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OREGON STATE UNIVERSITY
ENVIRONMENTAL HEALTH SCIENCES CENTER

CORVALLIS, OREGON 97331

August 14, 1968

Mr. Kessler Cannon, Executive Secretary
Natural Resources Committee
State Office Building, Room 112
Salem, Oregon

Dear Mr. Cannon:

Thank you for the invitation to submit some of our thoughts on the guidelines and goals for the protection of the environment for a more Livable Oregon. Time has precluded a detailed analysis and response but we have tried to set forth some broad principles and guidelines as we see them for future planning. These, of necessity, have been somewhat general but we have also attempted to identify some of the areas in which the University could serve as a resource to your committee for more detailed preparation should the committee wish us to do so.

Thank you for this opportunity and I do hope the material which is enclosed will be of some help.

Sincerely yours,

Virgil H. Freed

Virgil H. Freed, Director
Environmental Health Sciences Center

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Enclosure

PLANNING AND ENVIRONMENTAL QUALITY

Introduction and Goals

The environment has four components: physical, biological, social, and conceptual. Being a multi-faceted receptor, Man responds to the stimuli of each of these aspects of his environment. Man thus recognizes and responds to material objects and physical forces and, in turn, his health and well-being are thereby influenced. The biological component of the environment includes not only the plant and animal species but other men as well. Man is, for example, entirely dependent on the photosynthetic apparatus of this earth which is possessed only by the green plants. The use and enjoyment of other animal species is likewise very important. Man, however, is a gregarious being and has an important interface with his fellow humans through social and personal interaction. It involves economic activity as well as the purely pleasurable social association. Finally, there is that aspect of man's environment, the conceptual, which is of basic importance to him. In this area we encounter such questions as, "How does Man conceive the world?," "What is his proper role in that world?," "What is his importance?," and "What is his purpose of being?"

Change in any one of these aspects impinges upon Man. Such a change provides the stimulus which may influence Man's response to, or his behavior with respect to, other facets of his environment. Man, this very delicately balanced, multi-faceted receptor, responds in subtle ways and in manners that may be exhibited only years after the initial

reception of the stimulus. Man, either individually or collectively, is very versatile and can adapt to many changes in the environment. In fact, he must spend his life in this adaptation for, by the very act of liver, Man is changing the environment. Recognizing this influence of Man on the environment, it is important to so plan that the change wrought in the environment does not create for himself a hostile habitation. To avoid this situation, one needs certain criteria by which to gauge whether change, planned or inadvertant, will cause a deterioration in the quality of the environment.

There would appear to be three fundamental criteria that may be applied to measure the value of any change. More positively stated, one might say that there are three goals to be achieved in maximizing environmental quality. These are:

1. to eliminate or reduce rishks to life, health and well-being,
2. enhancement of physical and mental health, vigor and capacity for functioning, and
3. to develop to the fullest the opportunity for spiritual and aesthetic enrichment of life.

Guidelines

In planning for the multitudinous activities of man, one looks for principles or guidelines that might serve to help maintain or improve the quality of the environment. Such guidelines allow flexibility of planning, but insure that the action taken at this moment or at any particular point will not have disturbing consequences at another

time. One can identify at least a few broad guidelines that may have utility in planning.

1. One of the first principles that may be observed is that the environment is a spatially, temporally, socially, and economically interrelated system. The consequence of this principle is that any change impressed on this system is going to have consequences reaching into time, into space, and will influence the social and economic environment. One cannot, therefore, plan for the design of a particular utility or activity and ignore the effect that it will have upon some other segment of the environment and its various interrelated factors. This principle constrains us to take the "holistic" approach rather than a segmented approach.
2. Diversity or a mixture of activities is a basic principle of far-reaching benefit in planning. It has been observed by ecologists and economists alike that diversity in population, in characteristics, or in economies imparts the greatest stabity to the system. It is not always possible to insure diversity as for example in the case of the monoculture developing in the field of agriculture, but in these cases proper safeguards must be built in at the planning stage. However, with equal choice granted, the planner would be well advised to plan for diversity of business enterprises and multiplicity of land use within the region.
3. Compatibility of activities and design is to be much sought

after in planning. One seeks, for example, for compatibility among the industries that comprise the industrial base. If, for example, there can be an integration of industries such that the by-products of one may be used as the raw material for another or that the environmental quality impairment of these industries are not additive this is to the advantage to the livability of that environment. Similarly, applying the idea of compatibility, one can, by aggregation of compatible activities, design more suitable utilities such as waste disposal and protection of aesthetic qualities of the environment.

