opportunities and industrial developments and environmental hazards, or increased needs for transportation that will also entail increased uses of energy and effluents to the environment.

The continuation of unplanned urban sprawl would seem the least desirable alternative. However, the choice or balance among the other three alternatives presents an issue much more important than the community environment issues presented by TCEP: whether to establish a land bank (Issue 1), whether to change the powers or the composition of the Land Use Commission (Issue 4-7), whether to restrict land use changes (Issues 8 & 9), whether to reorganize the Department of Planning and Economic Development (Issue 10), or how administratively to provide the housing (Issues 18-19). Policy guidance in the choices or balance among these alternatives can be provided only by the legislature. The legislature can provide such guidance only on the basis of a more thorough understanding of the tradeoffs than TCEP has made available.

Fiscal policies

TCEP has recommended that the Ad Hoc Commission on Operations, Revenues, and Expenditures be directed to review the State's fiscal policies in the light of the overall environmental goals and policies it has enunciated (Recommend 4, p. 17). More specifically it has recommended the adoption of a tax program compatible with the goals and policies (Recommend 8, p. 18). Yet in further discussion it merely raises the question whether the "highest and best use" tax concept ought to be modified (Community Environment Policy Issue 2, p. 20).

To me, the wording of the phrase "highest and best use" is highly appropriate, but its conventional interpretation is outmoded. The conventional determination of the highest and best use of a piece of land has been that use that results in the highest market value in adjacent lands. This determination was consistent with public concerns that were restricted mainly to economic benefits and detriments. The passage of the land use act should

however, have indicated that the public appraisal of the highest and best use of land did not coincide with market values; and the finding in the Environmental Quality Control Act should have indicated that environmental benefits were of importance equal to economic benefits.

The effects of the obsolete interpretation in discouraging continuing agricultural use of land came to widespread public attention a year or so ago. An intent to change the policy was indicated. In my view only a change in the interpretation of the phrase "highest and best use" was needed. However, if such a change is difficult from a legal standpoint, the phrase itself should be changed. There should be no question that a change is needed if it has not already been made.

It is quite understandable that TCEP did not find it possible to examine all of the State's fiscal policies for inconsistencies with environmental goals and policies. Under the circumstances, its recommendation that the Ad Hoc Commission on Operations, Revenues and Expenditures undertake such an examination was the best that could have been expected.

Pollution control policies

The first public draft of TCEP's report contained an entire chapter devoted to pollution control programs. The detail in which these programs were considered was inconsistent with that in the rest of the report, and the draft was far too exclusively based on federal requirements, many of which are inapplicable to Hawaii's environment. Unfortunately, TCEP's means of resolving the difficulties with the draft was simply to eliminate the entire chapter from the final report. Although I believe that in recent years we have been overconcerned with waste-disposal and pollution-control problems as compared with resource-availability problems and the interconnections between the two sets of problems, I believe the final report does not give adequate weight to the former and does not give the adequate guidance needed now in some policy questions.

The final report does provide estimates of Oahu's refuse loads as possible indications of an environmental overload (p.11). It includes waste-water management and recycling of water water and solid wastes among the conservation policies it recommends (p. 14), and the stopping of noise and land pollution and the control of motor vehicle emissions among the community environment policies (pp. 14-15). It recommends basing estimates of optimum population levels on the pollution effects in relation to standards (p. 18). It recognizes the federal and State roles in establishing pollution control standards (pp. 23-24) and the county role in the regulation of grading and the provision of sewage treatment. These inclusions do not grapple with major policy questions.

It is in connection with pollution control that the choice between two or three possible major directions can best be tested in the environmental planning of the State. The laissez faire direction of the past, although still open in other areas of environmental concern, is closed with respect to pollution (at least of air and water) by federal legislation and regulation. However, we still have open the choice whether our efforts will be devoted to genuine restoration and protection of the environmental quality, or to programs based on arbitrary standards and prescriptions of treatment,

that in many cases will not actually result in improvement. The choice is not as obvious as it would seem from the way I have put it for two reasons.

First, there is a widespread impression that pollution can somehow be stopped, or at least that the greatest stringency of treatment and control will lead to the best results. In actuality pollution cannot be stopped without ending all biological and technological processes, and the environmental effects of stringent means of treatment and control are in many instances worse than the effects of less stringent means.

Second, increasing constraints are placed on the State's program of pollution control by federal legislation and regulation that has been designed too much from either the standpoint of ease of enforcement or that of treatment for the sake of treatment and, where it relates to environmental improvement, to improvement of a temperate continental environment very different from that of Hawaii.

In order for the TCEP report to provide guidance to Hawaii's pollution control program, it should have been clear what the proper objectives of the program were, and it should have been explicit that the policies and strategies should genuinely be in accord with these objectives and not dictated by arbitrary prescriptions. To the extent that present state laws and regulations are not in accord with the real objectives, TCEP should have recommended attempts to change them; and to the extent that we cannot have the federal laws and regulations changed, it should have recognized them as constraints with a directed effort toward their minimization.

Let me cite five example of needs for guidance.

1. Present water quality standards were established on the basis of entirely inadequate information as to natural levels of concentration, current levels of concentration, the biological effects of various levels of concentration, the feasibility and effects of controls, and the social, economic, and environmental costs of control. Some standards of concentration are exceeded by nature. Others could not be attained if human activities are to persist. The whole set of standards ought to be reexamined in the light of the fundamental aim of optimizing overall, long-term human well being. Some standards should be made more stringent, some more lenient, and most should be recognized as appropriately different in different parts of the environment.

2. The Federal Water Pollution Control Act Amendments of 1972 (PL 92-500) require secondary treatment for municipal wastewaters. Where deep, open-ocean disposal is practicable, as it is with some major discharges in Hawaii, limitation to primary treatment is clearly preferable to secondary treatment from an environmental as well as an economic viewpoint. The State is developing a strategy to amend PL 92-500 to exempt Hawaii from this particular requirement and it is regretable that the TCEP report provides no support for this strategy. The issue is not so small that it ought to have been overlooked. From the standpoint of economics, many millions of dollars are involved, and although several of those millions are federal dollars, the state and county portion could be put to useful pollution control if it were not wasted on arbitrarily required and useless treatment. Further, the environment will actually be worsened instead of bettered in

some cases if this arbitrary requirement is allowed to stand. TCEP should have made it clear that the State's environmental policy is to protect and restore the environment in line with optimal human welfare and not arbitrary standards or introduce treatment for the sake of treatment.

3. The phrase "best practicable treatment" and equivalents is used repeatedly in federal and state pollution control regulations. It has been urged at public hearings that this phrase should be interpreted as meaning the most intensive treatment that is practicable. I do not believe that the most intensive treatment is necessarily the best, and have in fact testified on a number of cases in which I believe it is not. I have urged that the Department of Health clarify that what is best is to be judged in terms of the fundamental aim of overall, long-term human well being, and most of the recent decisions of the Department appear to be in accord with this interpretation, but the clarification has never been made a matter of record.

4. Through coercion by the federal government, the state has based its air pollution control strategies on a demonstrably fallacious concept, the concept that all of the air over each county is uniformly mixed so that every source contributes equally to the pollution throughout the entire county. In accordance with this concept, it was proposed, for example that the particulate concentration at the monitoring station at Ala Moana, which showed the highest concentration on Oahu, could be reduced by prohibiting the burning of sugar can fields over the entire island of Oahu, even at Waialua. The most casual observation of cane-field smoke plumes would indicate that cane burning at Waialua has no significant effect whatsoever on air quality at Ala Moana. For the proposed prohibition of cane burning, a program of control based on meteorological conditions has now been substituted. The substitution is based on more realistic estimates of the particulate emission rates of cane-field burning than were originally available, but otherwise, on a rationale which is just as arbitrary as that on which the prohibition was originally proposed. Certainly, air pollution will be reduced by the control measures now in force or scheduled, but the results the controls will have generally in relation to ambient air quality standards are quite problematical, and the results in terms of abating the actual deleterious effects of air pollution are even more questionable. The air pollution control strategies ought to be based on the more physically realistic concept that the route taken by air pollution emissions is dependent upon estimable meteorological factors.

5. The state air quality control program relates entirely to pollutants identified in state and federal regulations. In these regulations, particulate matter is considered one pollutant. Actually the particulates include: 1) salt crystals of natural origin and no particular significance except as they contribute to haze under stormy conditions, and as they form nuclei for normal tradewind rainfall; 2) pollen of natural origin and a source of problem to asthmatics; 3) dust of natural origin augmented by agricultural and construction operations; 4) smoke particles largely of artificial origin and 5) lead particles. The effects of these various components should generate quite different levels of concern and merit different degrees of stringency of control. Lead particulates, for example, are emitted almost entirely by motor vehicles using leaded gasoline and cannot be controlled by restrictions on any other sources of particulate matter.

Transportation policies

In recent years transportation planning as much as any planning has been challenged on the basis of environmental effects. The H-3 highway, the reef runway, the city rapid transit system are very large-scale projects that have been hung up by alleged defects in environmental impact statements or by conflicts between state and county planning based partly on environmental considerations. I do not believe that the TCEP report provides much of a policy base for resolution of the conflicts. In a way this may be fortunate, because the TCEP report was completed before the present energy crisis became readily apparent, and any transportation plans based on conventional pre-crisis concepts of energy availability would very likely be invalid now.

Although clearly efficiency in the use of energy will have increased importance, it would be foolish for me to attempt to clarify the issues in any detail with respect to the new situation. I will merely point out the reinforcement that the change in situation gives to my previous comments on self-sufficiency and the comments I will make later on future operations.

FUTURE NEEDS

TCEP included among its basic assumptions the one that "1. Hawaii's natural environment is limited in scale and quantity . . .". This is true and vitally important, as is the fact that this environment is "in many respects unique and fragile." TCEP does not seem to have given adequate recognition to the fact that the natural environment of the world as a whole is also limited, or to the implications of the limitations in both world and local environments for the future of the human species and of our successors in these islands.

Those who predict the imminent end of the human race do not give adequate credit to human ingenuity and do not recognize, as TCEP does, the potential for changing technological orientation if it is guided by environmental aims and not just economic ones. Nevertheless, it seems to me probable that with the diminishment of natural resources, particularly the cheap fossil fuel resources that have been our prime sources of energy, the cost of recovery of needed raw materials in terms of human effort will increase.

TCEP was legitimately concerned with our well-being in the present and near future, and properly concerned with non-materials as well as material aspects of this well-being, but it seems not to have been adequately concerned with the well-being of the generations to come. It proclaims the aim of "conservation of our natural resources" as a necessary component of a "Malama" ethic (p. 13), but it does not indicate the very practical base for this ethic in the need to meet future needs requirements and the desirability of meeting future desires.

Two particular needs merit special attention, the need for research and the need to retain flexibility.

