ENVIRONMENTAL QUALITY IN CALIFORNIA

March 1972

ENVIRONMENTAL QUALITY IN CALIFORNIA

A STRATEGY FOR ACTION

REPORT OF THE

STATE ENVIRONMENTAL QUALITY STUDY COUNCIL

March 1972

-FINAL-

STATE OF CALIFORNIA RONALD REAGAN, Governor

ENVIRONMENTAL QUALITY STUDY COUNCIL
SACRAMENTO

March 10, 1972

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Governor of California

Honorable Ed Reinecke
Lieutenant Governor, and
President of the Senate

Honorable James R. Mills
President pro Tempore, and
Members of the State Senate

Honorable Bob Moretti
Speaker, and Members of
the State Assembly

Gentlemen:

In compliance with Section 16055 of the Government Code, the 1972 Report of the State Environmental Quality Study Council is hereby submitted. The report covers the activities of the Council during 1971, and recommends legislative action for the current session.

The Council trusts that its efforts, in proposing a long-term strategy for the control and enhancement of our environment and in recommending immediate measures for alleviation of our more crictical problems, will prove helpful.

Submitted on behalf of the members of the Council.

Respectfully

David L. Baker
Chairman

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ACKNOWLEDGEMENTS

The Council expresses sincere thanks to those who have aided and supported its activities over the past three years: members of the Legislature, their committees and consultants; members of the Administration; the environmentally involved entities of state government; and the numerous conservation and environmental groups throughout the State. Very special thanks go to Californians for Environmental Quality, a statewide organization created for the sole purpose of advocating the Council's 1971 legislative proposals.

The Council is also grateful to the many witnesses who gave of their time and expertise at our public hearings and study sessions. We appreciate the hospitality extended in those cities in which we have met. Regardless of the issues involved, the Council has been warmly and courteously received.

We wish also to express thanks to the many citizens who have taken time to write to the Council. While we have not been able to hold a special hearing on each problem presented, these letters have given us a better insight into the many environmental concerns facing citizens of California.

Under current enabling legislation, the Council will soon cease its function.

In conveying our appreciation to those who have worked so tirelessly with us for a better environment, we would encourage their continuing dedication to the enormous task of assuring a decent quality of life for us all.

FOREWORD

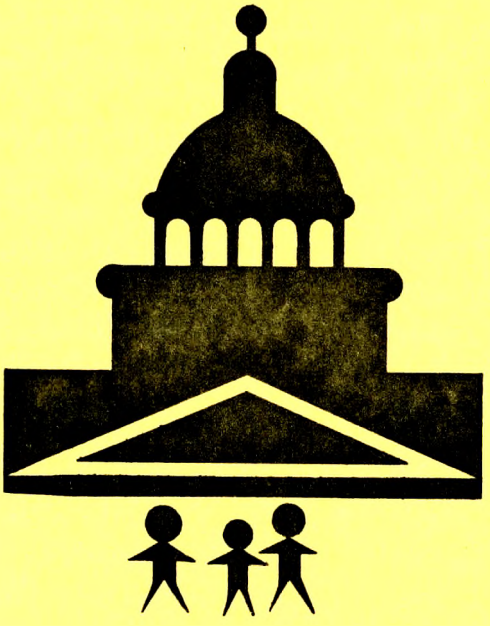
The State Environmental Quality Study Council, consisting of 17 members appointed by the Governor and the Legislature, was created by the California Legislature in 1968 to make an in depth study of the state's environmental problems and to recommend, after holding public hearings, such legislative and administrative action and state, regional, and local governmental mechanisms necessary for coordinated protection, management, and improvement of California's physical environment. Since first convening in April 1969, the Council has held 20 public hearings throughout the State on such subjects as air pollution, land use, coastline management, preservation of open space, transportation, noise abatement, and energy use. In addition, the Council has held monthly business meetings, committee meetings, and numerous study sessions at which specific problems were considered.

The Council was charged with reporting its findings and recommendations to the Governor and the Legislature annually. It first report, in February 1970, contained a number of recommendations on land use, air quality, and noise abatement. The February 1971 report concentrated primarily on the question of governmental organization and formed the basis of AB 1056 (Z'berg) of the 1971 session, and AB 681 (Z'berg) of the current session. The 1972 report contains a number of recommendations on a variety of environmental subjects. But more important, it attempts to develop a comprehensive strategy for dealing with basic underlying issues of governmental organization, land use and population growth, balanced transportation, and energy use.

This report does not cover all the state's environmental problems in depth. Some have been studied in greater detail and reported on by a number of legislative committees and state departments. The Council did not feel the need nor have the time or resources to duplicate these efforts. The Assembly Science and Technology Advisory Council's studies on the question of population; the Assembly Committee on Environmental Quality's hearings on pesticides; the Assembly Committee on Natural Resources and Conservation's study of forest practices; the reports of the Joint Committee on Open Space; the work of the 1970 Assembly Select Committee on Environmental Quality in identifying environmental problems and projecting costs; the study of the 1970 Assembly Committee on Revenue and Taxation on emission taxes; the reports of the

Department of Conservation on second home subdivisions and problems of urban geology; the coastline studies of the Department of Parks and Recreation; the report of the Department of Public Health on noise; the State Implementation Plan of the Air Resources Board; and the upcoming Environmental Goals and Policy Report of the Office of Planning and Research are but a few of the activities which, combined with the efforts of this Council, will hopefully serve to increase our understanding of the critical environmental issues facing the State and move us to take the necessary corrective action.

I / INTRODUCTION



I INTRODUCTION

The Council's February 1970 report stated:

> "Environmental Quality:
> A Losing Battle
>
> "The first six months of our in-depth study of California's environmental ills has revealed an extremely pessimistic picture. Our beautiful State is in severe danger of being destroyed as a desirable place to live. Our lush orange and walnut groves, our vineyards, our primeval sagebrush country, our secluded valleys, our meandering streams, our majestic mountains, and our wind-swept beaches are going -- and they are going fast, replaced largely by depressing urban sprawl. It is even questionable whether major portions of the State will be capable of supporting tolerable human life within several more decades.
>
> "Having been called upon for the past 25 years to accommondate one of the greatest bursts of inmigration and population growth the world has ever known, California's legendary environmental assets have been squandered in a grossly negligent fashion, and much of it obliterated beyond repair. If the present course is continued, our posterity will inherit a vast wasteland."

The February 1971 report stated:

> "Population Distribution on
> a National Scale
>
> "Under the present state of technology and our current mode of living, not only has an environmentally sound carrying capacity of our metropolitan areas been challenged, and even that of our great valleys, but the carrying capacity of the entire State as well. And, of course, smog is only one index. With noise pollution, heavy traffic congestion, and inadequate land use policies, an ever growing array of environmental ills is endangering this State at an accelerating rate. Population distribution is still urgently needed, but it will no longer suffice to design such policies within the State. The problem is national in scale. Urban growth and population influx must be encouraged in those states where the proper balance between man and nature can still be accommodated. It is obvious that California cannot

handle the problem of population growth alone.

"The Growth Ethic

"Last year's progress report described the pollution elements contributing to the 'moribund Los Angeles region'. We find this year conditions have even worsened, not only there but in the San Francisco Bay Area as well. In these critical air basins we have to change our course drastically, and do so now. We simply have to slow down our growth and stabilize the population of these areas according to their carrying capacities. This may be hard to accomplish, for growth has served us well in this country since its beginnings. But the harsh reality is that unrestrained growth and environmental quality have become incompatible in California's metropolitan regions."

1972 -- Present Solutions Are Not Enough

The overall situation has not improved significantly. While progress has been made in certain individual areas of pollution control, there is little action to report with regard to the underlying issues of land use and population or to organizational changes necessary to deal with environmental problems in a comprehensive way. During the 1971 session of the Legislature the Council's main recommendation for a strong governmental entity embodied in AB 1056 was passed by the Assembly, but failed in the Senate. This bill would have created state and regional bodies with authority to deal with statewide pollution problems of air, water, solid waste, land use, population growth, and other environmental issues in an integrated manner. The coastline legislation aimed at the preservation and rational use of this scarce resource suffered a similar fate.

Some advances were made to restrain further exploitation of our scenic rural areas, and improvements were achieved in air pollution control. But these individual measures dealing with specific environmental problems, although useful elements of a broader pollution control scheme, in themselves can only be viewed as interim steps.

A Comprehensive Long-Term Strategy

A cohesive strategy for improving and maintaining a reasonable level of environmental quality has not yet become a part of state policy. The State has not addressed itself to the problems of population growth and the impact of such growth on our natural resources or to the institutional changes needed to face these issues head-on. This report, although containing a number of recommendations for complementing specific environmental efforts (air and noise), attempts primarily to develop a much needed long-term strategy, the key elements of which are governmental organization, land use and population (including population growth and distribution policies, basin carrying capacity, and open space), balanced transportation, and energy use.

Need for Action

The major categories cited above are the essential elements of the comprehensive environmental quality strategy so desperately needed by this State. Any course that does not deal with each of these issues in the most aggressive way can only be viewed as short-term, and, although perhaps capable of bringing some temporary relief, will not stand the test of the decades ahead.

The Council strongly urges both the Governor and the Legislature to act this year, and to act decisively, for only the boldest and most imaginative measures, implemented now, can prevent the ultimate deterioration of the environment of this State to a level unacceptable by any standard.

II / SUMMARY OF FINDINGS AND RECOMMENDATIONS

II SUMMARY OF FINDINGS AND RECOMMENDATIONS

A/ GOVERNMENTAL ORGANIZATION

Governmental organization at the state and basin levels, developed in a manner that will properly relate problems of air, water, solid waste, and transportation, with the basic underlying questions of land use, urban growth, and population distribution, and operating within the framework of a statewide conservation and development plan, remains the most critical unmet environmental quality need facing the State of California.

A New Organization

■ The Council recommends the creation of a State Environmental Quality Board and eight corresponding Regional Boards, with well defined powers and responsibilities over water, air, solid waste, nuclear radiation, noise, pesticides, forest practices, and land use. The State and Regional Boards would also be empowered to review and under certain conditions disallow projects of other governmental agencies having significant impact on the environment.

The text of this report discusses alternative approaches to organizing a State Environmental Quality Board, which could accomplish equally well the objectives recommended by the Council.

B/ LAND USE, POPULATION, AND TRANSPORTATION

Conservation and Development Plan

The demand placed on California's resources by an increasing population has resulted in the degradation of its environment. The State must play a new and strong role in land use, urban growth, and population distribution by providing the policies and common framework for determining how its resources are to be allocated.

■ The Council recommends that the proposed Environmental Quality Board be required to adopt and present to the Legislature by January 1, 1976, a comprehensive, coordinated, and enforceable plan and management program for the orderly long-range conservation and development of California's natural resources, known as the California Conservation and Development Plan. Individual plan

elements would include environmental goals and policy (including a population growth and distribution policy), land use, basin carrying capacity, environmental quality (waste control), coastal zone, transportation, parks and open space, natural resources conservation, critical historical, scenic and wildlife habitat areas of statewide interest, and power plant siting.

Based on the state plan, each regional board would be required to adopt by January 1, 1977, with approval of the state board, a regional conservation and and development plan which would include, in addition to those elements cited above, certain specified elements appropriate to the region. Based on the regional plan, cities and counties would be required to adopt by January 1, 1978, with approval of their regional board, a local conservation and development plan.

Local planning and zoning would continue essentially as at present. However, no city or county would enforce any zoning ordinance, amendment, or other form of similar regulation which is not consistent with the adopted local conservation and development plans.

Until such time as the Legislature has taken final action on the California Conservation and Development Plan, proposed major developments involving significant and irreversible environmental changes in the coastal zone and certain rural areas of unique statewide value would, in accordance with specified criteria, be subject to an interim permit procedure administered by the state or regional boards.

Population Growth and Distribution

The development and implementation of state, regional, and local conservation and development plans will require the adoption of a comprehensive policy to guide to what degree and in what locations growth should occur.

■ The Council recommends that state government formulate and adopt explicit population growth and distribution policy aimed at achieving desirable long-term

social, economic, and environmental goals for California. In the formulation of such policy each major unit of state government, particularly those concerned with transportation, resources, housing, employment, and education, would be directed to determine the impact of present population trends on their activities and the impact of their activities on population distribtion.

State actions, with respect to the construction of public works projects, the placement of educational facilities, the location of power plants, the development of resource management policies, and the conduct of other activities should be carried out in a way which will influence population growth and distribution; and further that Environmental Impact Statements prepared in connection with various projects and activities of federal, state, and local agencies should be expanded to include a description as to their impact on population growth and distibution.

Basin Carrying Capacity

The major criteria in the development of a statewide population growth and distribution policy should be the natural carrying capacities of the state's basins.

- The Council recommends that state government undertake to determine the maximum carrying capacity for each region, based on the best of available information relating to air, water, land, and other resources which are critical to public health and environmental protection, and that the Environmental Goals and Policy Report developed pursuant to Section 65041 of the Government Code include: (1) the estimated carrying capacity, based on those factors mentioned above, of the state's most critical basins; (2) a discussion of where and how much future growth should occur in the state's different regions, with particular emphasis on the coastal urban corridor between Santa Rosa and San Diego; and (3) those alternative patterns of regional development which should be encouraged, including "new towns" and the expansion of existing smaller communities.

Immediate Strengthening of State Role in Land Use

The important planning program described above should be started as soon as possible. The Council recognizes, however, that the creation of the Environmental Quality Board and the new land use planning role for state government proposed herein will take a certain period of time to become reality. On the other hand, the Office of Planning and Research, which would later come under the administrative jurisdiction of the proposed board, is presently functioning and could begin, during the interim period, to assume the strong land use program proposed by the Council. To do this stronger financial commitment and specific new direction will need to be given it.

■ The Council recommends that the Office of Planning and Research: (1) be directed to begin preparation of the California Conservation and Development Plan called for herein, and to provide for adequate public participation in the preparation of same; (2) be given the authority to develop criteria for determining the adequacy of local and regional plans; (3) be directed to begin immediately the preparation of a state population growth and distribution policy; (4) be directed to begin basin carrying capacity studies; and (5) be given the additional funding needed to carry out these and other tasks.

Loss of Prime Agricultural Land

The accelerating loss of our best agricultural lands is a particular example of unwise land use, and policies that encourage this should be changed.

■ The Council recommends:

- That it be the public policy of the State of California that agricultural usage, the planting and growing of crops, be recognized as the highest and best use of prime agricultural land, and that the assessed valuation of such land for ad valorem tax purposes be based on the value its use gives it. This is the land, in the most part, that is classed as recent alluvium and as basin land. Such recognition, duly implemented, would serve to create badly needed "open space" and would help to preserve the economic viability of California.

- That present federal, state, and local policies which fund flood control projects at general public

expense and therby provide a public subsidy for the urbanization of flood plains (which are usually prime agricultural lands), be revised so that the landowners benefitted incur a more reasonable portion of the costs of such facilities.

Open Space

A well-designed open space program can be a key to resolving major land use conflicts and is an essential element of the proposed state, regional, and local conservation and development plans. It can preserve lands needed to supply our resource needs, prevent the development of geologically hazardous areas, help meet our huge recreational demands, halt urban sprawl, and provide direction for urban growth.

The Council recommends:

- That an open space policy be incorporated into the State Environmental Goals and Policy Report. This policy would define the desirable objectives which should guide an open space program, delineate the areas of responsibility at different levels of government, outline the broad categories of land use which should be preserved, and establish priorities for open space preservation.

- That the Office of Planning and Research prepare by January 1974 a State Open Space Plan to become a functional element of the California Conservation and Development Plan and to augment and give substance to the state population growth and distribution policy. It should classify state lands into open space categories, indicate those areas which should remain as open space, designate lands sufficiently important to the State to require direct and immediate action to protect or preserve them, and outline a program and financial requirements necessary to implement the plan. The State Open Space Plan should also be designed to serve as a guide in the preparation of basin plans.

- That a bond issue in the amount of $250-million be placed on the November 1972 ballot to provide funds for the acquisition of needed open space, threatened wildlife habitats, and important scenic and historic areas of statewide significance. This measure should also provide for grants to regional

and local agencies to assist in carrying out the purposes of a statewide open space policy.

Transportation -- Providing a Balance

In the state's most critical air basins the use of the automobile will have to be substantially reduced if national ambient air quality standards are to be equalled or even closely approximated. To do this, acceptable alternatives must be made available. Although legislation has been passed to give further assistance to public transportation agencies, new aggressive efforts are needed at the state level in terms of organization, planning, and massive funding if a truly balanced transportation system is to be provided.

The Council recommends:

- That a Department of Transportation be created within the Business and Transportation Agency, and that this department, in coordination with and subject to the approval of the proposed Environmental Quality Board, develop a comprehensive state master transportation plan for California, analyzing all modes of transportation, with primary emphasis on the development of integrated mass transit systems for the major metropolitan areas, such plan to become a part of the California Conservation and Development Plan.