4. Resources conservation is the fourth principle observed in planning. This resource base involves not only air, water, land, and mineral resources, but renewable resources, and, above all, human resources. An example of resource base conservation could be the design of mixture of activities of the environment such that resources are continually recycled, as in the case of the waste of one industry being the resource of another. In this manner, one mans waste becomes another man's riches. Similarly, space or surface area of land becomes a resource that must be jealously conserved. This involves careful site selection for industries and other human activities such that valuable space is not irretrievably lost or the quality of the environment in that immediate area rendered such that it is unfit for other use. Thus, in site selection for an industry the planner would be concerned with not only accessability, transportation, and utilities,

nearness to raw material, but also the impact of the location of that industry on environmental quality.

5. Flexibility in resource use or retrievability is a guideline of particular importance in the future livability of the environment. This deals rather specifically with problems of air, water and soil as well as aesthetic qualities of the environment. If, in the planning, a resource is irretrievably committed to a certain use, it should be done so only because this is the only possible thing to do. If committment is made on the basis only of expediency of the moment, there is imposed a constraint on future generations that should not be made lightly.

Specific Areas

Few of the specific areas one might consider in planning to maintain the livability of an environment are:

1. Inventory of natural resources, particularly of air, water, and soil. It is important that large-scale efforts be undertaken to assess the resources available, their assimilative capacity for human activity, inherent intrinsic value in terms of economic activity and aesthetics, and attempt to design the mix of industry and other activity compatible with maintaining the quality of these resources. Such an inventory needs to be taken on a basis of homogeneous basins or areas and also involve entire states or consortorium of states. From this would derive the concept of an overall agency in the state or an interstate agency that would afford

guidelines in planning for the utilization of these resources.

2. The consequence of considering the specific question of an inventory of resources leads to the suggestion that local political boundaries might be reestablished along the lines of natural basin or area boundaries. This would make for more effective utilization of natural resources and protection of the quality of the environment.

3. Designing the environment to provide services, utilities, schools, and health facilities at staged levels of complexity. It would seem to be desirable to provide initial service in a number of areas near high concentrations of population and have the system so structured that increasing levels of sophistication which would be required on a less frequent basis would serve larger areas. For example, simple recreational facilities in the form of parks, small impoundments containing warm water fishes should be located near and even within population centers to provide a facility which could receive intensive use. More complex facilities and those that would be enjoyed less frequently would be somewhat further removed from the population center. Parallel examples could be drawn for social services and particularly for schools that would afford much better service to a population than our present system.

4. Locations of sites for industrial plants should be selected on a basis which gives consideration to the pollution potential of the plant in all alternate sites. For example, even after an industrial plant has complied with the need for reduction and control of airborne waste emissions, there is

still a finite waste load released daily into the atmosphere. Whether or not this will be a pollution problem depends upon the rate and type of dispersion, or the micrometeorlogical conditions pertinent to this plant site. This factor and other pertinent waste disposal influences should be evaluated during the choice of a plant site rather than determined after the selection has been made.

5. Incentive programs, such as that developed for the installation of waste reduction equipment, could be developed to promote programs to beneficially influence the development of other programs influencing environmental quality. Examples of such programs might be to work out mechanisms to direct the new realestate developments away from prine agricultural land and into areas, such as hillside terrain, where less important conflicts with our resources are present. At present industrial waste water treatments are developed for individual plants, connected to municipal sewage treatment facilities, or undeveloped; an extremely useful approach would be to aggregate industry into industrial zones, in well chosen locations from the point of view of community development, and to provide a waste treatment facility unique to the problems of these industries and shared by all of them.