Need for research

The great needs for Hawaiian environmental research and for the State support of much of this research are hardly recognized by TCEP. TCEP itself wisely avoided becoming bogged down in a research program and addressed itself to putting together a basis for environmental planning based on the existing state of knowledge. Surely, however, one of the important elements in the existing body of knowledge is the knowledge of the inadequacy of the body as a whole to serve as a base for coping with the enormous problems we face. In spite of accusations to the contrary, our environmental problems are not generally the product of deliberate mismanagement, but the results of inadequacies in our knowledge of the natural environmental systems of which we are a part, of the human systems which cause environmental problems and through which the problems may be controlled, of the interactions between these systems, and of the importance of natural qualities to our welfare. Among the most important planning needs are plans for filling critical gaps in understanding.

TCEP does include among its recommended policies for economic activities (p. 14): "20. Encourage research and development, both as an attractive economic activity and as a means of finding ways to improve Hawaii's quality of life". However, this reduces the rationale for encouraging re-

search as a direct generator of income to the State. Among the issues posed by these policies, TCEP merely asks (p. 20): "On a scale comparable to its promotion of tourism during the past decade, should the State initiate a massive program of public financing incentives to attract research and development industries to the State; or should it continue the current limited program on an ad hoc basis?", implying an overwhelming concern for research as a direct-income generator. And among the functions assigned to the governments of various levels, research is recognized by TCEP (p. 23) solely as a responsibility of the federal government.

Dozens of examples could be cited of inadequacies in environmental protection and of measures intended to be environmentally protective but counter-productive -- examples that stem from insufficient knowledge and that involve enormous economic waste and losses of environmental quality and resources. In many of these examples the differences between the tropical, oceanic environment of Hawaii and the temperate, continental environment of the 48 conterminous states are critical.

Although the research community does attempt with some success to capture funds from national sources for research pertinent to the peculiar needs of Hawaii, it is fundamentally irrational to put primary reliance on external sources of support for research on problems essentially restricted to Hawaii. The meager level of State support and its unreliability severely impede research efforts on local problems.

The economic strength of industries, especially if they are competitive, often rests on continuing research programs. Certainly this is true of Hawaii's major agricultural industries. But, more in Hawaii than elsewhere, the research needs of those industries has been privately supported. Results of that research are being put to use to develop foreign industries competitive with those in Hawaii. The State is, unfortunately, hampered in its attempts to offset the effects of this competition because it does not have access to the knowledge developed by the industries. It is, thus, captive to the industries in the same way the nation is to the oil industry in dealing with the oil crisis.

We have been a very present-oriented society. Research, education, and planning are about the only future-oriented activities in which we engage, and research is, somehow, not fashionable now. Political points may be made by insistance on action now, not further studies, as if these were mutually exclusive. It is regrettable that TCEP did not look beyond current fashion and political expediency, and to recognize that if we do not improve our understanding of what we attempt to manage, our efforts will be at least terribly wasteful and in many cases will have effects quite the reverse from what we want. A question the research community must ask itself is how the need could have been overlooked by such a Commission.

Future options

Although future uncertainties can be reduced by research, they cannot be eliminated. Hence a most important component of an appropriate environmental policy should be the policy of retaining flexibility--of leaving options open for the future.

The effects of the current energy crisis exemplify the need well. In a general way the crisis was predictable on the basis of research, and indeed was predicted, but the level of public credence in the predictions was low. Although the full severity and duration of the effects are still quite uncertain, they will obviously be serious. Their accomodation is already requiring adjustments that are hampered by technological and environmental limitations we have imposed on ourselves in the past; for example buildings requiring air conditioning; a transportation system dependent on automobiles and highways; and a pattern of population dispersal tending to maximize transportation needs.

An extremely high priority ought to be given to avoiding near-future exploitation and commitment of non-renewable resources and of options for use of renewable resources. If we recognize that some of our current environmental problems are strains resulting from commitments that we and our predecessors made in the past not foreseeing the present needs, we should surely recognize the need to retain options to meet unforeseen future needs.

RIGHT TO SUE

The TCEP report gives evidence that an expansion of the standing of citizens to bring suits in the courts over failures of public bodies and officials to carry out environmental laws and regulations received considerable discussion (p. 19). TCEP has recommended the passage of an environmental impact statement (EIS) bill that would provide a limited right to sue on the decision that an EIS is or is not required and on the acceptability of an EIS (Sec. 8, p. 72). In the broader context TCEP found itself able only to raise the question "Should legislation be enacted to authorize citizens to have standing in court to permit them to file suit in order to preserve environmental values and enforce pollution standards."

I think the right-to-sue provision proposed in the EIS bill is important, but I find myself in complete agreement with the comments of TCEP's consultant, Paul Ylvisaker (p. 3):

> Citizen standing to sue should be explicitly recognized and provided for. The final draft of the Report seems to me somewhat ambivalent on this score. I can understand why, because of the concern many people have that the doors will be too easily opened to frivolous and harassing actions. In expressing that concern, some statement should be made about the state of the art: what reasons there are to give or not to give a broad basis for standing to sue, drawn from emerging experience. What is happening in Michigan and the handful of other States which have given the right, seems to suggest that the fears of frivolous litigation and long delays may be overdrawn . (In Michigan, judges have deemed only two of approximately seventy-five actions dismissable on those grounds, and case settlements have averaged about 5-6 months.) Environmental actions can apparently be handled like common law nuisance cases, with judges given discretion to say what is frivolous and what is not. The alternative is to specify in law--and the problem in that is twofold: first, to clarify without crippling and confusing; and second, to clarify without placing the impecunious citizen at a disadvantage against a corporate entity with more resources and skill to fight a case on procedural grounds.

Our recent and continuing experience in Hawaii as well as nationally indicates that citizen environmental suits may involve very serious delays and costs in governmental action and in private actions requiring governmental sanction. The penalties associated with such harassment seem to me, however, to be outweighed by the penalties associated with proceeding with ill-considered actions.

If I understand the statement of belief expressed in TCEP discussions "that citizen suits should be limited to specific ordinances, rules, and regulations rather than broader policy measures, and that such specific measures should spell out the rights, as well as the limitations, for citizen suits," I am in agreement. In spite of the fact that the courts have influenced considerably the development of law, and done so usefully, it is the intent of

our governmental system that law should be determined legislatively. The role of the courts is primarily in the interpretation of regulations in the sense of laws, and even the interpretation of details in law in the sense of legislated policy and particularly constitutional provisions. To reduce the scope of possible interpretation (and misinterpretation) of policy legislation it is important that declarations of policy be as clear, comprehensive, and free from ambiguity and internal inconsistency as possible. Elsewhere I have discussed the environmental policy act and the constitutional amendment proposed by TCEP with these needs in mind.

CONSTITUTIONAL RECOGNITION

TCEP has asked the question: "Should the State of Hawaii and its counties be on record with a commitment to protect and enhance the environment through an environmental policy act or an environmental amendment to the State Constitution" (Overall Issue I, p. 19). It has answered its own question, however, in recommending both the passage of an Environmental Policy Act (1, p. 17) and the adoption of a constitutional amendment (11, p. 18). I agree completely with TCEP as to the desirability of a constitutional recognition of the importance of the environment, but I do not believe the particular amendment TCEP has proposed does justice to the need.

TCEP's proposal would incorporate as a new section in the Public Health and Welfare article of the constitution, the 1970 legislative findings already referred to several times in this review. This would add to the present provision in Sec. 5 of that same article that "The State shall have power to conserve and develop its natural beauty, objects and places of historic or cultural interest, sightliness and physical good order, and for that purpose private property shall be subject to reasonable regulation," and to the provision in the Conservation and Development of Resources article that: "The legislature shall promote the conservation, development, and utilization of agricultural resources, and fish, mineral, forest, water, game and other natural resources." The addition would thus strengthen the Constitutional recognition of environmental importance. It would not, however, recognize what I think is important, that we each have a right to the enjoyment of environmental quality, a right correlative with the rights of others, as is the case of all of our basic rights.

The legislature has in the past considered other possible environmental amendments to the Constitution, a few other states have adopted such amendments, and an amendment to the federal Constitution was proposed in 1968. The amendment proposed in HB 91 (1971) and part of the Illinois amendment are phrased in terms of a policy of environmental protection. That proposed in SB 429 (1971), HB 837 (1971), SB 302 (1971), SB 302, SD 1 (1972), and in the proposed Federal amendment were phrased in terms of rights to certain specific aspects of environmental quality. Some of these proposals would have allowed for abridgement by legislative act which would vitiate their value as constitutional provisions. Others would have presented the rights as unlimited although no human right is really unlimited. None were comprehensive or balanced in their coverage of environmental aspects.

I have suggested that the proper place for the constituional recognition of environmental importance is in the Bill of Rights of our Constitution. Specifically, I have proposed that Sec. 2 of Article 1 of the Constitution be amended to read:

> All persons are free by nature and are equal in their inherent and inalienable rights. Among these rights are the enjoyment of life, liberty, and the pursuit of happiness, the enjoyment of their natural environment and of evidences of their cultural heritage, and the acquiring and possessing of property. These rights cannot endure unless the people recognize their corresponding obligations and responsibilities.

(The underlined phrase is the proposed addition.)

My purposes in proposing that the environmental provision be incorporated in the Bill of Rights is to recognize: a) that the importance of environmental quality is all-pervasive and not restricted to health or to natural resources, b) that in many respects environmental quality is a vital need and hence access to such quality is a right. My reference simply to the "enjoyment of their natural environment" is to avoid the unbalance and incompleteness of the lists of natural environmental elements in the various bills that have hitherto been considered. My intent in reference to "evidence of their cultural heritage" is to include historical traditional aspects of our man-made environment. And my intent overall is to consider environmental rights as limited in their individual applicability in the same way as other basic rights. It is with increased conviction that I again make this proposal.

IMPLEMENTATION

The general discussion and elucidation of man's relation to his environment and of environmental problems that TCEP has provided is of great importance because they will form the basis for formulating and undertaking actions extending into the future. TCEP's own recommendations for immediate actions, must, however, be reviewed as the most concrete of its products. These deserve review both as to their responsiveness to the charge to the Commission and on their own merits.

The first of the "Implementing Recommendations" (p. 17) could be considered in itself to represent the necessary response to TCEP's charge, but surely no commission whose charge has so many ramifications should be criticized for investigating some of the ramifications, and TCEP should be commended for recommending actions beyond the strictly defined scope of its charge.

The comments below are addressed individually to the first six implementing recommendations, which concern specific acts or resolutions drafted by TECP, and then to the group of the next four implementing recommendations, which are not so specific. The topic of the last implementing recommendation, a constitutional amendment, has already been discussed.