- That additional funding be made available to mass transit, giving consideration to a variety of funding sources, including gasoline taxes, exise taxes on automobiles, and taxes on the increased value of property resulting from development of mass transit facilities.

Rural Development

Legislation passed during 1971 imposed new requirements on local government and provided improved tools for dealing with premature or second home subdivisions in rural areas. The situation would be further improved by bringing certain of these areas under the interim permit jurisdiction of the State and Regional Environmental Quality Boards as proposed in previous recommendations. Short of that, however, additional measures regarding "finding of need" and strengthening local plans and ordinances can and should be taken promptly.

The Council recommends:

- Legislation that would require as a condition for approval of a land project as defined in Section 11000. 5 of the Business and Professions Code, that the local agency make a finding, based on the "build-out" rate in the vicinity, the number of lots being offered for resale, and other market indicators, that there is a need for the project. Certainly if only 200 homes had been built over a six-year period in a county where the subdivision of some 15, 000 lots had been approved, the need could be legitimately questioned and a finding made to that effect.

- That the Office of Planning and Research develop criteria for determining the adequacy of city and county general plans and that appropriate procedures be developed (which might include the withholding of certain state subventions to local government) to insure that such criteria are adhered to.

- That cities and counties be required to adopt adequate grading (including maximum slopes) and erosion and sedimentation control ordinances to apply to all development. Since a significant number of lots are sold in rural areas which do not come under the Subdivision Map Act, cities and counties should also be required to adopt minor subdivision ordinances in order that all division of land, or "lot splitting" can be regulated.

- That cities and counties be given the authority to review all subdivisions approved prior to the Subdivision Map Act, and, where little or no development has occurred, revert the unused lots to acreage, as provided for by Chapter 4, Part 2, Division 4, of the Business and Professions Code.

Coastline Management

The Council has attempted to deal with the coastal zone by recommending that it be brought within the interim permit jurisdiction of the proposed State and Regional Environmental Quality Boards. The Council recognizes, however, that a governmental mechanism to protect the coastline is long overdue and must stand on its own in the event the creation of the State and Regional Environmental Quality Boards does not become a

reality this year. It is for this reason that the Council strongly supports legislation for the creation of a separate entity to develop a coordinated plan for the coastal zone and to exercise interim permit authority while the plan is under preparation.

Geologic Hazards

Rapid urbanization of the State has often ignored the obvious threats to life and property -- flood, earthquake, and landslide. Legislation has been addressed to these problems, but further steps need to be taken to strengthen these provisions and to insure that they are properly implemented.

The Council recommends:

- That the Legislature expand the provisions of the Cobey-Alquist Flood Plain Management Act to require that all lands which have been or may be inundated by floodwaters be subject to flood plain regulation, irrespective of the existence of any federal flood control project report, and that those uses which are not compatible with flood plain lands be so defined as part of the Act.

- That, in order to provide a better perspective for local government, the appropriate state departments, coordinated by the Resources Agency, be directed to prepare criteria for the use of local agencies in determining the sufficiency of soil and geologic conditions to accommodate development with a minimum landslide hazard and establish procedures for adherence to these criteria.

- That the guidelines now being prepared by the Council on Intergovernmental Relations for the seismic safety elements (recently required as part of local general plans) include a definition of earthquake risk, a classification of land into standard earthquake hazard zones, and minimum design specifications for construction in different zones.

- That it be a matter of state policy, contained in the Environmental Goals and Policy Report, that the continued development of geologically unstable land constitutes a threat to the citizens of California, and hence should be prohibited. In addition, guidelines and criteria relating to landslides and earthquakes should also be incorporated

as part of the Environmental Goals and Policy Report.

Environmental Impact Statements

The Environmental Quality Act of 1970 provides that all state and local entities of government submit an Environmental Impact Statement (EIS) on any project they wish to carry out which will have a significant impact on the environment. The Act has served as an effective tool in reducing the adverse effects of certain projects. It should, however, be broadened in application.

■ The Council recommends that the Environmental Quality Act of 1970 be amended to: (1) specifically apply to all "actions" of state and local government, including special districts, which would have a significant impact on the environment; (2) specifically apply to regulatory activities as well as those that are being carried out by the entity itself; (3) require that cities and counties prepare an EIS on any change of zoning or contemplated private project that will have a significant impact on the environment; (4) include as one of the elements of an EIS a detailed statement on the population growth and distribution implications of the action; and (5) require that the decision of the responsible entity adhere to the findings of the EIS unless, consistent with the intent of the Act, it makes a specific finding that the benefits to the public outweigh the disadvantages to the environment.

C/ ENERGY USE

Energy use has become one of the most critical environmental issues facing the State. Present attitudes and public policy have led to the unrestrained use of natural resources and excessive pollution. A clear cut energy use and power plant siting policy, with emphasis on conservation of energy, the appropriate governmental mechanism for implementing such a policy, and a coordinated state and federal research and development program on all aspects of the problem is required.

■ The Council recommends:

- That an Energy Conservation and Power Plant Siting Commission be established to develop, in cooperation with the federal government, the proposed Environmental

Quality Board, and all other appropriate agencies, organizations, and individual citizens, an overall energy use and power plant siting policy and measures for its implementation. Such a policy should involve: (1) specific measures for reducing the per capita use of energy and for using energy which is available in the most efficient manner; (2) continuing evaluation and provision of legitimate energy needs; (3) developing all feasible and safe means for replacing, to the degree possible, the use of fossil fuels with near-zero emission electric energy; and (4) a program for massive research and development and new technology regarding alternative sources of power, the siting of power plants, the transmission of electric power, and the handling, processing, and storage of wastes.

The Commission would also develop a statewide power plant siting plan, after appropriate public hearings, which would be subject to the approval of the State Legislature and the Environmental Quality Board, and which would constitute a master plan of preferred sites and become a part of the California Conservation and Development Plan. The Commission would test each proposal for power development and transmission line routing against the approved master plan, as well as various demand, environmental, scenic, and safety standards and criteria, and, after holding public hearings, have the authority to approve or reject the proposal.

The Commission might also be given the authority to purchase sites in advance of need and lease them back to utility companies.

- That the federal government be urged to embark on massive research and development programs in connection with new sources of energy, power plant siting, energy conservation, and other matters related to energy policy administration.

- That a use tax (as well as an increase in the basic rates) be applied to the higher usage portion of the utility rate structure to finance the statewide energy conservation and power plant siting program. Present rate structures for electric power begin at a few cents per kilowatt-hour and drop

to several tenths of a cent per kwh as usage increases. A tax of one mill per kwh in the high-use brackets could raise as much as $50-million. High volume energy users such as rapid transit agencies and those engaged in other environmentally beneficial activities should be exempt from such taxes or rate modifications.

The development of nuclear fission (present day and fast breeder reactors) over the next 10 to 20 years, considering other alternatives, appears to be the most feasible step toward meeting the state's increased electrical demand, which at present is almost totally dependent on the use of fossil fuels. What is of utmost concern to the Council is that adequate steps be taken to insure that this source of energy is developed in a way that minimizes the detrimental effects on the environment, conserves our fuel resources, and is safe. In particular, continued development must be conditioned on finding suitable solutions to the problems of radioactive waste handling, processing, and storage.

D/ AIR QUALITY

Essential long range solutions to air quality depend on the comprehensive land use, transportation, and energy use programs and policies mentioned in other sections of the report. The recommendations cited below are of a more immediate nature intended to bring relief as soon as possible to the state's more critical air basins.

State Control Strategy

The Federal Clean Air Amendments of 1970 require state government to develop a control strategy for meeting national ambient quality standards. The measures cited in the control strategy will significantly improve air quality. Some, however, cannot be implemented without additional legislation. The Council endorses the proposed control strategy and urges that the Legislature act in those areas which are necessary to the plan but which are not now within the purview of the State Air Resources Board.

■ The Council recommends immediate legislative action on the following measures which are essential to the state's control strategy:

- A program of mandatory periodic vehicle inspection, maintenance,

and low sulphur fuel for the state's critical air basins be obtained and that the proper federal authorities be made aware of the extreme and critical need for such fuel in these areas.

That the present tax incentives now applicable to the purchase of gaseous fuels and the installation of conversion kits for the use of gaseous fuels, which expire in 1975, be extended to 1980.

E/ NOISE

Legislation to control airport noise, to insure that adequate consideration is given to the environment in connection with new airports and to regulate new development in the vicinity of an airport has been adopted over the last three sessions of the Legislature.

Legislation was adopted during the last session aimed at reducing noise from motor vehicle exhaust systems, including off-highway vehicles, and motor vehicle tires.

Major unresolved problems relate to airport expansion, jet overflights, occupational noise, building insulation, and general community noise.

The Council recommends:

- The imposition of an aviation fuel tax, the proceeds to be used for aircraft noise abatement and necessary land acquisition, preferably in the area where the tax is collected.

- That regulations or legislation be adopted which would apply the same permit requirements and procedures to airport expansions as now exist for the construction of new airports. Such procedures include provisions for holding of hearings and require that all environmental considerations be taken into account.

- That the Department of Education and the State College Trustees be directed to investigate all proposed acquisition of lands for school and state college use within eight miles in each direction along the flight corridor of an existing or proposed airport, and report their findings to the Legislature on February 1, 1973.

- That alternatives for the determination of allowable residence proximity to freeways be established. These should be: (1)

a 500-foot buffer zone; or (2) a depressed freeway or barrier, or combination thereof, such that the average A-weighted (A) noise level contour does not exceed 60 dB(A) and maximum levels do not exceed 70 dB(A) at the boundary of any residential zoning.

- That legislation be introduced to reduce the values in the General Industrial Safety Orders to a maximum occupational noise level of 85 dB(A) for an eight-hour day, by 1977, using a table of increased noise levels for less than eight hours of exposure, similar to the present Federal Occupational Safety and Health Act of 1970 Noise Exposure Limit Table.

- That the Health and Safety Code be amended to require that all code jurisdictions in California add a section on airborne noise and impact sound isolation in Group H and I occupancies, based on a field performance standard which shall be no less than the Federal Housing Administration's recommended criteria, as well as a section to the mechanical code setting a maximum noise level limit for interior noise in any dwelling unit, arising from heating, ventilating, or air conditioning equipment, or re-radiated noise from fluid flowing in piping.

- That each city and county be required to enact an ordinance setting fixed noise level limits, establishing criteria for considering noise in connection with zoning changes, and establishing quiet zones within certain park areas.

- That the basic provisions of SB 692 (1971) requiring the adoption of rules and regulations relating to noise insulation for buildings intended for human occupancy, be reintroduced in 1972, and be changed to identify the types of buildings which come under the bill's jurisdiction as "single and multi-family dwelling units, motels, hotels, and other residential buildings."

- That noise standards be set for construction equipment, office machinery, and appliances, consistent with technological and economic feasibility and product utility, and that the appropriate state agency be given the authority to certify, or refuse certification of, those products for sale in the State.

- That sufficient funds be made available to the University and State Colleges to establish and maintain a curriculum in environmentally-related acoustics and noise control engineering; and further, that the State encourage and promote the upgrading of skill and knowledge among architects, engineers, and the appropriate segments of the building trades through increasing professional standards and by supporting on-the-job programs.

F/ OTHER ENVIRONMENTAL ISSUES

Specific recommendations on water resources, solid waste, pesticides, and assessment practices, and other unresolved environmental issues are pending further Council hearings and study and will be the subject of individual reports to be submitted prior to June 30, 1972.

While the Council decided that the question of campaign financing is not within the scope of its legislative charge, some members felt that it is at the heart of many environmental problems and represents one of the most significant obstacles to the enactment of effective measures in this field.

III / DISCUSSION OF FINDINGS AND RECOMMENDATIONS

III DISCUSSION OF FINDINGS AND RECOMMENDATIONS

A/ GOVERNMENTAL ORGANIZATION

Introduction

The Council's February 1971 report reflected the conviction that the major void in the battle to restore and maintain a quality environment is the state's lack of a governmental mechanism capable of dealing with environmental problems in a comprehensive way.

Based on the report and testimony received since, and because this question was not resolved during the 1971 Legislative Session, the Council is compelled to restate the problem in even stronger terms.

Governmental organization at the state and basin levels, developed in a manner that will properly relate problems of air, water, solid waste, and transportation with the basic underlying questions of land use, urban growth, and population distribution, and operating within the framework of a statewide Conservation and Development Plan, remains the most critical unmet environmental quality need facing the State of California.

A New Organization

The Council therefore reaffirms its recommendation for a strong governmental organization not only to regulate pollution but also to provide the mechanism, at the state and basin levels, to preserve open space, protect critical ecological areas, and redirect, phase, and, where necessary, limit growth to a level consistent with appropriate health standards and an attractive environment.

- The Council recommends the creation of a State Environmental Quality Board and eight corresponding Regional Boards, with well defined powers and responsibilities over water, air, solid waste, nuclear radiation, noise, pesticides, forest practices, and land use. The State and Regional Boards would also be empowered to review and under certain conditions disallow projects of other governmental agencies having significant impact on the environment.

Responsibilities

The existing and future programs for the control of air, noise, water,

solid waste, and, at the state level, land use, would be consolidated under the state board and eight regional boards, and be administered directly by them. The new state and regional entities would assume the duties and powers of the State Office of Planning and Research; the State Air Resources Board and County and Regional Air Pollution Control Districts; and the State Water Resources Control Board and the nine Regional Water Quality Control Boards. The state board would have the authority to coordinate the activities of, and review and set regulations for, pesticide use, nuclear radiation, and forest practices; but line administration and enforcement would remain primarily with those departments now responsible.

In the case of land use, the regional boards would be empowered to review those projects having regional significance, test these projects against established regional environmental policies and objectives, and, if appropriate, disallow them or require necessary modification. Regional boards would also have interim permit authority over certain defined areas of critical basin-wide or statewide interest. Generally speaking, however, day-to-day administration of land use matters would remain with local government.

Organization

The State Environmental Quality Board would consist of seven full-time members appointed by the Governor for four-year staggered terms. Each member would be qualified in the protection, management, and improvement of the environment. The state board would have jurisdiction over Planning and Research, Land Use, Environmental Impact Review, Environmental Regulation (Noise, Nuclear Radiation, and Pesticides), Air Quality, Water Quality, and Solid Waste Management programs.

An alternative approach to the state level organization (not regional) would be to confine the state board to rule-making and adjudication, and vest with an administrator appointed by the Governor the authority to execute policy established by the board and to carry out the day-to-day regulatory responsibilities. As state government is presently organized, such an administrator would most likely be a department head operating under the administrative coordination of an agency secretary, who in turn sits as a member of the Governor's cabinet. It would be possible, however, to have

this department head report directly to the Governor as does the Director of Finance.

The Board-Department Head approach could be a workable one as has been demonstrated in the State of Illinois. However, in order to accomplish the objectives sought by the Council, the act creating such an entity would necessarily have to provide for the regional agencies and other substantive powers called for in this section.

Organization of Regional Boards

In its 1971 proposal, the Council recommended that the regional boards consist of five full-time members appointed by the Governor. Later this was amended, giving the Legislature two of the five appointments. The idea of a small number of appointed board members determining the land use policies of, for example, the South Coast Basin, in relationship to the multitude of competing economic and social considerations, and over ten million people, does not in retrospect appear to be the most desirable approach. It is criticized by conservationists who fear that the appointing authority would have too much control and may not be sufficiently sensitive to environmental problems. Others criticized it because they felt it would not be responsive government.

One alternative is to have directly elected representatives. Unless the districts were very small, however, seeking such an office would be costly. If the districts were made smaller, to reduce campaign expenses, the boards in an area like the South Coast Basin would be too large and cumbersome to be effective.

Regional boards made up primarily, if not entirely, of (or selected by) persons presently holding office in city or county government is a second alternative. This type of procedure is presently provided for in the Planning District Act of 1963, and would be favored by local government.

Another alternative is some combination of membership such as with the San Francisco Bay Conservation and Development Commission, which consists of about 45 percent local elected officials (or their designees), 30 percent representatives of concerned federal and state agencies, and 25 percent public members appointed by the Governor and the Legislature.

Each of these alternatives has

advantages and disadvantages. Any of them might be made to work effectively. In the final analysis, the choice will probably have to be made on the basis of which is most politically acceptable.

Land Use -- An Essential Element of Reorganization

Land use is covered in detail in the Land Use and Population section of this report. However, it also must be recognized as a critical element in reorganizing government to deal with environmental problems. Basic decisions that must be made to maintain reasonable levels of environmental quality (primarily land use decisions) are being made or influenced by hundreds of governmental agencies at all levels. To achieve a desired balance between environmental quality and social and economic objectives it is necessary to attempt to deal with numbers and distribution of people within a given basin. This is dependent on land use decisions. The numbers and location of people and industries determine (or are determined by) the location and size of freeways, design of public transportation, design of water and sewage systems, distribution systems for gas and electricity, and locations of business centers. The problem, however, is that there now exists no organizational, planning, or policy framework for attempting to influence these interrelationships in any kind of comprehensive manner.