6. Nuclear power generating plants will rapidly proliferate in Oregon in the near future and management of their waste problems, radioactive chemical and waste heat, should receive special consideration from the point of view of overall environmental

effects. There is presently a tendency for the management of each plant to consider that their waste heat contribution, perhaps raising the river ambient temperature by 0.5°F, as insignificant. The environmental problem of the cumulative effect of 10 or 20 such plants must be considered on a statewide level and incentive for the additional cost of cooling or dissipation of this heat other than in the river, a means of utilizing this heat as a resource, or an evaluation of the total capacity of each basin to accommodate this heat—thus limiting at the outset the number of such plants to be permitted—would be an extremely valuable service to render the cause of conservation of environmental quality.

7. The ancillary effects of highway design and location need to be considered in order to harmonize highway development with total environmental effects. A highway is more than a means of vehicular travel from point to point; it is a system about which industries, homes, services, and even cities are organized just as they were initially organized around ocean harbors, the great rivers, and finally the railroads. Since a highway becomes a total system affecting most of Man's activities, it does not always function best as a system which is contructed only as the shortest possible distance between two points. For example, the construction of a freeway in the center of a valley of relatively level, tillable land devoted to agriculture will

eventually remove from use far more land than that devoted to the freeway itself as industrial and urban growth occurs in response to the *de novo* transportation system. This conflict in allocation of an irreplaceable resource in what is probably an irretrievable manner will eventually affect the economic vitality of Oregon and even the food source of the nation. It is interesting that our forest resources are carefully reserved but the tillable land, our prime agricultural resource, is not reserved except at the option of the individual.

As the Governor's Committee for a Livable Oregon develops their report, they may wish to include detailed technical reports on specific areas of interest to them. Should they wish to do so, we would be pleased if they called on Oregon State University for assistance in such specific areas as chemical pollution of the environment, problems associated with nuclear power, meteoroligical assessment of the capacity of basins, oceanographic and estuarine resources, transportation and urban development problems, and others which could be determined in conference.

Some of the source material used was:

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Report of The Environmental Pollution Panel President's Science Advisory Committee. The White House. 1965.

GOVERNOR'S COMMITTEE FOR A LIVABLE OREGON

C O M M I T T E E G O A L S 10/1/68

1. Develop and recommend a state policy articulating the need to maintain a high-quality environment.

Timetable:

Submit to the Governor by January 1, 1969.

Program:

Request the Governor's Administrative Assistant for Natural Resources to direct a team of appropriate state agency representatives to prepare a suggested draft of policy for review by the Committee for a Livable Oregon. Working draft to be submitted by the Committee by November 1, 1968. (Action Completed)

2. Develop an inventory or "check list" of factors which affect livability both positively and negatively.

Timetable:

Complete the list by November 1, 1968, so it will be available when the Committee works on the state policy draft.

Program:

Request the Environmental Health Sciences Center at Oregon State University to prepare a suggested inventory of livability factors for the Committee. Seek suggestions from state agencies through the Governor's Administrative Assistant for Natural Resources. (Action Completed)

3. Develop an inventory of the states' resources by appropriate areas -- with emphasis on air, water, soil -- and evaluate these area resources on the basis of their capacity to assimilate human activity and their values in terms of economic activity and esthetics.

Timetable:

Inventory to be completed and evaluated by January 1, 1970.

Program:

Discuss with the Governor's Administrative Assistant immediately the facilities available within the state for developing such an inventory and the ways and means of beginning the inventory process. (Action Completed)

4. Develop a list of the environmental and land and resource use problems and conflicts which need resolution. Establish the priorities and the timetable for the Committee's attack on such problems and conflicts.

Timetable:

To be completed by December 1, 1968.

Program:

Through the Governor's Administrative Assistant on Natural Resources request the state agencies to list such problems and conflicts. The Committee would correspond with conservation groups of the state and seek their suggestions. (Action Completed)

5. Review and evaluate existing law relating to public use of the dry sand areas on the Oregon Pacific Beaches, and recommend to the Governor any changes the Committee believes desirable.