Bill for Environmental Policy Act

The drafting of the bill for this Act and the recommendation that the Act be passed are responsive to the charge in the resolution under which TCEP was established "to provide policy guidance for State General Planning." It should be noted that it was surely beyond the legislature's intent and certainly beyond TCEP's capacity to provide the guidance "by incorporating into State and County plans" any specific policy statements as in accordance with the language of the resolution. Such incorporation can be accomplished only by the Legislature and county councils.

The policy language of the Act is reflective of and to a considerable extent identical to language in the text of TCEP's report. Many of my comments elsewhere on lack of comprehensiveness, ambiguity, and inadequate reconciliation of the proclaimed goals and policies with a fundamental objective, will be seen to be pertinent to the policy section of the proposed bill. I must comment, further, that the policy provisions of the bill simply do not read like components of legislation.

The several subsections of Section 5 which would mandate government agencies to review their policies and practices in the light of established environmental policy are appropriate and necessary, with the possible exception of the subsection dealing with the Environmental Council, which I will discuss in relation to recommendation 3.

In Appendix II I have correlated the various sections of the bill with discussions in this review.

Recognizing the difficulty of preparing at this late date a substitute for consideration by the 1974 Legislature that would provide necessary policy guidance I find myself in a quandary whether to recommend that the TCEP-recommended act be passed, believing that it will prove unsatisfactory, or not passed, believing that the failure to enact environmental policy this year would be a serious setback to environmental consideration of environmental aims in overall state policy and planning.

Resolution on conformity of federal actions

It is highly appropriate to request that federal agencies acting in Hawaii bring their actions into conformity with State policy, and wise to do so at the legislative level.

Bill on environmental monitoring

Environmental monitoring is, of course, conducted by a number of agencies. The Department of Health monitors water quality, the Department of Land and Natural Resources monitors water flows, etc. What TCEP has in mind is obviously a broader kind of monitoring that would include use of the results of these more detailed kinds of monitoring but evaluate them in terms of broad policy.

The Environmental Council is well constituted to play a very valuable role in such evaluation, but I question whether the Council is the appropriate body to undertake the prime responsibility for the monitoring system. The Council does not have a staff except as staff services may be made available to them from the Office of Environmental Quality Control and I wonder whether the prime responsibility should not be given to the OEQC, recognizing that the advisory services of the Council are available to it.

Resolution on consideration by the Commission on Operations, Revenues and Expenditures

As I have commented elsewhere, it is essential that fiscal and environmental policies of the state be brought into conformity, and the request to the Ad Hoc Commission on Operations, Revenues, and Expenditures to identify conforming modifications in the tax structure seems quite appropriate.

Bill on Planning Council

A defect in the first public draft of the TCEP report was the implicit assumption that the critical need for coordination of planning horizontally among state agencies and vertically between the state and its counties would be met by TCEP itself. This need is a continuing one that no temporary commission could ever meet. The establishment of some kind of continuing council to coordinate planning seems a necessary action.

Bill on environmental impact statements

The purposes of environmental impact assessment have been well outlined by TCEP. The transferal of the present limited environmental impact statement system of the state to a base in law and its extension are desirable. The bill proposed by TCEP is the best among the many proposed that I have reviewed, and I have been privileged to be involved by the Office of

Environmental Quality Control in its further improvement.

I will comment on details of the bill in Appendix III.

Other implementing recommendations

Plans ought never to be considered final. Even planning legislation cannot be expected to continue to be appropriate. TCEP has merely pointed out the need for update of planning legislation. It should presumably be a function of present planning bodies and of the proposed Planning Council to formulate the means by which the need will be met.

Discussion elsewhere in this review is pertinent to the recommendations concerning tax and land policies, the concepts of carrying capacity and overload, and the proposed constitutional amendment.

CONCLUSIONS

To summarize, I shall return to the four sets of questions I posed in the introduction.

Unquestionably, TCEP has responded positively to all of the questions in the first set pertaining directly to its change. It has:

a) Provided guidance to the comprehensive planning processes of the state with particular regard to environmental aspects.

b) Developed a statement of general environmental policy that might perhaps be enacted into law.

c) Proposed a number of detailed policy statements that could be incorporated into state and county plans; and

d) Recommended assignments of responsibility for implementing the policies it recommends.

The answers to the second set of more subjective but ultimately more important questions, it seems to me, must be less uniformly positive:

e) TCEP has clearly discerned the basic nature of the man-environment system. It devoted considerable effort to the elucidation of this system, but whether the results are adequate is open to question.

f) Although TCEP identified two basic environmental goals or aims, they must be interpreted in terms of a more fundamental objective that TCEP did not make explicit.

g) The overall policy guidance which TCEP has provided is in general valid , but needs to be interpreted in terms of the fundamental objective.

h) The specific policies TCEP has recommended do not provide specific guidance in resolving a number of important current conflicts.

i) TCEP does not seem to have identified explicitly the tradeoffs involved in some present issues.

j) Important issues, for example those in pollution control, have been omitted or inadequately covered by TCEP.

k) TCEP has recommended a mechanism for carrying forward the coordination of planning activities in its proposal for a State Planning Council, the need for which was one of the principal

reasons for TCEP's establishment. In its recommendation that the Environmental Council undertake the responsibility for monitoring the effects of environmental TCEP has met another need related to the future. TCEP has further recognized the needs for environmental education.

l) TCEP's identification of functions that need to be performed is reasonably complete with one important exception, the research function needed to provide better the means to meet future Hawaiian environmental issues.

m) TCEP's proposed assignments of responsibility for these needed functions are generally appropriate with the exceptions. (i) TCEP recognized research as a responsibility of the federal government alone. Provision must be made locally, for the support and conduct of research pertinent to Hawaii's environment. (ii) TCEP also did not appraise adequately the advantages of public involvement in decision making as these could be assigned indirectly to the courts through enlargement of the right to sue.

To a third set of questions, those that will be objectively answerable only after the legislature has responded to the TCEP report, I can here only provide personal reactions:

n) TCEP was clearly and thoroughly responsive to community concerns.

o) Although I find flaws in the presentation of the rationale for several recommendations, I find the presentation sufficient to convince me that the needs intended to be met by its recommendations should be met.

p) Most of the major implementing recommendations are sufficiently lucid, specific, and precise, or have subsequently been amended sufficiently to warrant their adoption by the legislature. Specifically, its recommendation dealing with environmental monitoring, the proposed State Planning Council, consideration by the Commission on Operations, Revenues, and Expenditures, and the conformance of federal actions are substantially valid, though I have questioned whether the Environmental Council is the appropriate body to be charged with the monitoring responsibility. Technical defects in the Environmental Impact Statement bill, recommended by TCEP, are, I believe, being remedied. The Environmental Policy Act proposed by TCEP is, however, undesirably wordy, diffuse, unbalanced, and incomplete, and I am doubtful it should be passed unless it is considerably abbreviated, simplified, and made more definitive in its basic aims and more balanced in the general policies it would proclaim. The constitutional amendment proposed might be helpful, but does not recognize adequately the fundamental nature of environment needs and hence right to environmental quality.

Finally, with respect to the last two questions:

q) TCEP could not have been expected to produce a report that would have been both more comprehensive and more definitive considering the limitation of time and resources.

r) Through its internal deliberations, which included key persons involved in planning, through the meetings based on the first public draft of its report, and through the already large number of seminars, hearings, public meetings, and informal discussions engendered by its efforts and its report, TCEP has undoubtedly contributed substantially to the development and furtherance of appropriate environmental policy and comprehensive planning for Hawaii.

TCEP Review: D. C. Cox

APPENDIX I

DETAILED COMMENTS ON THE BODY OF THE TCEP REPORT

These detailed comments on the body of the TCEP report were prepared before I prepared the general review. I have made only a superficial attempt to eliminate points that have been discussed adequately in the general review. I trust that there are no serious conflicts between the comments here and those in the general review.

I. INTRODUCTION

Except as to factual mistakes, of which I have found none, I would not feel qualified to comment on the introduction to the Introduction of TCEP's report. To the recommendations that are summarized in the Introduction, my comments on the expanded versions appearing late in the report are pertinent. On the question of the right to sue and other key issues, I will also have comments later, related to the sections of the report to which they are pertinent.

II. PROPOSED ENVIRONMENTAL POLICIES

Basic Assumptions for Hawaii's Environment (p. 7).

With the basic assumptions TCEP makes and recommends for general acceptance, little objection can be taken in principle. In some respects, however, the language used in ther report is less precise than might be possible, even in dealing with general concepts. For example:

p. 7, c.1, P.3, item 3. Presumably what is meant by man's capacity to enhance the environment is his capacity to modify it to suit his own needs.

Such modification cannot be considered to "reduce the strain on the environmental balance." In relation to natural environmental balances, the changes must always contribute increased strains. Man does, however, have the capacity to minimize the unnatural strains he causes on natural environmental balances.

p. 7, c.2, P.1, item 7. The statement "Man must seek to attain a balance with the environment so as to optimize both the quality of his life and the quality of the environment" may not be incorrect but is clearly inexact. It is impossible to maximize two things simultaneously unless they are directly correlated with each other. If "quality of the environment" were to be determined in terms of natural characteristics, the highest quality environment could be obtained only if man were to eliminate himself and the environmental strains he induces. Actually, what is probably meant is environmental quality in terms of human well-being, and preferably in terms of overall, long-term human well-being. In this sense, the optimal quality of the environment is, as a first approximation, that which is associated with the optimum quality of life. The consideration of the time-dependent effects (capacities, lags, the fact that man "cannot continue to take indefinitely from the natural environment beyond the assimilative capacity of the natural environment to regenerate itself" (the restorative capacity of the natural environment)) indicates that the future consequences of present actions must be of concern and hence that a long-term qualification must be introduced in the optimum qualification. Further, the optimization ought not to be in terms of a few persons--an elite--but people in general. Hence, optimization in terms of overall, long-term human welfare seems appropriate.

p. 7, c.2, P.4. The final assumptions deal with the social rather than the physical environment. These environments interact, hence the discussion is appropriate. I believe that the "Aloha Spirit" exists and is important. I believe that it is fragile; and I am afraid it has been weakening. I believe that it may stem in part from qualities in the natural environment, but I suspect its cultural roots are more important. I believe that our perceptions of and attitudes toward our natural environment are shaped in part toward consistency with "Aloha Spirit" perceptions and attitudes toward our social environment. Hence, subjectively I am very pleased that TCEP has included this discussion.

p. 8, c.1, P.1. A question must be raised as to the final assumption that the interests of residents should take precedence over those of non-residents. It seems appropriate that state policy should place the interests of state residents over those of visitors to the state, but it is doubtful that the interests of the residents of particular neighborhood should always take precedence over those of residents of other neighborhoods in the state.