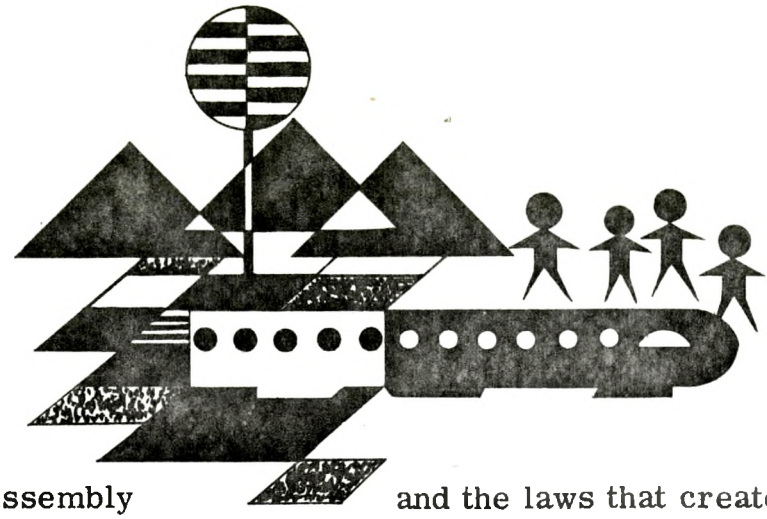
To fill this void, the proposed Environmental Quality Board would be required to prepare and adopt the State Conservation and Development Plan, which is described in more detail in the following section of this report.

Review of Public Projects

All state and local public agencies would be required to submit to the board an environmental impact report, in accordance with regulations prescribed by the board, on any major proposed action which could have a significant effect on the quality of the environment. The board would be authorized to modify or disapprove any proposed action which fails to comply with environmental protection requirements.

Environmental Quality Citizens Council

The Council would consist of eleven members: seven appointed by the



Governor; two by the Assembly Speaker; and two by the Senate Rules Committee, all of whom would have demonstrated interest in and knowledge of the protection, management, and improvement of California's physical environment. The Council would report annually to the Governor and the Legislature and to the board on California's environmental problems and the effectiveness of governmental agencies in solving environmental questions.

Other Organizational Recommendations

The Council has made additional recommendations dealing with the organization of state government which are covered in other sections of the report. Specifically, these call for creation of a Commission on Energy Conservation and Power Plant Siting (Energy Use section), and a Department of Transportation (Land Use, Population, and Transportation section).

What Would Be Different?

The Council fully recognizes that organization alone will not resolve the state's environmental problems. However, the appropriate organization and the laws that create it can serve as the foundation for the constructive planning and action so desperately needed. The new organization would be able to plan and regulate in a comprehensive manner on the basis of what is environmentally sound. It would provide the mechanism for giving environmental matters proper standing in the decision-making process and a new stature and visibility for that part of government responsible for environmental quality. The governmental changes recommended are an essential step toward achieving a livable balance between man's demands and nature's limitations. It is one that should be taken immediately.

B/ LAND USE, POPULATION, AND TRANSPORTATION

Introduction

Land is our most basic resource. Upon it we build our networks of human activities. It provides our major sources of food, water, fiber, minerals, and other needs to sustain and enhance human existence. And the richly variegated landscape, created by natural processes over eons of time, provides us beauty and inspiration.

Given the numbers of people who now populate our planet, it is self-evident that the use we make of our land is critical to the well-being of society. In simple terms, the allocation of land resources is based on the needs and demands of society to provide for sustenance, shelter, circulation, and services. These demands predicate a complex fabric of physical uses to which land is put. The character of this fabric determines to a large degree the quality of human environment. The density of urban metropolises, the convenience with which we move around in this fabric, our perception of its aesthetic qualities, our continued ability to productively utilize natural resources, and indeed, our overall health and welfare are dependent in part on our ability to effectively integrate the patterns of human existence with the character of the land.

Over the past three years it has become clearly evident to the Council, in its process of examining California's environmental problems, that the State as a whole has failed both to plan adequately and to carry out plans for accommodating its growth through the wise allocation of land resources. In fact, California has squandered its land resources in a grossly negligent fashion. In our attempts to meet the demands of a burgeoning population, we have sprawled all over the countryside, virtually oblivious to the constraints of the environment or the amenities which make the State unique; and, in the process, we have designed for ourselves inefficient and sometimes untenable living patterns. As part of the charge of the Council we will in this section examine the land problems of California and their causes, and recommend a set of programs and policies designed to resolve those problems.

Rapid Growth -- The Basic Cause

At the root of California's environmental problems, particularly with respect to land use, is the rapid rate of population increase that the State has experienced ever since the Gold Rush. The growth rate in California has consistently throughout the Twentieth Century been over twice that of the rest of the United States. In 1940 the population was just under seven million. In 1960, following the great boom of the 1950's, Californians numbered fifteen million. The state population now is in the vicinity of twenty million people, and by 1980 it has been forecast that it will rise to approximately twenty-six million.

Conservation and Development Plan

The demand placed on California's resources by an increasing population has resulted in the degradation of its environment. The State must play a new and strong role in land use, urban growth, and population distribution by providing the policies and common framework for determining how its resources are to be allocated.

- The Council recommends that the proposed Environmental Quality Board be required to adopt and present to the Legislature by January 1, 1976, a comprehensive, coordinated, and enforceable plan and management program for the orderly long-range conservation and development of California's natural resources, known as the California Conservation and Development Plan. Individual plan elements would include environmental goals and policy (including a population growth and distribution policy); land use; basin carrying capacity; environmental quality (waste control); coastal zone; transportation; parks and open space; natural resources conservation; critical historical, scenic, and wildlife habitat areas of statewide interest; and power plant siting.

Based on the state plan, each regional board would be required to adopt by January 1, 1977, with approval of the state board, a regional conservation and development plan which would include, in addition to those elements cited above, certain specified elements appropriate to the region. Based on the regional plan, cities and counties would be required to adopt by January 1, 1978, with approval of their regional board, a local conservation and development plan.

Local planning and zoning would continue essentially as at present. However, under the Act, no city or county would enforce any zoning ordinance, amendment, or other form of similar regulation which is not consistent with the adopted local conservation and development plans.

Until such time as the Legislature has taken final action on the California Conservation and Development Plan, proposed major developments involving significant and irreversible environmental changes in the coastal zone and

certain rural areas of unique statewide value would, in accordance with specified criteria, be subject to an interim permit procedure administered by the state or regional boards.

Population Growth and Distribution

Complicating the problem of numbers of people is their distribution. Some 80 percent of all Californians live in the San Francisco Bay Region and the Los Angeles Basin. Over 90 percent of the people live in metropolitan areas. If present trends continue, most of California's future population will continue to be channeled into our present urban areas.

The pressures generated by the phenomenal growth rate in California have been sufficient to thwart constructive attempts to accommodate it within the context of sound planning and environmental principles. Despite stepped-up efforts to correct the problems, we continue to lose ground in the fight to maintain the quality of our physical environment, let alone in our efforts to meet the challenge of improving it. The Council is convinced that any dedicated attempt to resolve our land use and other environmental problems must necessarily involve a commitment to alleviate the pressures of uncontrolled growth.

This has been borne out by any number of responsible studies on the question, the most recent of which, by the Assembly Science and Technology Advisory Council, states in part:

> "California's growth has been characterized by an ever larger proportion of population living within a few metropolitan areas. Recent urban expansion has taken place in sprawling, suburban fringes of these areas. The urban settlement pattern has occurred largely through the interplay of economic forces, and not through conscious public policies aimed at influencing the rate and character of new urban development. The present pattern of disorganized urban sprawl in California: (1) is inefficient and costly in terms of public services; (2) is dull, unattractive, and does not promote stable neighborhood patterns; (3) wastes land and other resources; and (4) encourages unproductive land speculation. Californians are becoming increasingly dissatisfied with the quality of urban life at the same

time that accessibility to open space and recreation areas for urban residents is decreasing. These conditions will not be solved unless population growth is reduced."

The development and implementation of state, regional, and local conservation and development plans would require the adoption of a comprehensive policy to guide to what degree and in what locations growth should occur.

■ The Council recommends that state government formulate and adopt explicit population growth and distribution policy aimed at achieving desirable long-term social, economic, and environmental goals for California. In the formulation of such a policy each major unit of state government, particularly those concerned with transportation, resources, housing, employment, and education, should be directed to determine the impact of present population trends on their activities and the impact of their activities on population distribution.

State actions, with respect to the construction of public works projects, the placement of educational facilities, the location of power plants, the development of resource management policies, and the conduct of other activities should be carried out in a way which will influence population growth and distribution; and further that Environmental Impact Statements prepared in connection with various projects and activities of federal, state, and local agencies should be expanded to include a description as to their impact on population growth and distribution.

The Council noted in its 1971 progress report that the question of population distribution is national in scale and that urban growth and population influx must be encouraged in those states where the proper balance between man and nature can still be accommodated. During World War II, contracts were distributed throughout the country to reduce vulnerability to enemy attack. Now we must employ the same tactics to protect large portions of this nation from a different kind of threat. The federal government should be urged to adopt policies consistent with state population objectives and develop a national population growth and distribution policy.

Basin Carrying Capacity

The major criteria in the development of a statewide population growth and distribution policy should be the natural carrying capacities of the state's basins.

■ The Council recommends that state government undertake to determine the maximum carrying capacity for each region, based on the best of available information relating to air, water, land, and other resources which are critical to public health and environmental protection, and that the Environmental Goals and Policy Report developed pursuant to Section 65041 of the Government Code include: (1) the estimated carrying capacity, based on those factors mentioned above, of the state's most critical basins; (2) a discussion of where and how much future growth should occur in the state's different regions, with particular emphasis on the coastal urban corridor between Santa Rosa and San Diego; and (3) those alternative patterns of regional development which should be encouraged, including "new towns" and the expansion of existing smaller communities.

The Council realizes that the concept of a human carrying capacity, at least as applied to a particular region, does not entail the designation of an unchanging and absolute value. As our technological capabilities increase -- as hopefully we begin to alleviate our air pollution crisis, for example -- the carrying capacity in a given area may increase. Moreover, the determination of a carrying capacity depends upon a multitude of varialbes, the interaction of many of which are not completely understood, and initial conclusions may necessarily tend to be arbitrary. It does, however, seem that up to this point continuing concentration of population in our most heavily urbanized regions has caused depletion of vital resources beyond the capacity of natural processes to restore them. In some instances the technical methods available now or in the foreseeable future are insufficient to restore levels of quality which will assure freedom from injury to health. So long as the technical methods remain unavailable, the natural carrying capacities of these urbanized regions must be regarded as the principal criteria in the establishment of standards for the maintenance of public health.

Immediate Strengthening of State Role in Land Use

The preparation of a California Conservation and Development Plan, together with a population growth and distribution policy and basin carrying capacity studies, is an essential task which should be started as soon as possible. The Council recognizes, however, that the creation of the Environmental Quality Board and the new land use planning role for state government proposed herein will take a certain period of time to become reality. On the other hand, the Office of Planning and Research, which would later come under the administrative jurisdiction of the proposed board, is presently functioning and could begin, during the interim period, to assume the strong land use program proposed by the Council. To do this stronger financial commitment and specific new direction will need to be given it.

■ The Council recommends that the Office of Planning and Research: (1) be directed to begin preparation of the California Conservation and Development Plan called for herein, and to provide for adequate public participation in the preparation of same; (2) be given the authority to develop criteria for determining the adequacy of local and regional plans; (3) be directed to begin immediately the preparation of a state population growth and distribution policy; (4) be directed to begin basin carrying capacity studies; and (5) be given the additional funding needed to carry out these and other tasks.

Where appropriate, this new policy direction should be made a part of the Environmental Goals and Policy Report now being prepared by that office.

Loss of Prime Agricultural Land

The accelerating loss of our best agricultural lands to urban development is an outstanding example of unwise land use in California. The State loses 375 acres of farmland a day to urbanization. If this rate were to remain constant, half of the state's productive farmland would be destroyed in thirty years, and if it continues to accelerate as in past years, 80 percent would be gone.

Although there is no immediate threat of food shortages in the United States,

its use gives it. This is the land, in the most part, that is classed as recent alluvium and as basin land. Such recognition, duly implemented, would serve to create the badly needed "open space" and would help to preserve the economic viability of California.

Flood Control Policies

Flood control policies in particular greatly encourage urban sprawl and continued excessive population growth at the expense of prime agricultural land. Flood control is treated as a nonreimbursable cost at the federal, state, and local levels. In other words, all people share in the cost of flood control, whether or not they live on lands where there is an undue flood hazard. And, it so happens in California that the valley and basin lands, the flood hazard lands, are also the prime agricultural lands. Many of today's problems of urban sprawl would be abruptly halted by a reversal of this public policy. Information is available now for much of the State to delineate precisely the lands subject to flooding; and information can be obtained for those lands not yet so surveyed.

■ The Council recommends that present federal, state, and local policies which fund flood control projects at general public expense and thereby provide a public subsidy for the urbanization of flood plains (which are usually prime agricultural lands), be revised so that the landowners benefitted incur a more reasonable portion of the costs of such facilities.

Open Space Program

The concept of open space includes three basic components. First, there is positive open space -- those lands with a positive value to society which should be preserved for affirmative reasons dealing with the characteristics of the land itself. Examples include resource production and conservation areas such as forest land, agricultural land, watersheds, estuaries, wildlife refuges, unique geologic areas, historic and cultural sites, recreation land, and scenic areas. On the other hand, negative open space includes those lands such as earthquake zones, flood plains, and landslide areas which are dangerous to use for any urban purpose. Thirdly, open space can function as a greenbelt -- a band of open space normally surrounding an urban area

but which also may divide portions of a greater metropolitan region. It offers a means of defining a community and serves to direct the growth of a city.

The Council is convinced that a well-designed open space program can be a key to resolving major land use conflicts. If implemented with vigor, it could preserve lands needed to supply our resource needs, insure the maintenance of public safety by preventing the development of geologically hazardous areas, help meet our huge recreational demands, halt urban sprawl, provide direction for urban growth, and serve to more easily implement sound planning principles.

The State of California has recognized the importance of open space in Section 65561 of the Government Code, which states as part of the legislative findings:

> "a) That the preservation of open space land --- is necessary not only for the maintenance of the economy of the State, but also for the assurance of the continued availability of land for the production of food and fiber, for the enjoyment of scenic beauty, for recreation, and for the use of natural resources.
>
> "b) That discouraging premature and unnecessary conversion of open space land to urban uses is a matter of public interest and will be of benefit to urban dwellers because it will discourage non-contiguous development patterns which unnecessarily increase the costs of community services to community residents."

The State has provided the rudiments of an open space preservation program in the form of the Land Conservation Act of 1965 (the Williamson Act), which involves a contractual agreement between the county and the landowner whereby the latter agrees not to develop his property for urban uses in return for lower taxes. It should be emphasized, however, that this program is voluntary and that many property owners whose land is in the path of development have chosen to avoid such agreements.

The State has also required that local governments include an open space element in their general plans, that this element be supported by an implementation program, and that all actions of the city or county concerning open space lands be consistent with the plan.

Although these laws are steps in the right direction, they cannot be regarded as sufficient to provide for our open space needs. We cannot expect most landowners at the rural-urban fringe to voluntarily forego the potential economic gain of urbanization in favor of the Williamson Act, nor can we expect local governments to develop suitable open space programs on their own. The Council believes that a much greater level of involvement by the State is necessary.

The Council recommends:

- That an open space policy be incorporated into the State Environmental Goals and Policy Report. This policy would define the desirable objectives which should guide an open space program, delineate the areas of responsibility at different levels of government, outline the broad categories of land use which should be preserved, and establish priorities for open space preservation.

- That the Office of Planning and Research prepare by January 1974 a State Open Space Plan to become a functional element of the California Conservation and Development Plan and to augment and give substance to the state population growth and distribution policy. It should classify state lands into open space categories, indicate those areas which should remain as open space, designate lands sufficiently important to the State to require direct and immediate action to protect or preserve them, and outline a program and financial requirements necessary to implement the plan. The State Open Space Plan should also be designed to serve as a guide in the preparation of basin plans.

The Council is aware that open space preservation does not necessarily equate with land acquisition. While it is highly desirable to expand efforts to purchase land which has great value as open space, the use of the police power, principally zoning powers, will undoubtedly form the bulwark of open space regulation. Unfortunately, zoning has a rather poor record as a method of land use control. It is the feeling of the Council, however, that the strong wording of the legislation requiring open space elements, to wit:

"-- Any action by a county or city .... must be consistent with the local open space plan ....
"-- No building permit may be issued, no subdivision map approved, and no open space zoning ordinance adopted unless the proposed construction, subdivision, or ordinance is consistent with local open space plan ....
"-- Every city or county, by January 1, 1973, shall adopt an open space zoning ordinance."

provides sufficient restraints on local agencies that zoning can be used as an efficient tool for implementing open space plans, particularly if assessment practices are also changed.