Timetable:

Complete the review and evaluation, and develop the recommendations to submit to the Governor by January 1, 1969.

Program:

Ask the Highway Interim Committee to present its recommendations on beach legislation to the Committee for a Livable Oregon. Seek recommendations from the Highway Commission and other appropriate sources. (Action Underway)

6. Review and evaluate existing law related to the Willamette River Park System (Greenway) and review and evaluate the operations of the Willamette River Park System and make appropriate recommendations on these issues to the Governor.

Timetable:

Complete review, evaluation and recommendations to submit to the Governor by January 1, 1969.

Program:

Seek testimony from state and local agencies administering the Willamette River Park System (Greenway) program, determine the needs to make the program more effective, and develop recommendations to meet these needs. (Action Completed)

7. Develop and recommend for legislative adoption guidelines to be followed by state agencies in applying policy and administrative action to the economic development of the state, such guidelines to be directed toward achieving desirable economic development and growth, compatible with maintenance of an environment of high quality.

Timetable:

Recommendations to be developed and submitted to the Governor by July 1, 1970, so that they might be presented by the Governor, if he so desires, to the 1971 Session of the Legislature.

Program:

Seek assistance in developing such guidelines from appropriate state agencies and educational institutions, such as the Environmental Health Sciences Center at Oregon State University. Seek ideas and suggestions of interest groups concerned with and working on environmental problems. Make Committee recommendations with intent that they be submitted, if approved by the Governor, to appropriate interim committees operating during the period, July, 1969, to January, 1971.

8. Review and evaluate existing and proposed law and regulations on land-use planning and zoning and implementation of such law and regulation and make such recommendations to the Governor as the Committee deems appropriate.

Timetable:

Open.

Program:

Request through appropriate channels state agency compilation of planning and zoning law and regulation and statement of how such law and regulation is or is not being implemented. Seek from Interim Committee on Agriculture and Interim Committee on Local Government information on deliverations of these bodies on planning and zoning and appropriate suggestions. Solicit ideas and suggestions from Citizens Committee on Pollution Legislation appointed by John Mosser, Chairman of the State Sanitary Authority (This committee will be studying ways and means to plan and zone for industrial development). (Action Completed)

9. Review, analyze, and evaluate trends in tourism in Oregon, the states' policies and activities in promoting tourism, and develop and make such recommendations as the Committee deems desirable to achieve compatibility between development of the tourist industry and maintenance of a high quality environment.

Timetable:

Complete review, evaluation and recommendations by January 1, 1971.

Program:

Open for development. (Tourism Report published 10/68) (Action Completed)

10. Develop plans and recommendations to establish in Oregon a private or quasi-public non-profit educational association with paid staff to devote its full time to protection and enhancement of livability.

Timetable:

Achieve formation of association and its actual operation by January 1, 1970.

Program:

Recommend organizational structure, budget for preparation, and method for financing such an organization. Establish guidelines for membership and program for such association, which would address itself to:

(a) Control of litter on highways, in recreational areas and parks, city streets, etc.
(b) Control of vandalism on public and private property.
(c) Observance of law related to outdoor recreational pursuits, for example, fish and game laws.
(d) Building respect for property rights.
(e) Beautification through elimination of unsightly conditions, abandoned autos, dilapidated buildings, in Oregon.
(f) Developing through education of youth and adult a citizen conscience and pride directed toward maintenance of a quality environment.

Develop ways and means to finance such an organization in its formative stages, such as submit proposal for first year financing to charitable trusts or foundations.

Seek active support of conservation groups in achieving the formation and successful operation of such an organization.

(Action Underway)

11. Inventory for Committee use the organizations and action groups, public, quasi-public, and private, which are concerned with or which work on environmental and livability problems.

Timetable:

Complete listing of such organizations and groups by February 1,1969.

Program:

Seek out available lists of such organizations from public and private sources. Use lists to enlist aid of such groups and organizations in work of the Committee. Keep list current. (Action Underway)

12. Review and evaluate in cooperation with the State of Washington, the recreational use of shorelines and islands on the Columbia River, and identify problems and needs related to conflicting uses, sanitation, water pollution, undesirable conduct by recreationists. Make recommendations designed to resolve problems and answer needs.