III. THE DANGER OF OVERLOAD (p. 8)

TCEP regards the concept of "overload" as the "key which will lead to a balance between man and nature and resolve conflicts between the man-made and natural environments." "Overloads" are defined as exceedences of the "carrying capacity of the environment," but there is some confusion between carrying capacity as the maximum population that can be sustained with a certain technology or as the population that would be optimum (from the standpoint of that population) with that technology. I do not believe that it is true that we "in some cases have exceeded the limits of the environment's ability to support human activities at present levels of technology" (p. 8, C.2, P.2). No one in Hawaii is freezing, and if any are starving it is from a misapplication of technology, not from the limits of environmental resources. It is possible that the present population cannot indefinitely be sustained by present technology in the light of decreasing natural resources on a world-wide scale, but if this is true, then the exceedence is not limited to just "some cases" in Hawaii but to the whole population. It may very well be true, however, that the optimum population has been exceeded in some areas, and from discussions with some of the TCEP members, I assume that is is the optimum rather than the maximum that is meant by "carrying capacity" and that is intended as the base for determination of "overload." This assumption is critical to the validity of much of my critique.

Indicators

The above assumption should be testable by reference to the possible indicators of overload presented as graphs (pp. 9-12). There can be no doubt now that motor vehicles (p. 9) contribute significantly to environmental degradation, both directly and indirectly, and hence are detrimental in terms of human welfare. However, motor vehicles also contribute positively to human welfare through both broadened employment opportunities and decreased commuting time and broadened recreational opportunities. Because vehicles both add to and detract from human welfare, their raw numbers cannot be considered indices of berefit or detriment, and, though there may be some target number for the state, whether an optimum or a maximum, is only excesses over that number that can be indices of overload. No target has been identified.

Carrying capacity presumably has the dimensions of population or population density, but a population indicator of overload would have to be in the form of a difference or a ratio between the actual population and a target population and not the raw population (p. 10). No target population is identified, and it is not indicated whether the target would be the maximum sustainable number or density optimum sustainable number or density.

Visitors are a significant source of economic income to Oahu, and mere numbers do not indicate the total income from the visitor industry, which is influenced by length of stay and per capita rate of expenditure. Other things being equal, the more visitors (p. 10), the greater will be the income, the higher the resident carrying capacity of the island, and

the smaller the overload represented by any particular level of resident population. Other things do not remain equal, of course, with increasing numbers of visitors; and there probably is an optimum range. Excesses over that range do represent overloads, but again there is no indication of the norm.

Water usage is clearly beneficial, otherwise we would not use water, and our present water supplies are drawn almost entirely renewable sources. We do need to be concerned, however, about overall usage on Oahu (p. 11) because it may exceed the safe yield of present types of sources on the island or because the usage implies a usage of energy from non-renewable sources for pumping. The present usage does not exceed the safe yield, hence does not represent an overload, except perhaps in energy terms. A future ratio greater than one, of usage to safe yield of present sources, might be regarded as an indicator of overload, because greater than that of developing water from other sources is likely to be considerably geater than that of developing the water from the present sources, but a more direct indicator would be the average unit cost of the water.

We habitually consider waste disposal as bad, but that in essence it is beneficial may readily be seen if we ask ourselves what would happen if the disposal were to stop. It is not the daily loads of refuse that are generated that is significant to overload, but the consequences of this waste disposal. From some agricultural waste we generate power. Are these included in the Oahu refuse loads (p. 11)? If so should this disposal not be considered beneficial on a second count? Neither means of disposal, nor maximal or optimal rates have been identified by TCEP.

I assume that social welfare costs to the public are equivalent to social welfare benefits to welfare recipients. If the graphs of such costs, in total or per capita (p. 12), had been labeled benefits, would they have been considered indicators of overload? The system we designate euphementically as the "social welfare" system makes it possible to sustain a large population than would be sustainable without the system. Hence increased costs and benefits of the system increase maximum carrying capacity and cannot be considered overloads beyond that maximum capacity. This system sustains people in ways that are unproductive and unrewarding. It does not, therefore, increase the optimum population, if optimization is to be judged in terms of the genuine welfare of all the people. If there had been evidence of considerable logic in the selection of other parameters graphed as overload indicators, the inclusion of this indicator would indicate that it is an optimum not a maximum population from which overload is to be measured. Even though the logic is shakey, the per capita costs of our "social welfare" system are perhaps the best indicator of overload that is presented. A number of adjustments would, however, be appropriate, the most mechnical of them a reduction to constant-value dollars.

IV. GOALS

The goals identified by TCEP (p. 13) are appropriate in principle but in some cases phrased ambiguously. For example, in the first part of goal B, what meaning has mutual benefit to the population and the environment? What is beneficial to people is determinable by people. Who determines what is beneficial to the environment? If environmental benefits were defined in terms of environmental naturalism, then mutual benefit to the environment and people would be internally contradictory. Isn't what is meant simply the long-term, overall benefit of the population?

In the second part of goal B, is it necessarily true that people in general should be able to improve the quality of their lives economically as distinct from being able to maintain this quality? Are not more qualities desirable in economic activities than just "stability" and "balance"? How about dignity and self-satisfaction? What is meant by "in balance with the physical and social environments.: So far as the physical environment is concerned, it will automatically tend to seek a balance with whatever human technological activities are in progress. The balance may not be to our liking however.

V. POLICIES

Population (p. 13).

1. The recognition that population is a major determinant of environmental degradation is vitally important. The alleviation of the deleterious environmental impact of population is an appropriate criterion on the evaluation of strategies that might be adopted. The total prevention of future degradation in all environmental aspects and all geographic areas is, however, not an appropriate cirterion. Optimum environmental quality management will undoubtedly entail the permission of some local degradation in some aspects to achieve greater benefits elsewhere, in other aspects, or both.

2. The determination of optimum population levels for districts, islands, counties, and the State as a whole is undoubtedly an objective of enormous importance, but one of those objectives best expressed as an aim rather than a goal because it can never be achieved. The search for criteria pertinent to this determination is absolutely necessary, but it should be regarded as a continuous search rather than a final development. The recognition that the optimum and the criteria for its determination will change with technology and other circumstances is entirely appropriate. That the

optimum population is subject to change does not indicate that the adoption of strategies to limit population to whatever optima are established as trials is unwise.

Conservation (pp. 13-14).

3. The conservation all natural resources is a vital aim.

4. Efficiency in the use of non-renewable resources is imperative, and the special importance of efficiency in the use of fossil fuels has become apparent as a result of the present energy crisis, which is but a short-term episode in a very serious long-term problem. The requirement that the use be economically feasible seems gratuitous. The requirement that the use be balanced is meaningless--there can be no balanced use of a non-renewable resource. The thorough investigation of energy sources naturally available in Hawaii is highly important, but their actual development ought not to be recommended until the benefits and costs (total, not just economic) can be determined.

5. The emphasis on the esthetic aspects of environmental conservation is especially important in Hawaii.

6. Recognition of the importance of recreation is important.

7. In Hawaii the special consideration of shorelines is appropriate, but it would have been even more appropriate if the consideration had been referred to the coastal zone.

8. Promotion of the conservation of water is important, but in urging full utilization of water resources it must be recognized that some of the most appropriate uses of water are esthetic and recreational uses that are not consumptive.

9. The promotion of recycling of waste waters and solid wastes is a general policy that fits in current dogma, but to be sensible the practice must be selective. Many recycling practices that are technically feasible would be environmentally and economically detrimental, requiring undue commitments of materials, energy, and human effort.

10. & 11. Conservation of natural resources in general, is of vital importance. The balance between the preservation aspect and the utilization aspect of conservation will vary with the resource and the location. The separation of policy 10 dealing with conservation generally from policy 11 stressing preservation gives no clue how to distinguish what should be "protected watersheds " from other watersheds, what should be "wildlife [and] unique ecological preserves" from other forest and open space areas, or how to identify appropriate marine preserves.

12. The special concern with introduced species of plants and animals is appropriate. The protection of rare and endangered species is, however, inseparable from the protection of the ecosystems of which they are a part which is called for in 11.

Economic Activities.

13. The degree of encouragement to industries should be significantly related to the extent to which they are environmentally non-degrading. However, no industry is without environmentally deleterious effects. What should be sought is the minimization of degradation to an extent compatible with maximum overall, long-term human well being.

14. In particular the total prohibition of new industries that might require variances from some present environmental standards would be absurd. Standards are a necessary administrative device providing a general basis for environmental quality control when the merits of case-by-case establishment of tolerance limits would be infeasible. Even with the best considered standards, provision for variances, not in the sense of immunity from limits but the establishment of special limits, is sensible. Provision for and wise use of variances is especially important when the standards have been established on such poor levels of understanding of background levels, current levels, current trends, and health and ecological consequences as is the case with many of Hawaii's standards. I am not advocating relaxation of the environmental quality control effort. I am advocating the conduct of this effort in a way that is humanistically optimal.

15. Public efforts to support agricultural industries are fully justified by the public benefits derived from the open space these industries preserve, benefits which are distinguished from and add to the private benefits to those engaged in these industries. There is ample evidence that public support is needed, and that public policies that encourage urbanization of agricultural areas should be changed.

16. The restriction of hotel-resort complexes to designated areas is supposedly accomplished already by county zoning. It is not clear whether TCEP wishes even greater restriction than that provided in the county zoning, more rigid adherence to this zoning by the counties, a measure of state control over the administering of the county zoning, or the imposition of additional restrictions by the state. Supposedly all hotel-resort developments must already comply with state and federal environmental standards. Does TCEP have in mind additional standards applicable especially to the resort industry? If so, the comments on 17 may be applicable.

17. By design controls, TCEP probably means esthetic aspects of design controls, because the control of foundation, structural, electrical, and plumbing design from the standpoints of public health and safety are already accomplished throughvarious ordinances. Any discussion of esthetic aspects must inescapably involve subjective value judgments on which there is a wide range of individual opinion. I recognize, that the judgments made here are individual ones, expressed solely for the purpose for example.

There seems to me amply evidence that better esthetic design control over visitor destination areas will be possible. There are in the Islands examples of resort hotels admirably designed to fit into the landscape such as the Sheraton-Maui, but also examples of resort hotels that dwarf the once attractive locallandscape features the Kauai Surf does to the little Kalapaki

valley, or create an easily avoidable blotch on the landscape as seen from the distance, as does the Hanalei Plantation.

In other parts of the world, esthetic design controls have successfully been established and administered. However, little confidence can be placed in the establishment and administration of such controls by an agency that itself violates good taste. The State has no better record in the control of esthetics in its construction activities than the hotel-resort industry. There are examples of pleasing and fitting architecture, such as the state capitol, but there are also examples of buildings that are not only esthetically forbidding but inefficient and even inadequate to provide shelter from the elements, as may be found on the University campus. Who then is to maintain the design controls over visitor destination areas that TCEP recommends?

18. & 19. See comments on 13 and 14.