Bond Funding Needed

However, if a statewide open space program is to be properly implemented, massive acquisition of private lands at the expense of the general taxpayer will be necessary.

■ The Council recommends that a bond issue in the amount of $250-million be placed on the November 1972 ballot to provide funds for the acquisition of needed open space, threatened wildlife habitats, and important scenic and historic areas of statewide significance. This measure should also provide for grants to regional and local agencies to assist in carrying out the purposes of a statewide open space policy.

Other Possible Methods of Funding Open Space

There is a practical limit to the general obligation bond approach to financing open space acquisition. Other methods need to be explored to supplement this basic source. Such alternatives as the unearned increment tax, a one-time change-in-use tax, and a regional or statewide property transfer tax are some that have been proposed. The question of open space requirements, and methods for financing acquisition of same, have been the subject of studies by both the Legislature and the Administration. The 1970 report of the Joint Committee on Open Space is perhaps the most pertinent. This same committee will report again to the Legislature during the current session and anticipates covering in more detail the critical question of open space funding.

Transportation -- Providing a Balance

It is well known that the automobile is the major source of air pollution in the State. Although steps are currently being taken to minimize this condition, it is projected that in the state's most critical air basins motor vehicle usage will have to be substantially reduced if national ambient air quality standards are to be equalled or even closely approximated.

And there are still further problems caused by reliance on the automobile. Travel demands in some of the major corridors may soon exceed the practical capabilities of the present highway program. Traffic projections in ten of the state's urban corridors, four in San Francisco and six in Los Angeles, indicate that as many as 14 to 22 freeway lanes may eventually be needed. Present plans call for no more than 12. If even portions of the projected future demand are to be met, alternative means of moving people must be developed or we face a choking off of our cities.

Currently transportation investment decisions are made by independent single-mode agencies or special districts at the state, regional, and local levels. The Division of Highways has had a single-purpose assignment in highway construction. In the San Francisco Bay Area, there are at least 15 overlapping agencies in addition to individual city and county governments, all with some responsibility for transportation. The existence of many single-mode agencies hampers the effective integration of transportation planning with other community planning and hinders coordination between the various modes. Regional planning agencies which in theory are responsible for developing area-wide transportation plans as part of their comprehensive planning process have been largely ineffective due to a lack of funds to perform transportation planning and a lack of authority to implement plans they might develop.

■ The Council recommends that a Department of Transportation be created within the Business and Transportation Agency, and that this department, in coordination with and subject to the approval of the proposed Environmental Quality Board, develop a comprehensive state master transportation plan for California, analyzing all modes of transportation, with primary emphasis on the development of integrated mass transit

systems for the major metropolitan areas, such plan to become a part of the California Conservation and Development Plan.

Timely action is clearly required if California is to meet successfully these transportation challenges and remain a leader among the states in developing an efficient transportation system. Several other states, New York, New Jersey, Maryland, and Massachusetts, for example, which are facing similar problems have already reorganized their transportation agencies and have assigned to them varying degrees of responsibility for conducting statewide transportation planning for all modes. Failure to do so in California will almost certainly result in further deterioration of the environment as well as in the quality of transportation services in the State, particularly in the urban areas.

More State Involvement -- Increased Funding

The recent passage of SB 325 (Chapter 1400, Statutes of 1971) makes the consideration of an integrated transporation organization especially timely. This legislation provides approximately $150-million in new funds to support comprehensive transportation planning at the state and local levels and calls for the Secretary for Business and Transportation to take a more active role in public transportation through the promulgation of rules and guidelines for the use of local transportation funds provided by the bill. As a result, SB 325 provides both a requirement and to some extent the means for the State to become more actively involved in multi-modal transportation planning, transportation research and development programs, and securing federal funds for needed transportation facilities. However, far more funding is required.

- The Council recommends that additional funding be made available to mass transit, giving consideration to a variety of funding sources, including gasoline taxes, excise taxes on automobiles, and taxes on the increased value of property resulting from development of mass transit facilities.

Rural Development

California's land use problems unfortunately are not restricted to urban growth corridors. During the past decade a great land boom has originated

in the more remote rural areas of the State as the vacation home industry has gained momentum. With added leisure time, rising incomes and living standards, more adults over age 60, more and better roads giving access to recreational areas, and more dissatisfaction with the frustrations of urban living, there has been an inevitable gravitation to vacation homes. In 1971, one out of every ten new housing starts in the United States was for a vacation home. Since 1957, land projects in California have been approved totalling 172,497 lots on 341,373 acres! It has been estimated that in several northern California counties existing lots could accommodate the established growth rate in those counties for the next one hundred to three hundred years. However, because the build-out rate (number of houses built in proportion to lots sold) is very low -- between one and three percent -- large tracts of land throughout the State are virtual ghost cities, with networks of streets and blocks of cleared and houseless lots sitting in the middle of nowhere.

In the past little attention has been given to the potential harmful environmental effects of the premature subdivision. A recent report of the Department of Conservation 1* cited accelerated erosion and sedimentation, loss of vegetative cover, polluted water, loss of fish and wildlife, overuse and loss of recreational areas, diminished surface water, reduced groundwater recharge, reduced storage capacities in reservoirs, increased flood hazard, diminished grazing and timber lands, scarred landscape, greater fire hazard, severed access to public lands, streams and lakes, and intensified air pollution as being some of the more significant detrimental impacts.

Last year the Legislature passed three measures which it is hoped will insure more adequate consideration of the environment by local government and provide better information on the financial pitfalls of the premature subdivisions to the prospective buyer.

AB 1300 (Chapter 1399) extends to fourteen days the time period within which a buyer can rescind on an executed contract for purchase of a lot within a land project.

1* "Environmental Impact of Urbanization on the Foothill and Mountainous Lands of California," November 1971.

AB 1301 (Chapter 1446) provides that no city or county shall approve a subdivision map unless it is consistent with the general or specific plans of the city or county, and that no city or county shall approve a land project unless a specific plan has been adopted for the area to be covered by such project and unless such project is consistent with the adopted specific plan. AB 1301 also expands the grounds on which land projects and subdivisions shall be denied to include "substantial environmental damage". It further provides that all city and county ordinances shall be consistent with an adopted general plan by January 1, 1973.

AB 1302 (Chapter 1327) provides that the Office of Intergovernmental Management shall serve as a clearinghouse for providing state expertise to cities and counties requesting such service in connection with a subdivision or land project.

The above legislation imposed new requirements on local government and provided improved tools for dealing with premature or second home subdivisions in rural areas. The situation would be further improved by bringing certain of these areas under the interim permit control as proposed in the Council's first recommendation.

Short of that, however, additional measures regarding "finding of need" and strengthening local plans and ordinances can and should be taken promptly.

■ The Council recommends:

- Legislation that would require as a condition for approval of a land project as defined in Section 11000.5 of the Business and Professions Code, that the local agency make a finding based on the "build-out" rate in the vicinity, the number of lots being offered for resale, and other market indicators, that there is a need for the project. Certainly if only 200 homes had been built over a six-year period in a county where the subdivision of some 15,000 lots had been approved, the need could be legitimately questioned and a finding made to that effect.

- That the Office of Planning and Research develop criteria for determining the adequacy of city and county general plans and that appropriate procedures be developed (which might include the withholding of certain state subventions to local government) to insure such criteria are adhered to.

- That cities and counties be required to adopt adequate grading (including maximum slopes) and erosion and sedimentation control ordinances to apply to all development. Since a significant number of lots are sold in rural areas which do not come under the Subdivision Map Act, cities and counties should also be required to adopt minor subdivision ordinances in order that all division of land, or "lot splitting" can be regulated.

- That cities and counties be given the authority to review all subdivisions approved prior to the Subdivision Map Act, and, where little or no development has occurred, revert the unused lots to acreage, as provided for by Chapter 4, Part 2, Division 4, of the Business and Professions Code.

AB 1304, which did not pass the 1971 Legislature, would have authorized counties to impose a tax on the privilege to subdivide land at the rate of 5 percent of full market value of property within a land project sold to another person. This concept should be pursued not only because of the cost that must be incurred to service these developments but because of the open space and other amenities that must be replaced.

California's Disappearing Coast

For the state's fourteen million residents living within one hour of the coast, it has unparalleled recreational significance. But of the 1,272 miles of shoreline, a little over 400 miles is in public ownership, of which only about 300 miles are available for actual public recreational use.

The same features which contribute to the uniqueness of our coast also make it very desirable for development, and particularly in the South Coast, where the pressure to "build, build, build" has been tremendous. Nor is the threat restricted to Southern California. In the north, second home recreational subdivisions are proliferating along the accessible parts of the coast. In one 50-mile stretch between Dillon Beach in Marin County and Del Mar Point in Sonoma County, 33 miles are occupied by subdivisions without even minimum public access beyond mean high tide. In the Half Moon Bay area of San Mateo County, developers are poised to suburbanize most of the coast -- awaiting only the provision of domestic water.

Skirmishes and outright battles between environmentalists and developers and other powerful private interests, public utilities, single-purpose governmental agencies, and, ironically, environmental regulatory agencies, have become commonplace in communities along the entire coast. A random listing includes a proposal to dredge gravel from the mouth of the Russion River at Jenner, proposed high density development on prime agricultural flood plains at the mouth of the Carmel River, large growth-promoting sewage treatment plants at Bodega and Malibu, coastal freeways near Eureka, Malibu, Santa Cruz, and Santa Barbara, and proposed nuclear power plants at Bodega Head, Point Arena, and Davenport. Suffice it to say that with ever increasing momentum a battle is being waged on many individual fronts to protect the environmental qualitites of the coast from the onslaught of progress.

Given the relentless pressure of development focused on the limited land area in the coastal zone, no immediate measure of success can be expected within the currently existing system of fragmented and undirected authority. It is clear that immediate and positive action is necessary to forestall further despoliation and preserve the environmental integrity of the coast.

The Council has attempted to deal with the coastal zone by bringing it within the interim permit jurisdiction of the proposed State and Regional Environmental Quality Boards. The Council recognizes, however, that a governmental mechanism to protect the coastline is long overdue and must stand on its own in the event the creation of the State and Regional Environmental Quality Boards does not become a reality this year. It is for this reason that the Council will strongly support legislation for the creation of a separate entity to develop a coordinated plan for the coastal zone and to exercise interim permit authority while the plan is under preparation.

It should be understood, however, that such an approach is temporary, necessitated only by the immediate threat of great irreversible damage to a unique and limited resource, and that at the appropriate time it would be integrated into a broader framework for dealing with land use control.

Geologic Hazards

Rapid urbanization of the State

has often ignored the obvious threats to life and property -- flood, earthquake, and landslide. Legislation has been addressed to these problems, but further steps need to be taken to strengthen the applicable provisions and to insure that they are properly implemented.

The Cobey-Alquist Flood Plain Management Act of 1965 presently requires that flood plain regulations be adopted by local agencies only when a federal flood control project report has been completed, and that such regulation need pertain only to the design floodway -- that portion of the flood plain which is needed to provide for the construction of a flood control project. This Act needs to be strengthened considerably.

■ The Council recommends that the Legislature expand the provisions of the Cobey-Alquist Flood Plain Management Act to require that all lands which have been or may be inundated by floodwaters be subject to flood plain regulation, irrespective of the existence of any federal flood control project report, and that those uses which are not compatible with flood plain lands be so defined as part of the Act.

The Legislature last year added Section 11549.5 to the Business and Professions Code, which specifies that no governing body of a city or county shall approve a tentative or final subdivision map if it is found that the site is not physically suitable for the proposed type of development. It is the hope of the Council that this provision will enforce adequate consideration of geologic and soil characteristics with respect to landslides prior to the development of questionable areas. There is, however, a need to provide local government with assistance in evaluating such matters.

■ The Council recommends that, in order to provide a better perspective for local government, the appropriate state departments, coordinated by the Resources Agency, be directed to prepare criteria for the use of local agencies in determining the sufficiency of soil and geologic conditions to accommodate development with a minimum landslide hazard and establish procedures for adherence to these criteria.

With the passage of SB 351 (Chapter 150, Statutes of 1971), local jurisdictions are required to include a seismic element in their general plans. However, there is very little agreement as to what constitutes an acceptable

earthquake risk, and thus a widely divergent range of approaches to seismic safety regulations. The Council on Intergovernmental Relations is presently developing two demonstration projects designed to formulate guidelines for the preparation of the seismic safety element. The Division of Mines and Geology, State Department of Conservation, which has already done considerable work in this area, including a recently completed Master Plan for Urban Geology, will provide assistance. These efforts, strengthened by the recently created Governor's Earthquake Council, give the State an excellent opportunity to give strong direction to local government in this important area.

The Council recommends:

- That the guidelines now being prepared by the Council on Intergovernmental Relations for the seismic safety elements (recently required as part of local general plans) include a definition of earthquake risk, a classification of land into standard earthquake hazard zones, and minimum design specifications for construction in different zones.

- That it be a matter of state policy, contained in the Environmental Goals and Policy Report, that the continued development of geologically unstable land constitutes a threat to the citizens of California, and hence should be prohibited. In addition, guidelines and earthquakes should also be incorporated as part of the Environmental Goals and Policy Report.

The State's Land Use Role

In 1959 the Legislature created the State Planning Office, which was charge with the responsibility to "prepare, maintain, and regularly review and revise a comprehensive long range general plan for the physical growth and development of the State". Ten years and four million dollars later, the office produced the California State Development Plan Program, which presented a wide range of social, economic, environmental, and political issues facing California, with recommendations for improving the ability of government to resolve them. Although the Development Plan Program was valuable in establishing a perspective of California's problems, it was not a comprehensive plan and did not provide a basis for guiding growth in the State.

Office of Planning and Research -- In 1970, the Legislature replaced the State Office of Planning with the Office of Planning and Research (OPR). This new planning entity, operating within the Governor's office, was given the primary responsibility to assist in the formulation, evaluation, and updating of the long-range goals and policies for land use, population growth and distribution, urban expansion, open space, resources preservation and utilization, and other factors which shape statewide development patterns and significantly influence the quality of the state's environment, These environmental objectives are to be translated into a State Environmental Goals and Policy Report. Prior to approval by the Governor, the report is to be submitted to the Legislature for review and comment.

In the preparation of the report, OPR was instructed by enabling legislation to give "immediate and high priority" to the development of a land use policy which was to consider among other things:

-- Areas of outstanding scientific, recreation, and scenic value.
-- Areas which are required as habitat for significant fish and wildlife resources.
-- Forest and agricultural lands which are judged to be of major importance in meeting future needs for food and timber.
-- Areas which provide green space and open areas in and around high density metropolitan development.
-- Areas which are required to provide needed access to coastal beaches, lakeshores, and riverbanks.
-- Areas which require special development regulation because of hazardous or special conditions, such as earthquake fault zones, unstable slide areas, flood plains, and watersheds.

In addition to the primary responsibility of policy formation, OPR is given the planning responsiblities to: (1) assist in the preparation of short-range functional plans by line agencies to guide programs such as water development, transportation, and open space which relate to the protection of the environment; (2) evaluate departmental programs and identify conflicts and recommend measures to resolve conflicts; (3) assist the Department of Finance in program budgeting to insure an integrated program of priority actions to implement functional plans and achieve statewide environmental goals; (4) coordinate the development of policies and criteria to ensure that federal grants-in-aid advance

statewide environmental goals; (5) coordinate research activities of state government pertaining to growth and development of the State and preservation of the environment; and (6) advise the Governor and his cabinet.

It is evident from these provisions that the Legislature intended that OPR assume a central planning role in state government. But however sufficient the provision of statutory authority may be, it is no quarantee that the delegated responsibilities will be adequately carried out. OPR has currently a staff of seven professional and three clerical personnel, and a budget of approximately $180,000, about 50 percent of which is provided by the federal government. Most of OPR's efforts have been directed toward the preparation of Environmental Impact Statement guidelines, Phase I of the Land Use Policy, and the Goals and Policy Report due the Legislature on March 1, 1972.

It is proposed by the Council that OPR become a part of the previously recommended comprehensive statewide environmental entity. With additional funding and specific new direction the office can, however, play a strong interim role and begin immediately on the important land use program recommended by the Council.

Area-Wide Planning

The evolution of area-wide planning unfortunately is a very slow process. During the 1960's significant gains were made with the formation of councils of government, voluntary associations of cities and counties, which strove, through coordination of metropolitan governments, to resolve regional problems. There currently exist in California four multi-county and ten single-county councils of governments of which the Association of Bay Area Governments (ABAG) and the Southern California Association of Governments (SCAG) are the most notable examples. Not all of them, however, have the broad regional perspective of ABAG and SCAG. Neither do all the regions in the State have a regional planning program. Most important, they all lack any authority to implement an ongoing regional planning effort other than by gentle persuasion of local government. Should a county or city hold fast to a development policy which conflicts with regional policies and plans, the particular council of government is powerless, and the implementation of regional objectives thwarted.