Timetable:

Complete recommendations by July 1, 1969, so that problems may be brought to attention of appropriate legislative interim committees.

Program:

Solicit help of state agencies - State Game Commission, Highway Commission, State Marine Board -- in identifying problems and needs. Seek assistance of appropriate local agencies, federal agencies, and private clubs and associations. Explore need for Oregon-Washington compact for management of recreational use on shorelines and islands of the Columbia River. (Action Underway)

13. Develop and recommend a program designed to initiate and stimulate community action in all areas in Oregon to eliminate air, water, land, and noise pollution, economic and social conditions which breed antisocial behavior, unsightly conditions and to beautify roadsides, entrances to cities, entrances to parks and recreation areas, and the general appearance of Oregon communities.

Timetable:

Achieve significant community action by January 1, 1971.

Program:

Open for development. (Action Underway)

14. Develop and recommend a program of state awards, including the adoption of an appropriate Livable Oregon Symbol, to recognize significant achievements of individuals and organizations in protecting and enhancing livability in Oregon.

Timetable:

Complete recommendations by May 15, 1969.

Program:

Open for development. (Action Underway)

15. Develop recommendations and plans of implementation to stimulate and produce research which will assist in solving outdoor conduct problems and other problems related to maintaining a quality environment.

Timetable:

Achieve research results by July 1, 1969, which will have developed data identifying the economic and esthetic costs statewide of littering and vandalism. Achieve by January 1, 1973, research results that will permit managers of outdoor recreational resources to apply significant knowledge on human behavior now available to the problems of recreationist conduct.

Program:

Explore the establishment of appropriate research projects at Oregon Colleges and Universities. Explore the financing of such research through grants from appropriate foundations. Utilize data on costs of littering and vandalism to publicize seriousness of the problem and damage to and impact on society.

16. Promote and solicit financial grants to be contributed for the purpose of funding graduate studies in educational disciplines relating to the policies, objectives and goals of the Livable Oregon Committee.

17. Review and evaluate existing law relating to the duties of the Scenic Areas Board and the program being carried on.

Timetable:

Complete review, evaluation and recommendations to the Governor by January 1, 1969.

Program:

Review the Scenic Areas Act of 1961 as amended 1963, note the progress being made under this Act and consider the need for further amendments to the Act. For example, consider the inclusion of county roads which, by legal happenstance rather than by intention, are not subject to the Act. The definition of Scenic Area may need modification. The creation of Scenic Areas is a slow process and the areas are not identified so as to be recognized by the highway user, hence there is very little public awareness of the program. Therefore, if we find the program to be a good one, we should recommend that it be supported by the Legislators and by the Governor (there have been indications on the part of one or two Legislators that the program should be abandoned.)

18. Prepare and recommend state policy for development and preservation of Oregon's estuaries.

Timetable:

Complete review, evaluation and recommendations to submit to Governor by _____.

Program:

Collect data on individual estuaries. Ask for testimony from Estuary Conservation and Development Committee, Oregon Chapter, American Fisheries Society, various county courts and conservation and development groups involved. Develop policy for each major estuary on the Oregon Coast (14 in number).

19. Develop and recommend state policy for preservation of wildlife within the state.

Timetable:

Recommendations to be developed and submitted to the Governor by _____.

Program:

Collect data and testimony on preservation of wildlife, its natural balance and ecology as it is influenced by man's actions in a condition of increasing human population. Review state policy on bounty hunting, hunting bag limits, and protection of selected species of animal and fish life. Recommend new policy for wildlife preservation.

20. Develop and recommend state policy for long-range planning and development of high-speed surface transportation within the Willamette Valley and connections to Washington population centers.

Timetable:

Recommendations to be developed and submitted to the Governor by _____.

Program:

Study similar programs in other parts of the world. Invite testimony by State Highway Department, Dr. Jerald A. Kieffer, Chairman, School of Community Service & Public Affairs, University of Oregon, and other interested and informed people. Develop recommendations for implementation of a program for high-speed surface transportation to serve Oregon population centers.