20. The "R and D" industries have, in general, minimal environmental detriments and hence should be especially attractive. The peripheral mention that research may provide means "to improve Hawaii's quality of life" is the sole recognition in the TCEP report of the great importance of research in environmental planning and management.

Community Environment (p. 14).

21. The need for vertical integration of planning between the counties and the State, together with the need for horizontal integration of planning among agencies, was what led to the establishment of TCEP. As could have been anticipated, the needs have only begun to have been met through TCEP's brief activites. The need to maintain integration remains.

22. Life in any community is enriched by its accommodation of a variety of sub-cultures or life styles, and the enrichment in Hawaii has been particularly great. I suspect that there is a limit to the variety that can be accommodate, and I suspect that pressures on sub-cultures that vary most from the major culture are to a certain extent inevitable. There seems to me a greater danger from a simple dichotomy of cultures, as in Ireland and Israel, but this danger does not seem particularly great in Hawaii. I am not sure that the deliberate fostering of a variety of life styles by the State is appropriate, but the solicitous safeguarding of life styles spontaneously developed, within the limits tolerable by a society, and a deliberate attempt to increase the tolerance of the society, are appropriate and desirable.

23. A sense of identity is essential to the very concept of a community. Harmony with the environment is an essential. The fostering of both identify and harmony by providing internal opportunities for shopping, employment, education, and recreation is an important desideration that has been overlooked in some past planning.

24. The policy of providing suitable housing for all families is appropriate.

25, 26, & 27. Greater emphasis on the esthetic aspects of community development is appropriate.

28. Reduction of noise and littering are highly important. However, it would be undesirable to try to stop all noise because what is noise to some is esthetically pleasing sound or an important means of communication to others. Stopping all littering would be impossible. I am not sure that the concepts are either clarified or made more forceful by terming them pollution in the jargon of the day.

29-33. The significance of transportation in environmental quality control is very great, and stress is appropriately placed on alternatives to the present transportation system with its predominant reliance on automobiles. So long as we are forced to rely on automobiles, stress on the controls of their emissions is important.

The Individaul (p. 15).

34. The basis of environmental management on ethical concepts is often overlooked, and TCEP should be commended for its recognition of the importance of an environmental ethic. It should also be commended for recognizing that an ethic is an individual matter, and that the state ought not to try to do more than encourage the development of an appropriate ethic.

35. & 36. The importance of all sorts of education to planning in general, including environmental planning, cannot be overstressed. Both formal and informal education are essential, as are both general education and technical and professional education.

37. There is particular need for extensive and intimate citizen participation in any planning processes in which the value are so subject to change as they are clearly with respect to environmental quality.

IV. IMPLEMENTING RECOMMENDATIONS

TCEP properly recognizes that the responsibility for proper environmental management is distributed among the legislative and executive branches of the government, and private sector of commerce and industry, and individuals and their families. The roles of the judiciary and of community and other associations might have been recognized also. Comments on the specific enumerated recommendations follow:

1. The enactment of a general environmental policy act is, I believe, entirely appropriate. The early adoption of a strong statewide environmental policy was recognized as necessary by the Legislature in SCR 14, HD 1, 1973. The appropriateness of the specific act proposed by TCEP for enactment depends upon the provisions of the proposed act, which will be discussed elsewhere.

2. The request to Federal agencies to conform to state policy in their action affecting Hawaii is, of course, appropriate.

3. The Environmental Council already has general advisory responsibilities with respect to environmental management. Making these responsibilities more specific or adding to them additional consistent responsibilities is clearly appropriate. The specific responsibilities recommended by TCEP will be discussed in the commentary on the act proposed by TCEP to mandate the Council's undertaking these responsibilities.

4. When an environmental policy act is enacted, it will be encumbent upon all arms of the government to implement the policy provisions it expresses. The principal advantage of the proposed resolution addressed to the Ad Hoc Commission on Operations, Revenues, and Expenditures may be simply that of the special recognition by TCEP of the important functions of the Commission with respect to the implications of its report.

5. A defect in the first public draft of the TCEP report was the implicit assumption that all needs for the coordination of planning had been met by TCEP and that no continuing body equivalent to TCEP itself would be needed. The creation of a permanent State Planning Council seems a highly desirable action, if not indeed an essential one.

6. Experience with the federal environmental impact assessment system and with the present limited state system indicates the high desirability of a legislative mandated state system of greater extent.

a. Regulations will be required for the appropriate operation of such a system.

b. Widespread public review and a recognized public standing to sue to assure that the legislative and regulatory provisions are met are important elements of such a system.

c. The placement of final authority over the acceptance of environmental impact assessments with the governor in certain cases and with county mayors in other cases may be appropriate, although the relationship between the authority of these executives and that of the Director of Environmental Quality Control needs examination. The placement of authority in certain cases with the chairmen of boards and commissions would be inconsistent with the draft bill suggested by TCEP, which would give the authority in these cases to the full boards and commissions.

d. It is, of course, essential that environmental impacts should be judged in the light of officially expressed environmental policy.

7. State planning legislation can surely be improved. Specifically;

a. Closer State and County coordination is needed.

b. A State general plan is needed, and since no general plan can ever be expected to be final, provisions are needed for its periodic revision.

c. The provision of consistent definitions of commonly-used planning terms would be very useful. To avoid confusion the technical definitions should be so far as possible consistent with ordinary usage.

d. Deletion of outmoded provisions should be a part of any revision process.

e. Increased citizen participation in planning is highly important.

8. All government programs should be consistent with the State's environmental policy. It is especially important that taxation and land-use programs be brought into conformity with environmental policy.

9. The significance of the recommendation that criteria be developed for determining the carrying capacity of the Islands depends whether carrying capacity is used in the ecological sense of the naturally limited population, in the livestock industrial sense of the naturally limited population, in the livestock industrial sense of the maximum technologically-determined carrying capacity, or in the special sense of the optimum carrying capacity. Criteria to determine carrying capacity in the first two senses have some significance as they may establish upper and lower limits between which the optimum carrying capacity must lie, but the important criteria are those that relate determining the optimum carrying capacity on the basis of natural resources, technological capacilities, human needs and human values. It is unfortunate, though expectable in the light of the short term of TCEP's efforts, the TCEP was unable to identify in greater detail the nature of such criteria, and to propose the framework for a program for their development ready for legislative adoption. Under the circumstance, it is appropriate that TCEP simply recognize the need and call on the governor to initiate the beginning part of what will must be a very long term program, indeed one which ought not to be considered to have an end.

With respect to the few specifies TCEP has identified:

a. The monitoring of the production and consumption of natural resources, distinguishing between those renewable and those non-renewable, is an essential. Certain aspects of this monitoring are in progress, but they are very incomplete.

b. The identification of undeveloped capacity to increase the yield of renewable resources also is in progress, but needs to be extended. However, coupled with this identification should be the analysis of the impacts that would result from the increased yield.

c. It seems quite unlikely that the optimum carrying capacity could possibly be one that is self-sufficient in the sense of relying purely on

internal resources. Hawaii once had a self-sufficient technology, and it might well be profitable to investigate further whether the population based on this pre-Cook Polynesian technology, believed to have reached 2 or 3 hundred thousand, had attained equilibrium, and hence the practices of population limitation that were part of that technology had the effect of maintaining population at an optimum considering other aspects of that technology. However, it seems quite improbable that a return to the Polynesian technology would now be feasible and, in any case the post-Cook exploitation of Hawaii' resources and the importations of pests would now render that technology incapable of sustaining the same population. Some other self-sustaining technology might perhaps be considered, one that included a limited use of ceramics and of iron and other metals produced from Hawaiian natural resources through the use of forest and agricultural fuels. It seems to me quite unlikely, however, that such a technology could sustain anything like the present population of the Islands, and quite impossible for the population of Oahu.

The vulnerability of our present technology would perhaps best be illustrated by reference or our enormous Hawaiian energy imbalance. In spite of this vulnerability, I see no reason for assuming that the best life of the people of Hawaii will not continue to involve trade with the rest of the world although we may wish to control this trade much more than we have to date. If our interest is in a carrying capacity determined by a technology which allows, facilitates, and is dependent upon imports and exports, then we need to be concerned with world-wide technological developments, world natural resources, world capacities for waste assimilation, not just internal economic and resource balances but also external balances, and world politics.

d. The optimum carrying capacity for the Islands as a group must necessarily be constituted by the sum of the optimum capacities for each county, island, and district, but the capacities of all of the parts of the islands are interrelated, just as is the optimum capacity of the State to that of the rest of the world. The relation of these separate or total capacities to present pollution control standards has little significance, however, because the present standards are so poorly based on natural pollutant levels, the effects of human population and technology on these levels, the relationship between the pollutants and human health,the biota of human significance, and human esthetic and ethical values.

e. Human needs for open space, mobility, etc. are of course, vitally important. The optimum carrying capacity must, however, recognize human desires beyond needs.

f.i.) Hawaii's environment does indeed contribute to the "Aloha Spirit." Further the Aloha Spirit also affects our attitudes toward the environment. Concerning the varied lifestyles, see comments on Implementing Recommendation 22.

f.ii.) As recognized elsewhere, a technology is surely developable that is more conservation oriented than the present technology is surely developable. No technology can be considered to prevent environmental unbalances. Ecological processes tend always to create a balance, but our concern should be that the balance is more favorable to long term human intersts.

g. That the optimum carrying capacity must be regarded as dynamic, for the reasons stated, is a very important concept.

10. Defined as excesses beyond carrying capacity, overloads and means for determing them depend for their significance on the definition of carrying capacity. I assume that the carrying capacities of interest are optimum not maximum capacities.

The concept that, in areas or systems overloaded or approaching overload the burden should be placed on the proposer of any development to prove that the development will not create an overload or aggravate an existing overload, is an entirely appropriate one. It is a concept that is already adopted in law, with respect, for example, to groundwater supplies. The only question as to its proper broader applicability is the question whether we can adequately define carrying capacities or overloads in the broader sense. A strong argument can be made that we should develop criteria for carrying capacity and overload first, and then decide whether our confidence in their validity is adequate. In the meantime, there is every reason to proceed with the TCEP proposals for a system to assess the environmental impacts of development proposals before the proposals receive necessary governmental approvals.

11. The importance of the environment to us and the hazards posed in this environment are surely sufficient to warrant their constitutional recognition. There can be no doubt that certain environmental qualities are necessary to our survival. The only possible reason for the failure of our constitution to recognize this is that seriousness of the hazards were not apparent when the Constitution was drafted. I want to raise some questions, however, about the form of consitutional recognition that is appropriate, and hence the placement of the recognization in the Constitution. The matter of adoption of an environmental amendment of the Constitution and these questions are of such importance that I have provided in the body of my report a fuller discussion of them leading to the conclusion that the proper place for the constitutional recognition of environmental importance is in the Bill of Rights.