It is for this reason that the Council advocates the creation of Regional

Environmental Quality Boards in each geographic region of the State as a long range goal toward the establishment of a strong land use planning and regulatory program which balances local needs with overall state goals and policies.

This proposal does not have to be viewed as a drastic change for the role of local government. It simply recognizes the need for state and regional leadership and the fact that present approaches are inadequate. This recommendation lays out a new partnership with local government in the area of land use planning and built-in methods to insure that local and regional entities perform in a manner consistent with statewide criteria and development goals.

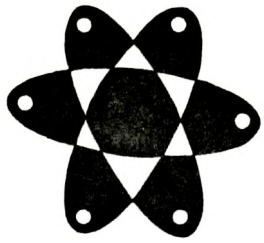
Environmental Impact Statements

The Environmental Quality Act of 1970 provides that all state agencies, boards, and commissions submit an Environmental Impact Statement (EIS) on any project they propose to carry out which could have a significant impact on the environment, and, if responsible for allocating state or federal funds to local projects, they are obligated to require that the responsible local agency submit an EIS as well. Local agencies are required to prepare an EIS in connection with locally funded projects, but are only required to make a finding that the project is consistent with the conservation element of the city or county general plan, or, in the absence of such an element, submit the report to the local planning agency. In such cases, however, no agency is obligated to rule on the adequacy of the reports or consider their findings.

The Act is one of the most significant environmental measures yet passed by the Legislature and has been an effective tool in protecting the environment. There are ways, however, by which the process could be strengthened. The Legislature declared in the Act that:

> "It is the intent of the Legislature that all agencies of the state government which regulate activities of private individuals, corporations, and public agencies which are found to affect the quality of the environment, shall regulate such activities so that major consideration is given to preventing environmental damage."

Unfortunately, the mandatory aspect



of the law limit the EIS requirement to "projects", and local agencies have not been inclined to interpret it in any way that would go beyond this point. The Environmental Quality Act of 1970 (Section 21000 to 21151, Public Resources Code) should be specifically broadened in its application to cover public and private "actions" as well as "projects", to require discussion of the population growth implications of such actions and projects, and to require the responsible public entity to make appropriate findings.

■ The Council recommends that the Environmental Quality Act of 1970 be amended to: (1) specifically apply to all "actions" of state and local government, including special districts, which would have a significant impact on the environment; (2) specifically apply to regulatory activities as well as those that are being carried out by the entity itself; (3) require that cities and counties prepare an EIS on any change of zoning or contemplated private project that will have a significant impact on the environment; (4) include as one of the elements of an EIS a detailed statement on the population growth and distribution implications of the action; and (5) require that the decision of the responsible entity adhere to the findings of the EIS unless, consistent with the intent of the Act, it makes a specific finding that the benefits to the public outweigh the disadvantages to the environment.

Land Use and Population - Unresolved Environmental Issues

Although the State has dealt effectively in individual areas of environmental quality, the basic underlying questions of land use and population remain substantially unaddressed. Hopefully the preceding discussion and recommendations will pave the way toward a meaningful process for dealing with these critical environmental issues.

C/ ENERGY USE

Introduction

In an attempt to better understand the conflict between environmental quality and a highly industrialized, fast growing society's ever increasing demand for energy and the fuels that produce that energy, the Council held four hearings devoted to some aspect of this problem.

The first, on nuclear energy, was held

in Sacramento in January 1971. The second, on power plant siting, was held in Santa Cruz in February 1971. The third was on geothermal energy, in Lakeport, in August 1971; and the final hearing, on the overall question of energy use, was held in Los Angeles in December of 1971.

The following discussion is based on testimony from these hearings as well as other reports and information supplied by those who were asked to participate. It is an attempt to put into perspective the whole question of energy use and to chart a course for needed change.

Overall Energy Problem

For purposes of this report, energy means all the primary sources for producing heat and motive power. Most of man's energy needs, including electrical energy, are dependent on fossil fuels, namely: gas, oil, coal, and natural gas. Fossil fuels as a primary source of energy create two major problems: they are non-renewable resources; and the combustion of these fuels causes, among other things, air pollution. Also, continued increase in the use of fossil fuels could further adversely affect climate over a period of time, particularly in areas like the South Coast Basin where their use is concentrated.

Viewed on an international level, it appears that reserves of natural gas are sufficiently limited that priorities in utilization will have to be imposed in the near future. It further appears that oil and gas may be available in quantities needed for heavy utilization for another century. Coal appears to be sufficiently plentiful for several centuries of heavy utilization. It is ironic that the most plentiful of these fuels, coal, is the greatest atmospheric pollutant, whereas the least plentiful, natural gas, is the least polluting.

Energy Use and the South Coast Basin

The total annual energy release within the South Coast Basin translated to a common frame of reference is 557 billion kilowatt hours (kwh). The combustion of fossil fuels accounts for 96 percent of this amount. The remaining 4 percent is electric power imported from outside the basin, and human metabolism at the rate of 3200 calories/day/person. 2*

Of the fossil fuel consumed in the basin, 24 percent goes to operate electric generating facilities, although electrical energy itself accounts for only 8.5 percent of all energy produced. This means that of about 135 billion kwh of fuel burned to produce electricity, only 47.8 billion kwh actually becomes electricity, the remainder being lost primarily from inefficient conversion at the plant and in transmission. Of the remaining fossil fuels, 30 percent is used for all forms of transportation, and 45 percent for various industrial activities. In terms of air quality, the 30 percent devoted to transportation constitutes about 80 percent of the total tons per day of emissions into the atmosphere.

Given the enormous amount of fossil fuels being consumed in the South Coast Basin, it is the conclusion of the Environmental Quality Laboratory at the California Institute of Technology that, with the best possible application of technology and assuming that all automobile emissions standards for 1976 are met in 1975, ambient air quality can only be improved temporarily and, unless new energy demand is absorbed by a non-polluting energy source, will again proceed to deteriorate. 3*

It is clear to the Council, based on testimony received, that consumption of fossil fuels has now become so great that our ability to reduce emission factors is being surpassed, and that steps must be taken to substantially reduce the use of fossil fuels as an energy source in the state's most critical air basins. The primary option to the use of fossil fuels is electric energy supplied through the use of alternate sources. Unfortunately, our present technology does not permit us to do this without confronting other environmental problems.

Electric Energy

Electric generating capability in California has doubled each ten years for

2* "Energy and the Environment in Southern California," E. J. List, Environmental Quality Laboratory, California Institute of Technology, in Council's Energy Use hearing, December 17, 1971.

3* Ibid.

the last thirty years and, as presently projected, could grow at this rate in the decades to come. This is an average of nearly 8 percent per year, only one third of which can be attributed to population growth. The other two thirds is caused by increase in per capita demand. Although other forms of energy use have expanded at a nearly comparable rate, electric energy consumption and its impact on the environment have been of increasing concern. And this concern and impact is more far reaching than many had expected. A classic example of the relationship of electric energy demands, environmental degradation, and resources depletion is the power complex being developed in the "Four Corners" area of the Southwestern United States. Because energy production in such places as the South Coast Basin is causing more pollution than the atmosphere can healthfully handle, it has become necessary to look outside the basin for supplies electricity. The fact that this threatens to create an environmental export-import problem of considerable dimension was borne out in the Council's December 1971 hearing by representatives of the State of New Mexico, the Black Mesa Fund, and the Navajo Indian Tribe.

One power plant now operating in "Four Corners" consumes 7 million tons per year of coal, 20 million gallons per day of water, and produces 1-1/2 million tons per year of solid wastes, and at one time produced enough oxides of nitrogen to equal as much as one-third of that produced in Los Angeles. The consequences of meeting power needs in this manner are obvious.

Factors Contributing to Growth

Electricity consumption is generally analyzed according to commercial, industrial, residential, governmental, and other.

Commercial uses accounted for about 30 percent of the total electric consumption in 1970, statewide, but run as high as 40 percent, for example, in the area serviced by Pacific Gas and Electric Company. The growth in this category is due to an increase in commercial floor space of about 6 percent per year and an increase in demand per square foot of 4 percent per year, brought about by more lighting, environmental conditioning, and the fact that a substantial amount (40 percent in the South Coast Basin in 1970) of new floor space is all electric. 4*

Industrial uses account for about 30 percent of total sales. Although industrial activity has been dropping off somewhat, overall growth amounts to 7 percent annually. Part of the growth in industrial consumption is caused by the same factors that affect commercial use, while some is brought about by more intense manufacturing processes. 5*

Residential use has gone from 17 percent of total sales in 1950 to 27 percent in 1970. This growth is due primarily to an increase in the number of single individual households (this trend, however, is levelling off) and demand in home appliances and environmental conditioning, such as central heating and air conditioning. Between 1961 and 1969 average sales per customer have increased 6 percent per year -- from 3290 kwh to 5244 kwh. Since there is clearly room for growth in the residential sector, it does not appear likely that the 6 percent annual growth rate will be significantly reduced. 6*

Government (buildings, street lighting, etc.) and other uses (farming, mining, etc.) have been growing at about 8 percent per year. 7*

Electric Energy Conservation

The basis of an overall energy use policy for the future must be conservation. Unfortunately, electric energy policy to date has totally disregarded this element. The national policy for many years has been to provide abundant low cost energy. We are fast beginning to realize that this goal must be reevaluated. Electricity can no longer be treated as an unlimited commodity, and, as with any other valuable resource, its waste cannot be tolerated. If we are to devote greater amounts of future capacity to the replacement of fossil fuels (including a portion of the 24 percent now being used for electric power production in the South Coast Basin) and other environmental efforts, we must develop

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4* "California's Projected Electrical Energy Demand and Supply," Report to the Assembly General Research Committee, California Legislature; Dr. Lester Lees, Environmental Quality Laboratory, California Institute of Technology, in Council's Energy Use hearing, December 17, 1971.

5* Ibid.

6* Ibid.

7* Ibid.

measures to reduce consumption for nonessential uses and use what is available in the most efficient, nonpolluting manner. Some measures for accomplishing this are:

Pricing -- At present the per unit cost of electricity goes down as the amount consumed goes up. The result is that many large commercial and industrial developments treat electricity as nearly a no-cost item. Rates should include the environmental costs of producing electricity and should be designed to discourage waste. Certainly a rate structure that facilitates the all-night lighting of large office buildings has to be questioned. On the other hand, any rate modifications should not work hardships on lower income groups or counteract efforts to replace the use of fossil fuels.

Advertising -- Advertising, particularly of the "all-electric" variety, has contributed significantly to increased consumption. It has also led to the inefficient use of electricity, particularly with regard to space heating. Some utilities have recognized the problem and have turned away from promotional advertising. This trend should be expanded, and the future thrust of utility advertising should be toward ways to conserve energy.

Building Construction and Design -- There is a great deal that can be done in the area of building construction and insulation. Recently the President directed the Department of Housing and Urban Development to develop standards with this objective in mind, to be applied to all federally assisted housing. This effort should be expanded into the area of building design which, as was demonstrated at the Council's hearing on Energy Use, offers tremendous potential. By taking advantage of sunlight, shade, and prevailing wind, much can be accomplished.

Greater Efficiency -- Every effort must be made to get more efficiency from the energy that is expended. The question of space heating has already been mentioned as has the fact that of the 135 billion kwh of fuel burned in the South Coast Basin, only one third of this came "on line" in the form of electricity. A simple incandescent bulb that converts 90 percent of its energy to heat and only 10 percent to light is another example of the problem. Efforts to get more efficiency from the production of energy, through transmission and to the point where it is converted to heat or motive power, should be vastly expanded. Such efforts should not be limited to electric energy. There are many other processes, the

automobile, for example, where fossil fuels are used in a very inefficient manner.

Balancing Supply and Demand -- Approximately one third of the state's electric energy-producing capability goes unused 95 percent of the time, standing by to cover periods of peak demand. To the degree that this problem could be alleviated, a more proper balance between electric energy supply and demand could be attained.

Dr. Lester Lees has suggested that peak demand periods could be "shaved" by such measures as "rolling blackouts" (reducing power in certain areas for one hour, and then moving to another area), heat storage, charging different rates during peak demand periods, and putting nonessential appliances on separate circuits.

The Need for Additional Electricity

Although the State must move aggressively in the field of conservation, it must also be prepared to handle the expected need for future power plant facilities in an orderly manner.

In 1970 California had an electric power capacity of 32,000 megawatts (MW(e)), including imports. If this is projected at a 7 percent annual growth rate, taking into account a 20 percent margin (required for peak loading, shutdown for maintenance, etc.), the State will need about 55,000 MW(e) by 1980. This means about 3,500 MW(e) in new electrical generating capacity each year by 1975, and 5,000 MW(e) of new capacity by 1980. 8* Using a 5 percent growth rate figure plus 20 percent, the requirement will be approximately 45,000 MW(e) by 1980.

Hopefully new efforts and attitudes regarding conservation of energy will prevent the 7 percent per year "self-fulfilling prophecy" from materializing. However, it is not likely that we will reach the point in the foreseeable future where there is no longer the need for new electric generating facilities, particularly if, as part of an overall energy policy, we intend to reduce the use of fossil fuels. Even if the growth rate were cut to 3.5 percent

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8* "California's Projected Electrical Energy Demand and Supply," Report to the Assembly General Research Committee, California Legislature.

between 1970 and 1980 and to 2 percent between 1980 and 1990, 70,000 MW(e) will be needed by the end of that period. Assuming that by 1980 the very low growth figure of 2 to 3.5 percent per year could be achieved, some 2,000 to 3,500 MW(e) of new electrical generating capability will be required each year beyond that time. 9*

What is required is a strong program of conservation combined with a strategy for developing all feasible, safe, and environmentally sound means for replacing, to the degree possible, energy produced by fossil fuels, as well as new technology and institutional mechanisms for carrying out these objectives.

Nuclear Energy

The only planned alternative to fossil fuel capable of meeting future demand in the time required is nuclear energy. There are, however, certain environmental issues that have been raised in connection with full-scale development of nuclear power plants which have not been resolved.

Low-Dose Radiation -- This involves the radiation that is emitted from normal operation. Dr. Arthur Tamplin, Lawrence Radiation Laboratory, Livermore, gave testimony on this point at the Council's January 1971 hearing, asserting that a danger exists in this area and that the Atomic Energy Commission should set more stringent standards. The AEC is now in the process of adopting standards equivalent to those recommended by Dr. Tamplin. As a result, the question of low-dose radiation in connection with normal plant operation will be reduced in significance.

Reacter Safety -- Although great precautions are taken in the construction and operation of nuclear reactors, there is no guarantee that an accident will not or cannot occur; and this fact continues to be a major concern in the minds of many who point to the possibility of an earthquake or an operating malfunction as a potential threat to the surrounding area.

9* Dr. Lester Lees, Environmental Quality Laboratory, California Institute of Technology, in testimony at hearing on Energy Use, December 17, 1971.

Hopefully this problem can be lessened by improved technology, better quality control during construction, new AEC seismic standards, and location of plants underground or in remote areas.

Land Use and Plant Siting -- Because of the tremendous water demands, the coastline is usually thought to be the most economical and suitable location for nuclear power plants. There is concern that, if most of our future power needs are to be met by nuclear energy, major portions of the coast will be devoted to this purpose. Other issues related to land use and siting are the need for transmission lines and the amount of related industrial and commercial development that the location of power plants might prompt. Perhaps this particular situation can be improved by consolidating facilities and thereby reducing the number of sites, or perhaps locating the plants underground or in more remote, somewhat inland sites, out of public view but near enough to the ocean to utilize this source of water. Some non-ocean oriented sites can be justified (such as Rancho Seco, 25 miles southwest of Sacramento), but, because of water supply, they might be limited.

Thermal Effects -- Marine biologists have raised serious objections with regard to the effects of warm water discharges. Future plants will have to be sited, designed, and operated in a manner that will minimize these adverse effects and, where possible, derive some recreational, municipal, and industrial benefits from warm water discharges.

Transportation -- Spent fuel or high-level wastes from nuclear reactors must be transported to reprocessing plants where fuels are processed for reuse and where wastes are stored. The high-level (highly radioactive) wastes travel by truck or train in containers that are expected to meet rigid testing procedures, under the supervision of the AEC. Although transportation is tightly controlled by regulation, increased activity brought about by a growing number of nuclear power facilities will increase the possibility of accidents.

Fuel Reprocessing -- Reprocessing currently takes place at three locations throughout the country. Although regulated by the AEC, these plants will not be required to meet the new guidelines for low-dose radiation being proposed for power generating facilities. Some concern has been expressed that

radiation standards and operating procedures should be more stringent, particularly since increased construction of nuclear reactors will undoubtedly require more fuel reprocessing facilities.

Waste Storage -- Nuclear energy advocates and opponents alike recognize waste storage as a problem that has not been completely resolved. Because of the tremendous life span of some of the highly radioactive wastes, permanent storage and long-term stewardship becomes critical. Presently all such wastes are being stored at the three reprocessing plants, and no permanent type storage has been developed. This problem must be resolved if present day and fast breeder reactors are to be developed to the degree contemplated.

Near-Zero Emission Electric Energy Alternatives

There are a number of other alternative sources of clean electric energy which can in varying degrees, and in some cases subject to a great deal more research and development, play an important part in meeting future demands and in reducing the use of fossil fuels.

Geothermal -- There are presently operational geothermal systems which produce electric power by steam from underground heat sources. The only such system presently producing electricity in California is at The Geysers in Sonoma County, which is being counted on to supply 106 MW(e) per year through 1979. There are other potential sites, the most significant of which lies in the Imperial Valley. However, some complex technical problems are as yet not resolved, and it may take up to ten years to produce just a few thousand MW(e). Certainly geothermal resources need much more attention, but they can only be viewed as part of a total approach to meeting future demand and not, as some have suggested, a way to "buy time" for ten or twenty years.

It is difficult to make a general statement about the environmental impact of geothermal development, because it varies by location. Some areas, like The Geysers, are readily developable, while the Imperial Valley has many problems yet to be resolved. Other potential sites are in areas of great scenic beauty and should not be used for this purpose.

The Use of Wastes -- Combustion of

liquid and solid waste material in connection with electric generating facilities (although not "near-zero emission") is one approach to which more attention should be given. However, this type of integrated system will probably have more value for its waste disposal capabilities than as a future power source.

Solar Energy -- The energy continuously radiated by the sun is potentially capable of supplying all of man's energy needs. Unfortunately, technology is many years away from collecting and distributing this source in any significant amount. It has been demonstrated, however, that it does offer more immediate potential for new residential construction for such things as space heating, which demand a significant amount of energy.

Hydro Power -- The storage and use of water for the production of electricity has played an important role in meeting demands in the past. However, it does not emerge as a significant factor in terms of future growth. Hydro power possibilities have largely been exhausted, and further developments would alter the free flowing character of the remaining rivers and streams.

The Alternatives in Balance

The above alternatives, unfortunately, have to be considered limited as major sources of power at least during the 70's and 80's. However, in the cases of solar and geothermal energy, concentrated effort should be made to maximize their potential in the shortest possible time.

The development of nuclear fission (present day and fast breeder reactors) over the next 10 to 20 years, considering other alternatives, appears to be the most feasible step toward meeting the state's increased electrical demand, which at present is almost totally dependent on the use of fossil fuels. What is of utmost concern to the Council is that adequate steps be taken to insure that this source of energy is developed in a way that minimizes the detrimental effects on the environment, conserves our fuel resources, and is safe. In particular, continued development must be conditioned on finding suitable solutions to the problems of radioactive waste handling, processing, and storage.

Coupled with this, the Council urges a concerted national effort to develop nuclear fusion (a reaction which

involves very little waste and is expected to produce electricity more efficiently) as the country's major source of power in the long-term future.

Overall Energy Use Strategy

Energy use has become one of the most critical environmental issues facing the State. Present attitudes and public policy have led to the unrestrained use of natural resources and excessive pollution. A clear cut energy use and power plant siting policy, with emphasis on conservation of energy, the appropriate governmental mechanism for implementing such a policy, and a coordinated state and federal research and development program on all aspects of the problem is required.

■ The Council recommends that an Energy Conservation and Power Plant Siting Commission be established to develop, in cooperation with the federal government, the proposed Environmental Quality Board, and all other appropriate agencies, organizations, and individual citizens, an overall energy use and power plant siting policy and measures for its implementation. Such a policy should involve: (1) specific measures for reducing the per capita use of energy and for using energy which is available in the most efficient manner; (2) continuing evaluation and provision of legitimate energy needs; (3) developing all feasible and safe means for replacing, to the degree possible, the use of fossil fuels with near-zero emission electric energy; and (4) a program for massive research and development and new technology regarding alternative sources of power, the siting of power plants, the transmission of electric power, and the handling, processing, and storage of wastes.

The Commission would also develop a statewide power plant siting plan, after appropriate public hearings, which would be subject to the approval of the State Legislature and the Environmental Quality Board, and which would constitute a master plan of preferred sites and become a part of the California Conservation and Development Plan. The Commission would test each proposal for power plant development and transmission line routing against

the approved master plan, as well as various demand, environmental, scenic, and safety standards and criteria, and, after holding public hearings, have the authority to approve or reject the proposal.

The Commission might also be given the authority to purchase sites in advance of need and lease them back to utility companies.

Research and Development

Massive new efforts in research and development will be required if we are to meet future energy needs in an environmentally responsible way.

■ The Council recommends that the federal government be urged to embark on massive research and development programs in connection with new sources of energy, power plant siting, energy conservation, and other matters related to energy policy administration.

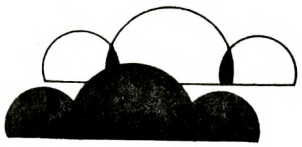
Funding of a Statewide Energy Use and Power Plant Siting Program

Exclusive of what the federal government must do in the way of research and development, the state's responsibilities for planning, development, conservation, and research will require a substantial amount of funding.

■ The Council recommends that a use tax (as well as an increase in the basic rates) be applied to the higher usage portion of the utility rate structure to finance the statewide energy conservation and power plant siting program. Present rate structures for electric power begin at a few cents per kilowatt-hour (kwh) and drop to several tenths of a cent per kwh as usage increases. A tax of one mill per kwh in the high-use brackets could raise as much as $50-million. High volume energy users such as rapid transit agencies and those engaged in other environmentally beneficial activities should be exempt from such taxes or rate modifications.

A Parting Shot

The president of the board of directors of a large utility district recently



commented in response to a suggestion from a fellow board member that the district should encourage ways to conserve energy through home insulation, "Our job is to sell electricity. That's what makes the cash register ring."

Hopefully we have moved beyond this point and a sound statewide program of energy use will be forthcoming.

D/ AIR QUALITY

Introduction

The condition of the air we breathe continues to be the number one pollution problem in the State. It is certainly the most obvious index of environmental degradation and the most difficult and complex to deal with. It inflicts widespread and costly damage on plant life and buildings and materials. It dims visibility and obscures city skylines and scenic beauty. It produces undesirable odors, alters climate, and may even produce global changes in temperature. However, most important is its threat to human health. Medical testimony presented to the Council as well as to other public bodies indicates that air pollution is a serious menace to the health of man and constitutes a state of chronic and increasing emergency. Little more need be said by this Council to justify the necessity for strong and imaginative measures to control air pollution than the fact that oxidant levels, in our more congested areas, exceed by as much as six times the air quality standards based on preservation of health set by the State Air Resources Board.

Causes

The air pollution problem in California varies widely in terms of both character and extent. In the South Coast Basin and the San Francisco Bay Area, the major problem is photochemical air pollution, or smog, measured in terms of ambient oxidant concentrations. The primary ingredients of photochemical air pollution (or photochemical oxidants) are oxides of nitrogen and hydrocarbons, both of which are principally of vehicular origin. The problem in these areas is compounded by high atmospheric levels of carbon monoxide and particulate matter.

In many of the state's more rural areas air pollution is largely the result of particulate matter emitted directly

from such sources as agricultural operations, lumber production, mineral processing, and, to a lesser degree, from motor vehicles.

The problem of sulphur dioxide and soot that is typically associated with coal burning economies is generally not present in California.

The motor vehicle constitutes the major source of hydrocarbons (HC), carbon monoxide (CO), and oxides of nitrogen (NOX) emissions in California. In 1970 there were nearly 13 million gasoline powered vehicles in the State using nearly 9 billion gallons of fuel annually. It is projected that there will be 14 million such vehicles in 1975 and more than 16 million in 1980. Approximately one half of the total vehicle population is located in the South Coast Basin, where it is said to be the source of more than 70 percent of the photochemical "smog", and contributes as much as 88 percent of the total tons of emissions per day.

The responsibility for air pollution control in California is currently shared by the state and local agencies. The State Air Resources Board (ARB) is responsible for control of the emissions from motor vehicles and for coordinating and overseeing local control efforts. Local air pollution control districts have primary control of emissions from nonvehicular sources.

Local Districts

In 1947 legislation was enacted enabling each county to form an air pollution control district (APCD) as well as permitting the districts in two or more adjacent counties to unify.

In 1955, the State Legislature adopted legislation creating the Bay Area Air Pollution Control District, for the purpose of controlling air pollution on a regional basis. Six counties bordering the Bay (San Francisco, San Mateo, Santa Clara, Alameda, Marin, and Contra Costa) became mandatory members. The counties of Napa, Sonoma, and Solano could join at their own option by the affirmative vote of their respective boards of supervisors. They never chose to exercise this option; so, the law was amended in 1970, making it mandatory that Napa County and portions of Sonoma and Solano Counties become active parts of the District. By 1969, twenty-six of the state's fifty-eight

counties were in districts, covering about 50 percent of the state's land area and 90 percent of its population.

Legislation in 1970 made it mandatory that all counties be within an Air Pollution Control District. This same legislation required the creation of Basin Coordinating Councils where two or more APCD's exist within the same basin. These councils are required to coordinate the activities of the local districts and to develop plans for meeting state air quality standards.

Local districts must enforce certain minimum emission standards established by state law. These include: (1) a smoke limitation of Ringelmann No. 2, or 40 percent opacity; (2) certain public nuisances; (3) in county districts, all provisions of the State Vehicle Code dealing with the emission of air contaminants; and (4) agricultural burning regulations.

The local districts may also adopt rules and regulations to require the installation of smog control devices on 1955-65 model cars provided the need to do so is justified and the ARB has certified such a device.

Until now, standards and levels of enforcement have varied widely from one district to the next. However, the state implementation plan required by the Federal Clean Air Amendments of 1970 mandates uniform programs for each basin.

State Program

In 1955, a state air pollution program was established within the Department of Public Health (DPH). It included technical assistance to local agencies, air quality monitoring in various areas of the State, establishment of motor vehicle emission standards, and promulgation of ambient air quality standards.

In 1960, the Motor Vehicle Pollution Control Act created the Motor Vehicle Pollution Control Board (MVPCB) and directed the board to implement motor vehicle emission standards. This included the certification and testing of vehicle emission control systems.

Mulford-Carrell Act

In 1967 the Mulford-Carrell Air Resources Act created a 14-member Air Resources Board (ARB) which

replaced the MVPCB and assumed most of the air pollution related functions previously assigned to the DPH. Among other things, this Act directed the ARB to divide the State into basins, adopt and implement air quality standards for each basin, adopt motor vehicle emission inventory sources and kinds of pollutants in each basin, and monitor for air pollutants. The ARB was required to determine the factors responsible for air pollution, to determine the effects of air pollution on vegetation and human and animal life, and to coordinate the efforts in the State, including assistance to local agencies.

One of the provisions empowered the ARB to regulate emissions from motor vehicles statewide. This power was further delineated in the Pure Air Act of 1968, which set minimum standards for emissions from motor vehicles beginning with 1970 models. Standards have since been set by the Board which through 1974 are more stringent than federal standards. Federal standards, however, are more stringent than those of the State for 1975-76 models.

Additional Board Responsibilities

Legislation enacted in 1970 strengthened the ARB's authority to implement statewide air quality programs and to insure that adequate emission standards were being set and enforcement practices adhered to at the local level. Legislation in 1970 also directed the ARB to administer a $9.25-million, three-year, air pollution research program; adopt test procedures applicable to new motor vehicles manufactured for sale in California (this has since led to the establishment of a 100-percent assembly line testing program by 1973); accredit used motor vehicle pollution control devices for mandatory installation; establish agricultural burning guidelines and review and revise local district implementation plans developed in accordance with these guidelines; study a state periodic inspection program for all motor vehicles (this has been completed and referred by the Legislature to interim study); and set emission standards for vehicles not previously covered.

Legislation enacted in 1971 expanded the ARB's authority to approve and require devices for used cars and to deal more effectively with this major uncontrolled source. Legislation was also enacted reducing the ARB's membership from 14 to 5 and providing

for more specific expertise among its members. 1971 legislation also authorized the ARB to revoke variances issued by local districts.

New Motor Vehicles

The most significant activities of the Board have been with respect to the control of motor vehicles. The first controls were for hydrocarbons (HC) from the crankcase. In 1963 approved crankcase emissions control devices were required on new automobiles registered in California. Control of HC and carbon monoxide (CO) from the exhaust started with 1966 models. In 1970 the control of HC from fuel systems began. The control of oxides of nitrogen (NOX) from exhausts appeared on the 1971 models.

However, as HC was being controlled between 1966 and 1970, NOX (major precursor of photochemical oxidant) was rising substantially. Therefore legislation was adopted during the 1971 session to require every 1966 through 1970 model vehicle to be equipped by 1973 with an accredited exhaust emission control device to reduce NOX to approximately pre-1966 levels. It is estimated that this will reduce total daily emissions from all sources in the South Coast Basin by 140 tons, or approximately what is being produced by fossil-fueled power plants in Los Angeles County.

Used Cars

The last major unregulated source of vehicle air pollution is the 1955-65 used car. Emissions from these vehicles are virtually uncontrolled except for crankcase devices which were required beginning in 1964 on 1955-62 model cars in fourteen counties, upon transfer of ownership.

Prior to this time, the ARB was not empowered to certify a control device for 1955-65 automobiles that would reduce only one of the three (CO, HC, and NOX) pollutants. To be approved, a device had to reduce two of the three. This has inhibited development of controls that could significantly reduce the smog problem, particularly the visible irritants produced by NOX emissions. Therefore, legislation was enacted during the 1971 session to give the ARB more freedom to decide if the benefits to be gained by one-pollutant control devices is sufficient to require installation on 1955-65 models. Pursuant to this new authority, the ARB in December of 1971 certified

an NOX device for 1955-65 model cars to be installed upon transfer of ownership, pending approval by the ARB of distribution and marketing plans of the applicant. If the experience is good, all such cars will be required to have the device by 1975.

Standards, Inspections

With proper enforcement and testing provisions and with increasingly stringent standards, an overall reduction in hydrocarbon fumes -- from all cars, new and old -- of 80 percent by the end of this decade can be achieved. However, there remains a major unresolved problem. The 100-percent assembly line testing of new cars by 1973 will be instituted. But not yet approved is a mandatory program for periodic inspection of vehicles to insure that the cars and devices are working properly from an air quality standpoint.

Fuel Composition

Related to the problem of automobile pollution is fuel composition and handling. The ARB has adopted regulations to reduce evaporation by limiting the degree of unsaturation of gasoline sold in the South Coast Basin, during certain time periods, and the volatility of gasoline sold throughout the State. During the periods that vapor pressure is limited in the South Coast Air Basin, evaporative gasoline losses associated with gasoline marketing will be reduced by more than 50 tons per day, and losses from vehicles not equipped with evaporative emission control systems are expected to be reduced by another 50 tons per day.

Voluntary Use of Gaseous Fuels

To provide an incentive for the use of low emission fuels, California has removed the 7-cent-per-equivalent-gallon state fuel tax on liquid petroleum and natural gas when such fuels are burned in vehicles equipped with conversion systems certified by the ARB. Also, the cost of installing an approved conversion system is excluded from the market value of the vehicle for purposes of determining the vehicle's license fee. These tax exemption provisions will remain in force through 1975.

Programs which are not moving as well are attempts to "get the lead out" of gasoline. Not only will such a move eliminate undesirable contaminants

from the air but it will facilitate the efficient operation of the more advanced smog control devices needed to meet future standards. Although the Legislature has been unable during the last two sessions to enact legislation to curtail the use of lead, such a move has been taken by individual counties and should continue to be pursued. The Federal Environmental Protection Agency is also expected to take action to limit quantities of lead in gasoline nationally. However, it must be handled in such a manner as to obviate undesirable side effects.

Gasoline Marketing

The emissions of HC which result from gasoline tank filling losses (tank trucks, service station storage tanks, and vehicle tanks) have been reduced somewhat during the critical smog periods by the state's regulation of gasoline volatility. Even further reductions will be realized as a result of recent state legislation requiring the use of submerged filler pipes or other approved means for the control of filling losses for gasoline storage tanks installed subsequent to December 31, 1970, although this requirement has been in effect in Los Angeles County for some time. However, further improvement can be realized by directing the vapor-laden air displaced as each tank is filled into the tank which is filling, through the use of some type of vaporized gas recirculation system. The vapors would be transported sequentially from the vehicle tank, to the service station storage tank, to the tank truck, and then to the bulk plant. The vapor received at the bulk plant would then be reconstituted back to gasoline for subsequent remarketing.