Priorities.

I agree with TCEP that a more definitive statement of environmental policy than is at present recognized in law is highly desirable. In the finding of the Environmental Quality Control Act of 1970 (HRS Chapter 341, Sec. 1) there is already, however, a policy statement of such importance that TCEP has proposed its elevation to the Constitution (In Implementing Recommendation 10). I do not regard it as sufficient in the long run because it is not broad enough, and for that reason do not think it worth constitutional elevation if the alternative just discussed can be adopted. However, it might perhaps provide a basis for the rest of the TCEP proposals for a time if it is taken at face value as applicable to all state actions, and not just to those of the Office of Environmental Quality Control that was created by that same 1970 Act.

Suggested Draft Bills.

I discuss elsewhere each of the draft bills suggested by TCEP.

Citizen's Standing to Sue.

The appropriate extent to which citizens should have standing to bring suit in the courts on environmental issues is of such importance, that I have discussed it at length elsewhere.

VII. ISSUES FOR DECISION MAKERS

I attempt here to provide personal answers to the questions TCEP raises or to refer to other parts of the critique where the questions are discussed.

Overall Issues.

I. A general environmental policy act should be passed and the constitution should be amended to reflect the importance of the environment to man.

II. If a general growth limiting policy is not adopted now, criteria by which to set such a policy in the future should surely be sought. Serious inadequacies in public facilities are surely a proper basis for considering the limitation of population growth.

III. & IV. There should surely be coordination among the various planning processes and they should surely be conducted in an open manner.

V. The concepts of carrying capacity and overload are discussed elsewhere.

VI. A reallocation of financial resources is surely needed in the light of the recognition of the importance of environmental concerns.

Issues Posed by Goals and Policies.

A.1. Hawaii should have no more than its constitutional share in the determination of policies on immigration to the nation. Effective modification of Federal policies on movement of citizens among the states would seem very difficult, but perhaps not inconceivable. There are now Federal policies that indirectly but materially control freedom of movement, for example those pertaining to national parks and wilderness preserves. Certainly such indirect controls such as those of zoning and those induced by high costs of living must receive substantial attention.

A.2. I see no reason to aim toward equal populations or equal population densities for all the islands. The maximum carrying capacities of the various islands are already different, and an optimum distribution seems clearly not a uniform one.

A.3. When means can be identified for limiting population there might be some merit to establishing a trial population ceiling even on the basis of present understanding, if the effects of this were to curb growth trends but not to force net emigration.

A.4. A higher priority than is accorded to any of the above possible policies to restrict population growth ought to go to altering any present policies that tend to stimulate population increase.

B.1. In deciding whether all potential shorelines recreational areas should be open to the public, the social advantages of mixing visitors with residents and the public needs for recreational space must be balanced against economic advantages of catering to visitor tastes for isolation. Short of total exclusion of the public from certain areas there are possibilities to make public access inconvenient. Not all potential recreational areas should be completely open either to visitors or the general public if preservation needs are paramount in some.

B.2. Surely any means of providing for public access should be considered.

B.3. The modification of the terminology "highest and best use" is not necessary if the best use is interpreted in terms of overall, long-term public welfare rather than in terms of market value of adjacent lands. Certainly the past interpretation of the concept needs to be changed.

B.4. The evaluation of all policies in terms of overall human values is clearly more important than their evaluation in economic terms alone. The economic rationale of large landowners in any case ought not to be the basis for public policies.

C.1. Through land classification and zoning we have already instituted public control of private development for resort development as well as other types of development. If revisions of classification or zoning were made automatically in accord with private advantage, there would be no purpose even for present controls. Better rationale is needed for both the present classification and zoning and for allowing changes.

C.2. Because research and development activities have minimal environmental detriments they should be especially attractive. As attractions to such activities the stimulation of a suitable intellectual climate is of at least equal importance to direct financing incentives. As has been repeatedly pointed out, and born out by experience, a strong university is an essential part of such a climate. A higher priority should be put to the restoration of recently reduced strengths to the University than to direct financial stimuli, because there are additional benefits from this strength beyond the economic returns of research and development activities.

D.1. A "land-bank" program is attractive. Its appropriate magnitude is, however, questionable.

D.2. See B.3.

D.3. The suggested desirability of the provision of employee housing by resorts is curious in the light of the strong policy of recent decades to reduce the paternalism associated with the provision of such housing by agricultural industries.

D.4.-7. I have no judgment on the question about the Land Use Commission.

D.8. If we were satisfied that the present land-use classification were substantially appropriate, the de aration of a moratorium on urbanization of agricultural and conservation lands until all urban-classed lands were urbanized would make sense. I am not sure that we have this degree of satisfaction.

D.9. Provision that the more restrictive zoning of the State and the County should prevail in any lands within any County would have a desirable conservative tendency.

D.10. Planning would seem to be an activity appropriately conducted as a staff function attached to the major executive rather than a line function exercised by the equivalent of a Department of Commerce.

D.11. Controls on numbers of automobiles will become necessary if they are not now. Such controls need not be direct limitations.

D.12. There are no entirely equitable means for limiting automobiles. The inequities will be greatly reduced, however, if adequate alternative means of transportation are provided.

D.13-15. The State should indeed give higher priority to alternative means of transportation than to highways. If it does, direct limits on automobiles may be unnecessary.

D.16. Greater cooperation between the State and City-County in planning and implementing alternative means for Oahu would be desirable.

D.17. Housing needs clearly merit massive State attention.

D.18-19. On the appropriate form this attention should take I have no judgment.

D.20-21. On the urban renewal and new town questions I have no judgment.

D.22-23. The State should require suitable landscaping as a part of all projects. Certainly there is no Constitutional bar to the state requiring such landscaping in its own projects. When it comes to private projects see comment on Policy 17. Control of the destruction of present landscaping is as essential as the stimulation of new landscaping.

D.24. The comments on Policy 17 indicate that improvement should be sought in the design of public structures.

E.1. There is every reason for the State support of education on objective aspects of environmental aspects, and on the importance of subjective aspects but the State should not undertake to establish personal values.

E.2-3. There are many ways in which citizen participation in planning decisions may be stimulated. The standing to sue opportunities are discussed elsewhere.

VIII. ASSIGNMENT OF FUNCTIONS

A wide variety of organizations play roles in environmental planning and management, including both private and governmental organizations. Considering TCEP's background, composition, and charge, it is appropriate that it has emphasized the roles of government.

Most of the functions identified by TCEP are those of agencies of the executive branches of national, state, and county governments. A few are those of legislative branches. In this chapter TCEP has overlooked the role of the legislative branch, although this role is recognized in the discussion of standing to sue in the Introduction (p. 5) and Issue E-3 (p. 21). Although TCEP recognizes the world-wide nature of environmental problems in relation to United States foreign policy in its list of functions of the Federal Government, it does not discuss the role of international organizations like the Pacific Science Congress and the South Pacific Commission.

The following comments refer to the functions of the three levels of government and of the private sector enumerated by TCEP:

The Role of the Federal Government (p. 24).

1. It is not so much because some "causes" (sources?) of environmental degradation cross state boundaries that the federal government is involved as because some degradation resulting from intrastate activities crosses state boundaries.

8. I am not sure whether information and advice on environmental matters is ever available solely from the Federal government--it is in some cases easily available from Federal agencies.

Role of the State Government (p. 24).

The need for increased knowledge about the environmental systems we are attempting to manage, the human systems which cause environmental problems and through which the problems may be controlled, and the interactions between these systems, seems obvious. Dozens of examples of inadequacies of environmental protection and of counter-productive measures intended to be environmentally protective could be cited--instances involving enormous economic waste and losses of environmental quality and resources. In many of these instances, the differences between the tropical, oceanic environment of Hawaii and the temperate, continental environment of the 48 conterminous states is critical. Yet, the role of research is mentioned in the TCEP draft only in connection with federal roles in environmental management.

Environmental education might be considered broadly to include research, but its discussion in Role 9 appears to relate, as it customary, primarily to the dissemination of existing knowledge.

Research is a function performed by federal agencies, state administrative agencies, universities and private institutions. Without belittling the importance of the research role of the other institutions, I believe the claim is appropriate that in Hawaii the single institution engaged most broadly in environmental research is the University of Hawaii, a State institution. Yet, the State provides little support to environmental research and urges the University to measure its performance almost entirely in terms of conventional instructions. Surely, the role of environmental research in the University and in state administrative agencies merits not only mention but considerable stress among the state roles.

1, 2, 3, and 10. The four functions of "Surveillance and Monitoring," "Establishment of standards and adopting rules and regulations," "Assessment of the impact on the environment," and "Legislative laws and policies," might well have been reordered, and expanded. Surveillance or monitoring merely assesses the impact of actions on the environment. It cannot, of itself, prevent degradation. The establishment of standards, rules, and

regulations in conformance to federal and state laws is insufficient. The passage and amendment of state laws, which is first necessary, is a function of the legislative branch of the state government. It should also be a state government responsibility to call attention to provisions in federal statutes and regulations that re inadequate or inappropriate in the special environment of Hawaii. Laws and regulations are without effect, even with monitoring, if there is no enforcement. Since there will always be ambiguities in laws and regulations, inequities in their enforcement and uncertainties in the effects of their enforcement, there is surely an important function of the judicial branch of state government in interpreting the laws and regulations and reviewing their application in terms of the long-term public welfare. A logical reordering might have been:

a. Passage of state environmental legislation

b. Establishment of environmental regulations, including standards

c. Guidance of federal legislation and regulations

d. Enforcement of environmental laws and regulations

e. Monitoring the effects of human activities on the environment and of environmentally protective enforcement activities

f. Judicial review.

Program of Action (p. 25).

The Program of Action in the TCEP draft is discussed in terms of five areas. Many of our environmental problems arise or are aggravated because of the piecemeal approach to environmental management. Yet the essential coordinating roles are not recognized by TCEP in this section of its report. The Office of Environmental Quality Control was established to provide, and has effectively provided, a coordinating function that should be no means overlooked in the TCEP report. The Environmental Council provides the OEQC with much needed informal community advice. The University of Hawaii Environmental Center attempts to assist the OEQC in the functions and to represent an overall approach in its recommendations to agencies having special responsibilities in the five special areas. TCEP itself has played a most temporary role and the State Planning Council which it recommends will continue many parts of that role. The Governor and the Legislature should be considered to have overall interests and several private groups have broad interests.

The University of Hawaii is listed as involved in the areas of Conservation, Economic Activities, and the Individual, but not in other areas. The TCEP report should not overlook the activities of the Population Institute of the East-West Center and of the Family Planning/Population Program in the School of Public Health and the activities of the Architecture Department of the Human Resources Program, and of other programs in the area of Community Environments.