The foregoing scheme is presently required by local districts in the South Coast Air Basin for the filling of tank trucks. These rules and regulations could be extended to the service station storage tanks and to the vehicle tanks. Such requirements are estimated to be capable of reducing emission of reactive hydrocarbons in the South Coast Air Basin by over 50 tons per day.

Large-Scale Conversion to Gaseous Fuels

The tax incentives currently available to encourage the conversion of motor vehicles to low emission gaseous fuels has already been mentioned. However, it will have to be greatly

accelerated if the full potential of this option is to be realized. Although certain drawbacks to the use of such fuels (having to do with costs, scarcity of supply, limited range of gaseous fueled vehicles, the large space requirements of fuel tanks, and the drastic changes required for marketing facilities) have been argued, they are not insurmountable. This is particularly true in the case of fleet vehicles, which consume 30 percent of the gasoline in the South Coast Basin. The mandating of the conversion of fleet vehicles over a certain time period could have a significant impact, and should be pursued. It is in fact being advocated in the State Implementation Plan. The state plan also recommends conversion of 1970-73 vehicles upon transfer of ownership and provides car owners a choice of conversion or installation of retrofit devices for pre-1966 vehicles.

Overriding Problem

The discussion of control efforts to this point has centered on measures that have been taken with respect to emissions, fuels composition, and testing for compliance. The overriding problem is that with measures that have been instituted to date, improvement in air quality is not generally apparent except where year-to-year weather changes have a bearing. While readings for certain elements in one location have gone down, concentration of those same and other elements might be showing an increase in other areas. Even assuming that air pollution may be on the decrease overall, measures contemplated to bring about this decrease between now and the mid-1980's will soon give way to growth, and overall emissions will begin to rise.

What has been of even more sobering concern is the relationship between emissions and the basin ambient air quality standards adopted by the Air Resources Board, based on health preservation. The Board's Technical Advisory Committee reported in November of 1970 that in some instances the standards designed to assure freedom from injury to health cannot be attained by the application of technical methods available now or in the foreseeable future. Yet our control effort has been devoted almost entirely to technical methods, even though ambient air standards based on health can, according to the same report, "be resolved only by drastic changes in life patterns in the most heavily populated areas."

On the theory that each air basin has a limited amount of air in which to dilute its pollutant emissions, when this limit is reached, the Committee reported, "further production of pollutants must be stopped by whatever means are available not excluding limitations of population and economic growth within the State." It was for this reason that the Council's 1971 report contained recommendations for the adoption of two concurrent resolutions which the Council classified as "necessary immediate action". One (SCR 78, introduced by Senator Peter Behr) would have directed the Department of Public Health to conduct a study to determine, from a health standpoint, the natural carrying capacity of the South Coast Basin and the San Francisco Bay Area. The other (SCR 86, introduced by Senator Arlen Gregorio) would have directed the Air Resources Board to conduct intensive studies to determine means of bringing the earliest possible relief to the most critical air basins and to determine what long-range continuing measures are necessary to cope with existing and future air pollution levels imperiling health. Neither of these resolutions was adopted by the Legislature because of concerns raised by those entities responsible for carrying out the assignments.

Federal Law

Prior to 1970, federal air quality standards were not a significant factor in California's battle to clean its air, except where waivers had to be obtained by the State in order to move ahead with its own more stringent program. All this changed with the enactment of the Clean Air Act of 1970, as amended. This Act, referred to also as the 1970 Clean Air Amendments, is an exacting federal statute which required every state to develop an adequate air pollution abatement plan by January 30, 1972. The plan must provide for the implementation, enforcement, and maintenance of national ambient air quality standards as promulgated by the Administrator of the Environmental Protection Agency (EPA). These air quality standards must be attained within three years of the date of approval of such a plan, although the Administrator of EPA may, in his discretion, grant an extension of up to two years in the time allowed for attainment.

Under final EPA requirements for preparation, adoption, and submittal of implementation plans, states must develop a far-reaching control strategy for attaining the national primary air quality standards. "Control

strategy" means a combination of measures designated to achieve the aggregate reduction of emissions necessary for attainment and maintenance of a national standard, including, but not limited to, land use and transportation control measures deemed necessary.

Regions such as the South Coast Basin where existing ambient levels of pollutants exceed the levels specified by applicable national standards, must develop a plan that will bring about a real improvement in air quality. Such a plan ".... shall set forth a control strategy which shall provide for the degree of emission reduction necessary for attainment and maintenance of such national standard, including the degree of emission reduction necessary to offset emission increases that can reasonably be expected to result from projected growth of population, industrial activity, motor vehicle traffic, or other factors that may cause or contribute to increased emissions."

The Administrator, EPA, may order any state to enforce the plan if he finds that the state has failed to act, and the Administrator has been given emergency powers to restrain immediately any person causing or contributing to pollution which constitutes a substantial endangerment to health.

The Act provides also that any person may bring a civil action against any person alleged to be in violation of an emission standard or limitation under the Act, or an order of the Administrator or a state with respect to such a standard or limitation. A person may also bring suit against the Administrator for failure to perform an act which is not discretionary, or to intervene as a matter of right in an action brought by the Administrator or a state.

Thus the Clean Air Act of 1970 (as amended) requires prompt and effective action to develop a viable air pollution abatement plan for the various basins within the State. If the state and local districts do not develop comprehensive plans, the federal government is empowered to develop such plans. If the Administrator does not act, private citizens and groups can sue to force compliance.

State Implementation Plan

Pursuant to the new federal Act, the State prepared a proposed Implementation Plan for Achieving and Maintaining the National Ambient Air Quality Standards in the State of California --

November 7, 1971. Included with this package were implementation plans for each of the state's eleven basins, on which hearings were held throughout the State. Based on these hearings, the ARB issued a State Implementation Plan, Revised Control Strategy - January 10, 1972. This plan was submitted to the EPA February 21, 1972.

In the January 10 revised plan, the ARB indicates that the national ambient air quality standards for oxidants, .08 parts per million (ppm), can be met in all of the state's air basin except the South Coast Basin by 1977. In the South Coast Basin, a .18 ppm reading can, according to the plan, be achieved by 1975, a .15 ppm reading by 1977, and a .13 ppm reading by 1980. However, reaching these levels in the South Coast Basin, as well as the national standards in the Bay Area and San Diego Basins, is based on the following rather ambitious control strategy, for which the ARB must be commended:

-- Basin-wide enforcement of all statewide regulations concerning stationary sources. (These include smoke regulations, abatement of continued nuisance, and regulation of orchard heaters, open waste disposal fires, and agricultural burning.)
-- Basin-wide implementation of the most stringent standards for stationary sources now in effect in any district in the State or proposed in any given county as part of the basin implementation plans. (In effect, this means that, with only two or three exceptions, standards now on the books or being proposed in Los Angeles County will be the basin-wide standard by a certain prescribed date. In one case a new standard was imposed which is not yet applicable anywhere in the State. In another case, a standard now in effect in San Diego County will be imposed throughout the South Coast Basin.)
-- The continued implementation and enforcement of all new motor vehicle control measures previously mentioned, including the meeting of the stringent federal standards for 1975-76 models and 100-percent assembly line testing.
-- The control of used cars in the manner described previously, including retrofitting all 1955-62 cars with crankcase devices, 1955-65 cars with exhaust devices, 1966-70 cars with exhaust devices for NOX, and pre-1970 cars with evaporation devices.
-- The control of fuel composition as previously discussed, including the use of low lead fuel.

-- The control of aircraft recently pre-empted by the federal government.
-- Mandatory periodic vehicle inspection and maintenance.
-- Conversion to gaseous fuels in the manner previously described, designed to replace one-third of the gasoline now used in the South Coast Basin.
-- Reduction of traffic by 20 percent through increased use of public transit, car pooling, staggered working hours, reduced work week, and parking limitations in certain areas.

Engines Not Yet Controlled

An additional program still under development and not yet included as part of the state's control strategy is the control of emissions from engines of less than 50 cubic inch displacement, motorcycles, power and construction equipment, recreation vehicles, and stationary engines, which together are estimated to use 10 percent of the gasoline consumed statewide. The ARB is presently funding a study to determine the amount of pollution emitted by these sources and the feasibility of controlling them.

Necessary Action

Essential long range solutions to air quality depend on the comprehensive land use, transportation, and energy use programs and policies mentioned in other sections of the report. The recommendations cited below are necessary in order to bring relief as soon as possible to the state's more critical air basins.

Implementation of State Control Strategy

Pursuant to the Federal Clean Air Amendments of 1970, the ARB has developed a control strategy aimed at meeting national ambient air quality standards. The measures cited in the control strategy are ambitious and, if accomplished, will significantly improve air quality. Some, however, cannot be implemented without additional legislation. The Council endorses the proposed control strategy and urges the Legislature to act in those areas which are necessary to the plan but which are not now within the purview of the ARB.

■ The Council recommends immediate legislative action on the following measures which are

essential to the state's control strategy:

- A program of mandatory periodic vehicle inspection, maintenance, and repair to insure that required smog devices are in proper working order.

- A program to expedite the development of evaporative control devices for retrofitting 1966-69 vehicles, and to require the installation of such devices at the earliest date after their approval by the ARB.

- A program to phase the lead out of gasoline to "traces only" by 1977 in a manner that will not raise other undesirable emissions.

The Council recommends the following additional measures which will strengthen the state's control strategy and help speed the reduction in air pollution:

- That steps be taken to control vapors emitted in connection with the transferring of gasoline from the tank truck to the service station and from the service station to the automobile through the use of vapor recirculation systems.

- That some form of emissions tax as well as other incentives to operate low emission automobiles, use cleaner fuels, and maintain vehicles at a low emission level be instituted. Such a tax could be administered in conjunction with the proposed mandatory inspection program which would be necessary to determine an automobile's level of emission. Proceeds from the tax would go to finance rapid transit and clean air research and to assist lower income individuals to properly maintain their cars.

- That the best available means be used to substantially reduce oxides of nitrogen emissions from fossil-fueled power plants and large industrial furnaces using natural gas. Devices are in use now which reduce these emissions by as much as 50 percent.

- That district hearing boards make an affirmative finding that the applicant is making the maximum effort to comply with air pollution regulations before granting renewals of variances.

- That increased supplies of gas and low sulphur fuel for the state's critical air basins be obtained and that the proper federal authorities be made aware of the extreme and critical need for such fuel in these areas.

- That the present tax incentives now applicable to the purchase of gaseous fuels and the installation of conversion kits for the use of gaseous fuels, which expire in 1975, be extended to 1980.

A Long-Range Strategy

The above measures, unfortunately, can only be viewed as temporary solutions in combatting air pollution. No combination of remedies will be successful that does not include a strong land use program for properly guiding, and where necessary, limiting growth; a comprehensive policy of energy use and conservation aimed at reducing our rate of fuel and energy consumption; and a program of balanced transportation aimed at reducing our reliance on the automobile. It is to this long-range strategy that a total commitment must be made.

E/ NOISE

Introduction

The State Department of Public Health, in "A Report to the 1971 Legislature on the Subject of Noise, Pursuant to Assembly Concurrent Resolution 195, 1970," indicates that noise can cause hearing loss, induce physiological stress, interrupt sleep, interfere with speech, and generally degrade the quality of life. Yet, Dr. Alvin F. Meyer, Jr., Director of the Office of Noise Abatement and Control, Federal Environmental Protection Agency, states:

> "Noise differs from most other environmental pollutants in one very important aspect -- the knowledge and technology exists now to control almost every indoor or outdoor noise problem. As a matter of fact, this is one instance where the knowledge of control techniques exceeds the knowledge about effects on human life as well as the environment."

Following is a discussion of past and proposed necessary future legislation relating to four particular types of noise problems: air transport (at

airports and overflights); motor vehicles; occupational noise; and community noise.

Air Transport

With the advent of the jet age, air transport noise has been added to the long list of environmental woes. As jets have become larger and faster, aircraft noise has become a major nuisance and a hazard to health. The problem is most acute and perhaps paramount in those communities bordering major urban airports and located under flight corridors.

Airport and Aircraft Noise Regulations

In 1969, AB 645 (Public Utilities Code, Article 3, Chapter 4, Part 1, Division 9) became law and directed the State Department of Aeronautics to adopt noise standards by which the operation of aircraft and aircraft engines at California airports could be regulated. These regulations were drawn up and adopted by the Department in final form on November 28, 1970, and were to go into effect December 1, 1971; however, as provided by AB 1608 (Chapter 1734, Statutes of 1971) the effective date of portions of the program was delayed until December 1, 1972.

The objective of the statute is to reduce noise exposure at airports and make surrounding development compatible with the noise levels specified. This statute requires airport operators, under the supervision of the particular county, to define, by actual monitoring, noise impact boundaries which delineate the point at which the actual noise level is equal to the noise level allowed for that particular type of aircraft, for residential areas. The community equivalent 10* (integrated) noise levels are: 65 decibels (dB), A-weighted (A) for new airports and vacated military airports being converted to civilian use; 70 dB(A) for existing civilian airports until December 31, 1985, after which it

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10* Community Noise Equivalent Level (CNEL) -- Composite scale designed to account for the noise of individual flights as well as the number and percentage that occur at night.

would drop to 65 dB(A); 80 dB(A) for commercial airports with at least 25,000 annual air carrier operations, dropping to 75 dB(A) on January 1, 1976, 70 dB(A) on January 1, 1981, and 65 dB(A) on January 1, 1986.

The Funding of Corrective Action

It will be the responsibility of the operators of the airport to take whatever corrective action is necessary to diminish the noise impact on people residing within the noise impact boundary, or remove from within the boundary any existing residential uses, including single-family and multi-family dwellings, trailer parks, and schools of standard construction. Those uses that may be permitted within the noise impact boundary have been determined to be agricultural, open space, industrial, commercial, and high-rise apartments meeting certain standards for exterior noise. Taking the necessary corrective action, particularly in the area of land acquisition, in some cases will be a very costly venture and one that should be borne primarily by the "skyway" user.

■ The Council recommends the imposition of an aviation fuel tax, the proceeds to be used for aircraft noise abatement and necessary land acquisition, preferably in the area where the tax is collected.

Airport Land Use Commissions

Land use planning, perhaps the most effective tool for controlling the impact of aircraft noise, was further enunciated in AB 2357 (Chapter 1085, Statutes of 1971). This legislation provides that all land in the vicinity of new airports, and existing airports where incompatible uses have not already been established, be zoned for compatible uses, based on the above mentioned noise regulations. Such action has been made the function of county-wide airport land use commissions. These commissions, consisting of elected city and county officials, airport managers, and representatives of the public at large, in effect have been given the responsibility for controlling land use on vacant land in the vicinity of airports, superseding the authority of other local governmental entities.

Other Airport Development Considerations

Another significant step in the control of airport development was SB 1108 (Chapter 1293, Statutes of 1970 -- Public Utilities Code, Sections 21664-21666), sponsored by the Council. This legislation requires the Department of Aeronautics to take into account such environmental factors as noise, air pollution, and the traffic burden on the surrounding area, in evaluating applications for permits for new airports or vacated military airports being converted to civilian use. Before approving such permits, the Department must find that the advantages to the public outweigh the disadvantages to the environment. Still needing further attention, however, is the question of airport expansions.

■ The Council recommends that regulations or legislation be adopted which would apply the same permit requirements and procedures to airport expansions as now exist for the construction of new airports. Such procedures include provisions for holding of hearings and require that all environmental considerations be taken into account.

Further steps were taken by the 1971 Legislature to curb aircraft noise. AB 1054 (Chapter 1770, Statutes of 1971) prohibits landing and take-off within the State (except in emergency situations) of any new private or commercial aircraft which produces noise in excess of designated federal certification limits for subsonic jet transport aircraft.

The State Department of Education and the State College Trustees were directed by 1961 legislation (Education Code, Sections 15005-15005.6) to investigate all proposed acquisition of lands for school and state college use within two miles of an airport. It is the opinion of the Council's scientific Advisory Group on Noise that this distance should be increased to eight miles.

■ The Council recommends that the Department of Education and the State College Trustees be directed to investigate all proposed acquisition of lands for school and state college use within eight miles in each direction along the flight corridor of an existing or proposed airport, and report their findings to the Legislature on February 1, 1973.