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APPENDIX II

DETAILED COMMENTS ON THE PROPOSED ENVIRONMENTAL POLICY ACT

I have incorporated a general discussion of the Environmental Policy Act proposed by TCEP in my general review of the TCEP report. The following annotations are made mainly to correlate individual provisions in the proposed act with detailed discussion in Appendix I.

Section 1. Appropriate

Section 2. The first set of findings, (a) through (g), are identical to the "Basic Assumptions" (nos. 1 through 7) in the text of TCEP's report. Little objection can be raised with them in principle. The language is less precise, however, than it should be, even in dealing with general concepts, and the lack of precision would be particularly undesirable in law. For examples of lacks of precision see Section II.A. in Appendix I of this review.

The second set of findings, (a) through (i), come from a variety of sources:

(a) Appropriate reflection of the concerns of HRS 341:1.

(b) Appropriate

(c) and (d) Came from the second set of "Basic Assumptions" in the TCEP text (pp. 7-8). These are appropriate with the possible qualification I have discussed at the end of Secion II.A. in Appendix I of this report.

(e) Is appropriate, and indicates the need for research as well as education.

(f) Represents a particular aspect of the recommendation to identify carrying capacities and overloads, and is appropriate.

(g) through (i) are most important recognitions of the roles of citizens and government agencies and the importance of systemic and coordinated efforts.

The third set of findings (a) through (g) are drawn from the text descussion of "overload." For discussion of this key concept see my major section on carrying capacity, overloads, and the fundamental objectives and details in Section III of Appendix I.

Section 3.

(a) The distinction between goals and aims I have suggested in my major discussion of the fundamental objective may be helpful.

(b) through (h). All quite appropriate.

Section 4.

(a) I believe these "goals" or aims should be related to the fundamental objective which I have discussed.

(b) See discussion of policies in Section V of Appendix I.

Section 5. State and County agencies, etc.

The introduction to this section seems weak in comparison with the mandates of the several subsections which constitute backbone of the proposed Act.

Concerning (d), however see my discussion of the bill on environmental monitoring in the chapter on implementation in the text of this review.

Sections 6, 7, and 8.

These are appropriate procedural sections.

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APPENDIX III

DETAILED COMMENTS ON THE PROPOSED ENVIRONMENTAL IMPACT STATEMENT ACT

Introduction

The recommendation of an act that would require environmental impact statements (EIS's) for certain proposed actions is among the most important of TCEP's recommendations. EIS's are now required by the National Environmental Protection Act (NEPA) for federal actions, and by an executive order of the Governor for certain state actions, those that will require commitments of state lands or funds. The act proposed would transfer the requirement for state EIS's to a base in law and would enlarge the requirement to include certain private actions. Both changes are desirable, the first because it will make more certain the continuation of the requirement and the second because private actions may have environmental effects of just as much public significance as public actions.

The proposed act has already gone through a number of extensive changes in its development, and confusion has already resulted from assumptions that reviews of one draft are pertinent to another. The draft in the TCEP report (November 6, 1973) has been most widely distributed, The latest generally available draft is that issued November 20, 1973, by the Office of Environmental Quality Control and identified as A-9 (74). These comments will be addressed principally to the latter but indicate changes in relation to the former. The two drafts will be referred to here for convenience by the abbreviation TCEP and OEQC, respectively.

Though the following comments on the proposed act are much more detailed than those in the body of my review of the TCEP report, they are far less detailed than those I have provided to the OEQC in the course of the development and revision of the proposed act.

EIS Purpose and Limitations

EIS's are documents intended to be used in determining whether the net effects of proposed actions will be beneficial in terms of overall, long-term human well-being. Specifically, an EIS is intended to describe the environmental effects that will ensue from a particular action -- the side effects as well as the principal effects that the action is intended to produce.

EIS's are not appropriate to all types of action, and provision for an EIS system cannot, in itself, assure that wise use will be made of the information provided in the EIS's. Thus, though EIS's may be a necessary tool, they cannot be regarded as sufficient to assure that all decisions will be made in the overall long-term public interest.

EIS Issues

The costs of an EIS system include the direct costs of producing and reviewing the EIS's and the indirect costs associated with the delays that the production and review may introduce in the decision-making process. These costs are considerable. Experience with the federal system, the system that has been established in California, and the present limited Hawaii EIS system indicates that if a number of questions are not clarified, the immediate costs may be considerably augmented by the direct costs of litigation and the indirect costs associated with the additional delays. These questions include:

(a) To which actions is the EIS process intended to apply;

(b) When should an EIS be produced and reviewed;

(c) Who should be responsible for its production;

(d) What should it contain;

(e) How is it to be reviewed and by whom;

(f) What criteria should be used in its acceptance;

(g) What significance is to be attached to its acceptance;

(h) Who has the power of acceptance;

(i) What challenges of the EIS process are possible; and

(j) Who has the power to determine whether the action shall proceed.

Actions Subject to EIS's

The identification of what actions should be subject to the EIS process presents difficult problems. Clearly, almost every action, public and private, has environmental impacts, but the impacts of many kinds of actions are too insignificant to warrant application of the formal procedures of an EIS system. Both drafts of the EIS bill here considered include private actions as well as governmental actions, but limit the private actions to those already requiring some form of governmental approval.

There are scores of forms of governmental approvals and hundreds if not thousands of individual approvals each year, most of which cover actions having no significant environmental impact. Hence a further limitation is required. In the two bills here considered, this further limitation is accomplished in two stages.

The first stage in the TCEP version was a listing of categorically exempted kinds of actions by the OEQC in its regulations. I was concerned that dependence on OEQC's identification of exempt actions might result in an initial swamping of the system by the failure through oversight to exempt some common type of action that does not usually have significant effects. The hazard was reduced in the TCEP version by allowing the agencies that give approvals to determine whether EIS's are required on the basis of initial environmental assessments. An assessment itself was defined as a formal document, however, whose preparation would be costly.

The hazard has been further reduced in the OEQC version by making the assessment a less formal process. This would result in the opposite hazard, that agencies might tend to exempt routinely many actions that would have significant effects, except that the OEQC version has also provided that the OEQC may list types of actions for which EIS's will definitely be required. In both versions the criterion for requiring an EIS is the possibility that an action may have a significant adverse environmental effect. The magnitude of the action itself is not important.

Questions as to the coverage of the federal EIS system that have arisen from its retroactive provision have been avoided in both versions of the current bill by its lack of retroactivity.

Time of EIS Preparation

Both versions of the EIS bill call for the preparation of an EIS early in the process of planning for the action to which it pertains. A problem with this timing is that significant aspects of the environmental effects of a large and complex action cannot be determined until the development of plans is nearing completion. The problem would have been serious with the TCEP version, because an EIS, once accepted, was considered to satisfy all EIS requirements unless there were a two year delay in the initiation of the action. The problem has been remedied in the OEQC version in allowing OEQC to call multiple rounds of preparation, review, and acceptance if there have been substantial change in environmentally significant aspects of the plans.

The basic content of a federal EIS is specified in NEPA. An example of the content proposed by previous Hawaii EIS bill is provided by HB 1522 (1973). The requirements of HB 1522 are listed below with indications as to which of the requirements are included in NEPA. (Requirements in both NEPA and HB 1522 are underlined. Requirements in NEPA but not in 1522 are bracketed. Requirements in HB 1522 but not NEPA are neither bracketed or underlined.)

(1) Description of the proposed action;

(2) Description of the existing environment which will be affected;

(3) Environmental impacts of the proposed action;

(4) (Any) unavoidable adverse impacts (which cannot be avoided should the proposal be implemented) and proposed measures to diminish or mitigate adverse impacts;

(5) Alternatives to the proposed action, including no action;

(6) (The) relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity;

(7) (Any) irreversible and irretrievable commitment(s) of resources (which would be involved in the proposed action should it be implemented);

(8) Efforts to solicit expertise and comments of other agencies and individuals;

(9) Relationship of the proposed action to other actions proposed by other persons or agencies.

Agencies Responsible for EIS Production

The responsibility for producing an EIS is placed on the proposer of the action to which it pertains in both versions of the bill. This does not limit who may be involved in its authorship. If the EIS system is to have the effects it should, it is my opinion that the production of an EIS should be intimately connected with the production of the plans for the action to which it pertains, so that the plans and the appraisal of environmental impacts will proceed hand in hand and the plans may be shaped in recognition of the impacts. Different specialists may be involved, of course, but the production of plans for complex projects already requires hiring of different specialists. Whether the EIS and planning are directly employed by the proposing agency, separately engaged by contract but coordinated by the primary agency, or engaged under a single contract from the proposing agency, seems of little importance.

There is a risk of bias in coupling the responsibility for EIS preparation with the development of plans, but the risk will be much smaller with a system dealing with actions whose planning is just beginning than with the federal system that attempted to include actions to which considerable commitment had been made in the development of detailed plans. Remaining bias is still to be expected, but the review process must be relied on to offset this.

The placement of responsibility for EIS preparation on the agency proposing the action places the principal cost where it logically should be.

Content of an EIS

In both the TCEP version and the OEQC version of the EIS bill, the specification of the content of an EIS is left to regulations to be passed by the OEQC. Some questions as to content that have been raised, by content specifications for federal EIS's and specifications proposed in previous Hawaii State EIS bills, merit discussion to provide guidance to the drafting of regulations pursuant to the EIS act here considered if it is passed.

(10) Necessary administrative, legislative, or judicial actions required to implement the proposed action;

(11) Description of the social impact of the proposed action;

(12) Description of the economic impact of the proposed action.

The list should be reviewed for redundancy, incompleteness, and overextensions.

Redundancy is illustrated by the listing in both NEPA and HB 1522 of unavoidable adverse impacts and of irreversible commitments of resources as well as impacts in general. Irreversible commitments of resources are merely one form of unavoidable adverse environmental impacts, and adverse environmental impacts, in turn, are merely one form of environmental impacts in general. The impacts that are adverse, unavoidable, and irretrievable do merit special attention, but their listing as separate items has led to their redundant discussion as separate topics in EIS's to the detriment of their clarity.

Background information needed to understand the impacts, missing in the NEPA requirements, would have been called for by HB 1522 in the descriptions of the action and of the environment. Neither NEPA nor HB 1522 called for discussion of the environmental impacts that would be association with alternative actions, without which no comparisons would be valid.

Certainly the discussion of environmental impacts would be of no significance unless the physical and biological effects were discussed in terms of their social significance. However, social impacts are much less amenable to objective analysis than physical and biological impacts. Any discussion of social impacts would, therefore, be incompatible with the discussion of physical and biological impacts; their discussion in a document called an environmental impact statement seems inconsistant; and their discussion in a document whose review is handled by agencies with competence primarily in natural environmental matters is not likely to be useful. It is my opinion that the application of the EIS system

should be restricted to meeting the need for which it was designed, and not extended to meeting other needs, however, important, that it is ill suited to meet.

EIS review

Both the TCEP version and the OEQC version of the EIS bill provide appropriately for widespread public review of an EIS. By reference to compatibility with the NEPA review and evaluation process, both assure that comments on a draft EIS must be taken into account in the preparation of a final EIS, whether these comments are provided by official agencies or by the general public. Both leave to accepting agencies the means by which the final EIS is responsive to review commentary. Comments that are not pertinent, erroneous, or trivial, may be best handled as they usually are in the present EIS system by their quotation followed by specific respective responses in an appendix to the EIS proper, but valid substantive commentary would better be responded to by appropriate revisions of the EIS text to a greater extent than has been the practice to date. Any appropriate change in practice can be called for in the regulations OEQC is authorized to adopt in both versions of the bill.

EIS acceptance criteria

The criteria appropriately used in determining the acceptability of an EIS relates to the purpose of an EIS to determine and disclose the environmental effects of a proposed action in order to allow a determination whether or not it should be allowed to proceed. It is impossible to determine all of the environmental effects of any action, even a trivial one. It would be absurd to require analysis of such effects so extensive that the costs of the analysis would exceed either the net benefits of the action or the net costs of its undertaking (both value and costs including the non-economic as well as economic aspects). Vagueness as to the criteria for acceptance in the TCEP version of the EIS bill remedied in the OEQC version by the requirement that an EIS must provide "an adequate basis for an environmentally sound decision concerning the proposed action to which it relates."

Significance of EIS acceptance

There has been some confusion in the past between the approval of an EIS and the approval of the action to which it relates. The confusion is reduced in both versions of the bill now considered by the use of the term "acceptance" in relation to the EIS. The EIS should be regarded as the means whereby the environmental impacts of a project are determined and disclosed. The balancing of the advantages and detriments thus disclosed together with other advantages and detriments of the action, and the determination whether the action should be allowed to proceed, are best regarded as a separate activity. Both versions of the EIS bill under consideration make the acceptance of an EIS a condition precedent to the decision whether the action to which it pertains may proceed.

Power of EIS acceptance

Because the acceptability of an EIS is essentially judgmental, it is vitally important that the locus of the power of acceptance be precisely defined. With respect to this locus, both the TCEP version and the OEQC version of the EIS bill distinguish between those actions that will require commitments of state or county lands or funds and those other actions that will require approval of some governmental agency.

With respect to the first type of action both versions indicate that powers of acceptance rest with the governor or the mayor of the involved county, or both, but neither satisfactorily distinguishes when the power rests with the mayor. Both versions appear to require acceptance by both officials under certain circumstances. Although the decision to proceed with an action requiring both state lands or funds and county lands or funds may appropriately require concurrent approval by both the governor and the mayor, the requirement that both concur as to the acceptability of the EIS appears unnecessary.

With respect to the second type of action the primary power of acceptance rests with the agency empowered to approve the action.

The powers of the OEQC director with respect to determining the acceptability of EIS's should be further examined with respect to both types of action. In the TCEP version of the bill, the OEQC director would have had no specified role in acceptance with respect to EIS's of the first type but would have had a veto power over acceptance with respect to EIS's of the second type. In the OEQC version he is authorized to advise on acceptability with respect to EIS's of both types, but veto power with respect to neither. Recognizing the special environmental competence of OEQC a case could well be made that the Director should have the primary power of acceptance for EIS's of both types. Recognition of at least an advisory role for OEQC's Director seems appropriate in both cases. It may at least be questioned whether the Governor should not explicitly be authorized to delegate his power of acceptance to the Director.

Judicial review

Both TCEP and OEQC versions of the EIS bill recognize the right of citizens to challenge in the courts either a decision that an EIS is unnecessary or the decision that an EIS is acceptable. Arbitrariness or capriciousness are apparently appropriate bases for court suits. Standing to sue over the acceptability of an EIS is appropriately limited to a party that has taken advantage of the administrative review process of EIS.

Action approval power

Both the TCEP version and the OEQC version of the bill appropriately leave the power to approve actions of all types with the agencies to which such powers have already been given by the Constitution in present laws.

Miscellaneous

With respect to clarity, the reduction of redundancy, and the grammatical use of language, the OEQC version of the EIS bill represents improvements over the TCEP version.

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APPENDIX IV

ILLUSTRATIVE STRATEGIES

In the recognition that TCEP listed strategies for illustrative purposes only, that it does not necessarily subscribe to all that it has listed, and that there are some mutual inconsistencies among them, I have not attempted to update the comments on these strategies that I provided in my review of the first public draft of the TCEP report. Those comments were restricted to negative reactions. I did not attempt to differentiate strategies that appeared appropriate from those on which I did have the competence to comment. I have not examined the several strategies added in the final report, but have indicated which are new.

Conservation

1. Is it not intended that this refer to "natural reserves" rather than "natural resources."

1c. It seems a mistake to quantify the slope. There may be a correlation between slope and beauty, though the extent of correlation is arguable, but surely there is nothing sacred about 20%. On incompetent soils, 20% is too steep for construction, but on rock, slopes of much greater steepness may quite appropriately be developed for housing.

5 & 6. Combine.

9. The prohibition of importation of animals and plants provided by Act 69, 1973, is not complete. Its effectiveness will be determined by the judgment shown by the administering agency.

12 & 14. New.

16. How about adding tax reduction to the means identified.

21. The best means of beach replenishment are often natural means. Beach replenishment with sand differing in character from the original may be environmentally deleterious (e.g., Kaimu, Hawaii, Ft. DeRussy, Oahu). Beach replenishment and sand erosion control in an unnatural configuration may be never ending (e.g., Waikiki, Oahu).

20. Which sewage treatment plans? Some which have been proposed would be inappropriate.

24 & 25. Combine, but include the "Model Act" for consideration only.

31. Grammatical reconstruction needed. I believe some of the specifics of this deserve reexamination and are probably being reexamined in the current "Hawaii and the Sea" updating. There appears to be no rationale for identical setbacks on unstable beaches and stable rock coasts, and certainly, there is no rationale for equal setbacks from the kahakai on the low coast and from the top of a cliff 100's or even 1,000's of feet high.

32. More specific legislative instruction to administrative agencies may well be advisable, but it would seem a mistake to require legislative approval of each minor coastal structure.

33. See 31.

37. I would like to reinforce this strategy. I wonder how it has happened that "highest and best use" has continued to be interpreted as meaning highest and best as indicated by the use commanding the highest market value in adjacent lands regardless of differences in zoning, land use classifications, or other public indications of proper use.

41-46. New.

Population

8. I know of no rationale that indicates that the overall public well-being will be greatest with a one million population in Hawaii as constrasted to, say, the present population or a population of 1-1/2 million. However: a) it seems that for any level of technological development and level of resource imports, there must be an optimum population in Hawaii; b) it seems unlikely that population much larger than the present can be optimum; c) it seems improbable that we can shrink the population below the present level; and hence, d) a one million target for levelling off seems as reasonable as any for planning purposes so long as it is subject to modification on the basis of experience and improved knowledge.

14. New.

Economic Activities

1. The consideration of pollution control costs as part of the business costs passed on to the consumer is applicable to pollution control costs associated with the production of goods and services for the local market. In purchasing these goods and services, we will pay for the additional costs generated by the pollution control measures we have decided on. The case is not so simple, however, when the goods and services are to be marketed outside of Hawaii in competition with goods and services produced elsewhere the pollution control measures may be less stringent. We may still require pollution control measures, but we can't expect them to be paid for by the consumers in this latter case.

3. The examples of recycling and resource recovery methods given may be appropriate ones for implementation. Recycling and resource recovery should, however, not be promoted for all materials. The local environmental costs, the economic costs, and the energy costs of artificial recycling make it less desirable than further resource exploitation in the case of some materials.

4. Specifically, the reuse of waste water is appropriate at present only for low-quality uses. Remember that water is a renewable resource and its present saving will not contribute to its future availability beyond storage capacities.

8. The benefit-cost analyses and forecasting techniques appropriately used in an analytical framework for environmental analysis will be more comprehensive than those in strictly economic analysis. Final choices in environmental questions are matters of subjective value judment, not objective comparison of commensurable values. Hence, the technique of analysis will be difficult to develop and will never provide the final answers. The Hawaii Environmental Simulation Laboratory was established, however, with the thesis that environmental analytic techniques had to be developed.

10. "Benefits received" and "ability to pay" are two distinct bases whose use will lead to different results. How is a choice to be made between them? What is the intent of this strategy?

11. Olivine is not in the category of the rest. Olivine is a constituent of local basalts, but not in gem quality. The sale of olivene as a local gem stone by the local jewelry trade is probably a fraudulent practice.

16. See comments on Population Strategy 8.

20-23. New.

Land Use

9. See comments on Conservation Strategy 37.

10. In the sense that environmental quality control measures apply to all lands and waters, how is this strategy different from the present. If the strategy means to transfer ownership of private lands to a public trust, I think the question may legitimately be asked whether the governmental record in conservation has been any better than or even as good as the private record, and if not why the more extensive governmental control is desirable.

12 to 14. The rationale for promoting agriculture cannot well be indicated in the list form adopted for the strategies. It seems to me to lie in the provision of an economic return from a relatively benign industrial use, so far as pollution is concerned, without destroying the aesthetic effects of open space. The agricultural products will be paid for by their consumers, the cost of necessary pollution control will be borne by the same consumers if the consumption is in the state. However, the aesthetic gains and the gains from pollution control are common gains for all residents and visitors and hence, logically deserve some form of public subsidization. Strategies 13 and 14 might be combined.

15. Public ownership to the line of vegetation, the mark of the sea, the kahakai, cannot be confirmed where the line does not exist. However, the State needs to be consistent in its claim that the line is the appropriate seaward limit of private ownership of land.

21 to 23. See comments on Conservation Strategies 37.

37. A moratorium only seems to make sense for a definite limited period of time during which certain developments may be expected to take place. What are the developments anticipated that would justify a general moratorium on changes in land use.

38. Not all land now urban-zoned is really suitable for urban use.

39. See comment on 10.

43 to 66. New.

Community Environments

16. Much more strenuous efforts to minimize losses of historic and beautiful trees are warranted. Total prevention of such losses would not be in the public interest.

17. More extensive development of underground utilities may be warranted. A program of putting all utility lines underground would not be warranted.

30. A 4-story uniform limitation seems excessively arbitrary. For example, what if the shoreline has an immediately proximate mountain background. Isn't 4 stories much to high on some flat coasts?

32 to 37. New.

The Individual

Missing from these strategies is the one program that has been developed for formal environmental education specifically in Hawaii on a scale broader than the efforts of an individual teacher or school. This is the ecology program developed for the 3 years of intermediate school by the FAST (Foundation Approaches to Science Teaching).

1b & 1c. New.

18 to 21. New.