Motor Vehicles

Two major revisions of the California Vehicle Code, adopted in 1970, provide for the lowering of vehicle noise level limits. The first specified noise level limits for motor vehicles under any condition of grade, load, acceleration, and deceleration (Section 23130). The second made it unlawful to offer for sale a motor vehicle which produces noice exceeding the specified maximum level limits (Section 27160). In 1971 the following additional measures were enacted, designed to reduce noise emissions from this source:

-- AB 1044, Chapter 1444, lowers vehicle noise limits (new vehicles) to maximum of 70 dB(A) after 1987.
-- AB 1045, Chapter 1256, and AB 1865, Chapter 1261, revise limits for on-the-road vehicles; extend test procedures to residential areas of urban cities.
-- AB 1046, Chapter 1769, requires study by the Department of California Highway Patrol and adoption of regulations setting standards for certification of vehicular exhaust systems.
-- AB 519, Chapter 714; AB 2365, Chapter 735; and SB 1012, Chapter 952, extend control of vehicular exhaust systems to off-highway vehicles.
-- AB 2342, Chapter 1816, requires identification plate to be issued by Department of Motor Vehicles for all off-highway vehicles not subject to registration, with fees derived therefrom to be divided between the State Department of Parks and Recreation and local governments for funding of recreational areas for use of such vehicles, and prohibits such vehicles from highways.
-- AB 1043, Chapter 1197, requires Department of California Highway Patrol to adopt regulations setting noise standards for pneumatic tires.
-- AB 1003, Chapter 503, makes it illegal to operate a vehicle with exhaust system modified to amplify noise.

Even with the progressive legislation cited above, there are still and will continue to be many unusually noisy vehicles on California's highways, particularly heavy duty diesel trucks, which could be significantly quieted simply by installing better mufflers. Additional effort is needed in this area to bring some of these noisier vehicles down to acceptable noise levels.

Additional Enforcement

There is a great deal of noise created by passenger cars and motocycles with obviously modified or defective exhaust systems which are in violation of existing laws. As a general rule, these vehicles are easily identified without expensive noise measurement devices, and increased enforcement against such violators by local authorities could not help but improve the situation.

Freeways and Highways

Every effort must be made to reduce noise levels at the source. However, the aggregate of noise produced by many individual sources creates a major noise problem on our heavily travelled roadways. Whenever possible, freeways and highways should be isolated from residences and schools by noise attenuation barriers, right-of-way design, or by a distance sufficient for the lowering of the noise level to acceptable limits.

■ The Council recommends that alternatives for the determination of allowable residence proximity to freeways be established. These should be: (1) a 500-foot buffer zone; or (2) a depressed freeway or barrier, or combination thereof, such that the average A-weighted noise level contour does not exceed 60 dB(A) and maximum levels do not exceed 70 db(A) at the boundary of any residential zoning.

Occupational Noise

In 1964 the U. S. Department of Labor held public hearings on the proposed revision of the Walsh-Healey Public Contracts Act. At that time an overall limit of noise level of 85 dB(A) was recommended. Since persons most likely to suffer hearing loss are those subjected to extreme noise intensities over prolonged periods, the revised noise level limits adopted in 1970 were graded in accordance with the duration of exposure to noise from 90 dB(A) for eight hours to 115 dB(A) for one-fourth hour. California has adopted the same limits, which are written into the General Industrial Safety Orders (Article 55), with a provision requiring that personal protection equipment be worn when levels exceed those stipulated.

In reviewing these regulations, consideration must be given to a number of important factors to obtain a better understanding of the actual

physiological response to noise. One major fact was expressed in the 1970 report of the State Department of Public Health to the Legislature, which stated that ".... the standards provide only incidental and limited protection for hearing frequencies above 2,000 cycles per second, which is essential to some attributes of life other than understanding speech." The Department therefore recommended that the Legislature "set the basic criterion for occupational noise exposure at 75 dB(A), and make this level mandatory for all industry by January 1, 1980." AB 2356, to implement this recommendation, failed passage in the 1971 session.

- The Council recommends that legislation be introduced to reduce the values in the General Industrial Safety Orders to a maximum occupational noise level of 85 dB(A) for an eight-hour day, by 1977, using a table of increased noise levels for less than eight hours of exposure, similar to the present Federal Occupational Safety and Health Act of 1970 Noise Exposure Limit Table.

Although the recommendation of the State Department of Public Health's Advisory Committee on Noise is sound, it is felt that this level is a necessary compromise and will have a much better chance of passage in the 1972 Legislative Session. It should be noted that this level (85 dB(A) for an eight-hour day) was originally recommended in 1957 by the Subcommittee on Noise of the Committee on Hearing, American Academy of Ophthalmology and Otolaryngology, in reference to the national occupational noise standards.

Community Noise

In its first progress report (1970) the Council noted the problem of "community noise" and the need for a statewide building code that would insure a measure of privacy and quiet in multifamily dwellings. Steps that have been taken since have unfortunately not obviated the need for further action at the state level.

AB 2300 (Chapter 1436, Statutes of 1970) requires that all building code changes made by California code authorities conform to the Uniform Building Code (UBC). Regrettably, the UBC is mute not only on standards for sound and impact noise transmission between dwelling units in Group H and I occupancies, 11* but also on standards for interior noise levels

arising principally from heating, ventilating, and air conditioning equipment. Although the International Conference of Building Officials (ICBO) recently developed such regulations, since they will be in the appendix and not the body of the UBC, their application is not mandatory. In addition, the proposed sound control regulations are inadequate in that the degree of sound isolation is too low, and the reference standard is based on laboratory test results rather than on actual field performance.

■ The Council recommends that the Health and Safety Code be amended to require that all code jurisdictions in California add a section on airborne noise and impact sound isolation in Group H and I occupancies, based on a field performance standard which shall be no less than the Federal Housing Administration's recommended criteria, 12* as well as a section to the mechanical code setting a maximum noise level limit for interior noise in any dwelling unit, arising from heating, ventilating, or air conditioning equipment, or re-radiated noise from fluid flowing in piping. 13*

The League of California Cities has published a Model Noise Ordinance for dealing with community noise. However, judging by the number of cities that have moved in this direction, it may be some time before very many people will be living in communitites covered by this type of legislation. There is also some concern that the League Model, in its present form, will more nearly have the effect of increasing rather than reducing community noise. Since the Legislature has now scheduled the decrease of motor vehicle noise, presently in most places the pervading source of community noise, it is necessary that local jurisdictions be required to institute meaningful noise control legislation as well.

11* Group H - Hotels, apartments, convents, and monasteries; Group I - Dwelling and lodging houses.

12* Grade III in Tables 10-2 and 10-3 of the HUD publication, "Guide to Airborne, Impact, and Structure Borne Noise Control in Multi-Family Dwellings", FT/TS-24, January 1968.

13* Not to be greater than that corresponding to the octave band levels of a preferred noise criterion curve of 31, or, for enforcement purposes, its equivalent A-weighted sound level of 40 dB(A).

The cost of noise abatement is nominal when compared to the effects noise has on human life. Noise may adversely affect or interfere with the normal speech range, the physiology of hearing, the ability to sleep comfortably, and the psychological stability of a person subjected to intense noise. Furthermore, disease other than loss of hearing may be linked to noise, including heart attack and duodenal ulcers.

Noise is as deadly and pervading a threat to the health of the citizens of this State as sulphur in the air or untreated sewage in our waters. Because it is invisible, of relatively short, albeit continuous duration, and moves swiftly across governmental boundaries (indeed, with the speed of sound), noise has not received the attention given other more apparent forms of pollution. It may, however, prove to be a bigger menace to the environmental well-being of our citizens than any of these other forms.

We must look forward not only in the preventive areas as set forth in this report, but also in the area of further research to more clearly ascertain the effects of noise. Only when its full impact as a health deterrent is known will it be possible to bring the full political and financial support of this State to bear on the problem in the magnitude and to the degree that it deserves.

F/ OTHER ENVIRONMENTAL ISSUES

Specific recommendations on water resources, solid waste, pesticides, and assessment practices, and other unresolved environmental issues are pending further Council hearings and study and will be the subject of individual reports to be submitted prior to June 30, 1972.

While the Council decided that the question of campaign financing is not within the scope of its legislative charge, some members felt that it is at the heart of many environmental problems and represents one of the most significant obstacles to the enactment of effective measures in this field.

IV/ COUNCIL ACTIVITIES

EQSC

IV COUNCIL ACTIVITIES

In its attempt to respond to the charge given it by the 1968 Legislature, the State Environmental Quality Study Council has conducted a rather ambitious program of meetings, public hearings, study sessions, and committee meetings throughout the State. Because of the limited time and staff available, the Council has attempted to utilize the expertise so generously provided by governmental agencies, the private sector, and citizens organizations. All of these sources aided immeasurably in the Council's efforts to develop a comprehensive plan to deal with the state's environmental problems.

The Council's 1970 and 1971 progress reports describe in detail the activities and actions which took place during its first two years of operation. This section relates those activities which occurred during the past year and how they have contributed to the findings and recommendations of this report.

The Council's Third Year

During 1971 the Council continued its studies of California's environmental problems, holding six regular public hearings, two combination meetings and hearings, numerous committee meetings and work and study sessions. Whenever and wherever the need was demonstrated, the Council has held on-site hearings on specific problems with statewide implications.

One of the most important efforts during the year was the active support of legislation introduced to implement the Council's February 1971 recommendation to create a State Environmental Quality Board. Much time and energy on the part of both the Council members and the staff was expended in working with legislators and others in attempting to bring about passage of this important legislation.

Council Hearings

Nuclear Energy -- The Council's first 1971 public hearing was held in Sacramento on January 21, on nuclear energy. At this hearing testimony dealt with such matters as: the federal role in nuclear energy; California's power requirements; alternative power sources; plant siting; radiation; thermal effects; and the state's regulatory role. From this testimony it was apparent that the basic power problem facing California is one of supplying the ever-increasing power demand in

a manner compatible with the preservation of the state's environment.

Coastline Management -- On February 18 the Council held a hearing at Santa Cruz, on coastline management and power plant siting. The purpose of this hearing was to explore current policies, standards, and criteria and those that should be instituted to guide both public and private actions in these areas of regional and statewide interest.

In addition to exploring the general problems related to the California coastline, the Council considered criteria utilized in determining the locations of such specialized facilities as nuclear power plants. The Council heard testimony from experts in the fields of land use, power development, coastline management, geology, and seismic safety. This hearing brought into clear focus the present problems associated with coastline protection and development and the need for a better coastline management system at the state and regional levels.

Environmental and Economic Problems of the North Coast -- Because of the unique nature and the special problems of California's north coastal region, the Council held a hearing in Eureka on April 16. Testimony was heard on the impact of transportation facilities, water conservation and development, forest management, recreational subdivisions, and economic development in this part of the State. The Council felt that if some of the basic development problems could be resolved now, while the area is comparatively undeveloped and sparsely populated, perhaps many of the environmental consequences which have resulted from poorly planned development elsewhere could be avoided.

Airport Expansion -- On April 29, the Council held a hearing in San Jose to consider the impact of the proposed expansion of the San Jose airport on adjacent areas. Testimony was heard from expert witnesses on land use, noise abatement, and air quality; and recommendations received on legislative and administrative actions necessary to protect, manage, and improve environmental quality in such a situation.

Following the hearing the Council adopted Resolution 71-1, urging the City of San Jose to curtail all planning, acquisition, or construction activities connected with the proposed expansion until such time as an adequate environmental impact statement is

submitted and studies presently being conducted by the Association of Bay Area Governments relative to air transportation needs for the entire San Francisco Bay Area are completed.

Environmental Problems of the South Central Coastal Area -- The Council held its monthly meeting in Santa Barbara on July 22, devoting the morning session to regular agenda items, and the afternoon to discussion with interested citizens and public officials of several environmental issues of the South Central Coastal Area. The first was a proposed urban development in the Las Posas Valley, in Ventura County, which is the second largest producer of leaf vegetable specialty crops in Southern California. Witnesses indicated that the proposed development will not only take much prime agricultural land out of production, but also the increased vehicular traffic with its resultant air pollution will seriously threaten the remaining leaf vegetable crops and citrus groves in the valley.

The second problem concerned the environmental impact of a proposed freeway near the City of Lompoc, which would require a cut at the summit, 187 feet deep, 134 feet wide at road level, and 600 to 700 feet wide at the top. It was feared that the proposed routing would obliterate a road of scenic value, threaten a grove of unique Bishop Pine, and have other undesirable environmental effects.

Another problem brought before the Council in this meeting concerned a proposal to mine rock phosphate in the Los Padres National Forest. Opponents of the proposal contended that the massive earth-moving effort, which would require the mine and plant to operate 24 hours per day, 7 days a week, would increase runoff, result in erosion and silting, destroy plant life, and create excessive noise. They were further concerned the California Condor flyway would be adversely affected; and that three existing campsites, a trail, the springs, and the water supply would be destroyed.

Following the Santa Barbara session, the Council adopted three resolutions. Resolution 71-2 dealt with the proposed mining operation within the Los Padres National Forest. Because of the possible adverse environmental impact, the Council urged the Department of Interior to postpone issuance of a lease until such time as the applicant could demonstrate a need for production of phosphate and until the Department could determine the

magnitude of environmental costs associated with the proposed mining activity.

Resolution 71-3 requested the County of Ventura to delay the development of prime agricultural lands in the Las Posas Valley until: (1) all other appropriate areas have been urbanized; and (2) the Ventura County Air Pollution Control District plan for achieving air quality has been approved. The Council also urged the State College Board of Trustees to abandon plans for a state college on prime agricultural lands in western Las Posas Valley.

Resolution 71-4 requested the Board of Supervisors of Santa Barbara County and the State Highway Commission to delay any final decision on approval of the proposed Harris Grade Freeway until: (1) the Division of Highways could present an environmental impact report that included quantitative data regarding the environmental effect on the Lompoc area; (2) a report on the effect of the freeway on the environmental element of the Lompoc area by Hancock Junior College was completed and reviewed; and (3) the Board of Supervisors and the Highway Commission had carefully evaluated the above reports and, based on said reports, could make a specific finding that the benefit to the general public would outweigh the apparent environmental and aesthetic disadvantages.

Geothermal Development -- On August 19, in conjunction with its regular monthly meeting, the Council held a hearing in Lakeport, on the environmental implications of geothermal development proposed for Lake County. Testimony was heard on the types of geothermal reservoirs, the geothermal energy potential, associated environmental problems, types of pollutants, and means of control. While geothermal energy is considered to be relatively clean, without proper controls there can be problems of air, water, and noise pollution, as well as unpleasant odors and unsightly scars on the landscape. Although the geothermal resource is being developed by the private sector, the State does have an interest and has regulatory powers through the Division of Oil and Gas, Department of Conservation.

This and other hearings have demonstrated the need to expand the definition of the term "project" for purposes of environmental impact statements under Section 21000 of the Public Resources Code.

Sonoma-Marin Aqueduct -- On October 27, the Council held a hearing in San Rafael on the proposed Sonoma-Marin Aqueduct. Citizens in the area, particularly in Marin County, had been questioning many environmental aspects of the project. Foremost seemed to be whether the project was based on a comprehensive land use plan or rather would it predetermine the kind of development that would occur and thereby influence the final plan. Since then, voters in Marin County have voted decisively against the extension of the aqueduct into that County.

Air Quality in Riverside -- The Council's Air Quality Committee held a study session in Riverside on November 9, to again consider the serious air pollution problems in that area. Testimony presented by many in attendance suggested that the situation has grown worse since the committee's meeting of the year before. Following this session, the Air Quality Committee recommended to the Governor and to each Mayor, City Council, and County Board of Supervisors in the South Coastal Basin that all motor vehicles in the basin be converted, over the next five years, to run on either natural gas or propane. Such an approach has since been incorporated as part of the state's Implementation Plan recently submitted to the Federal Environmental Protection Agency.

Energy Use -- The Council's last hearing in 1971 was held in Los Angeles on December 17, and dealt with the vital matter of energy use. This hearing was broadly based to cover the subjects of electric power consumption, what factors contribute to the present eight percent annual increase in energy use, and what measures, such as building design, life style, rate structure, etc., might reduce energy demand. Witnesses included experts from the academic field, conservation groups, the power industry, and others concerned with the total energy situation.

Following this hearing the Council adopted Resolution 71-5, requesting public officials in the South Coastal Basin to adopt policies that will curtail importing power if it is to mean exporting pollution to other areas.

Proposed Remaining Activities

During 1972, the Council will continue to explore environmental issues throughout the State and to search for solutions. Another concerted effort

will be made to develop legislation to create a State Environmental Quality Board. The Council recognizes that governmental organization alone is not a panacea for all our environmental ills, but believes that the proper kind of organization is essential to the more comprehensive approach so badly needed.

The Council plans hearings in 1972 on: assessment and other tax policies and practices affecting land use; water resources; and solid waste management. Supplementary reports of findings and recommendations will be submitted to the Governor and the Legislature on these subjects.

The Council's Role

In the course of its activities, the Council has served as both an environmental ombudsman and an environmental advocate. Eschewing self-evaluation, the Council quotes James E. Krier, Professor of Law, University of California at Los Angeles.

> "EQSC served as a catalyst, an agent that helped interests to coalesce. It was a focal point, a lever, a source of advice, encouragement, and support, and a means for generating information. Both theory and study of a 'study' council suggest that ombudsman and advocate could serve as valuable environmental watchdogs. More important, these institutions could help make citizens the most effective watchdogs of all." 15*

The Council is not funded beyond the current fiscal year. It is our earnest hope that the concept of citizen participation in the effort to better our environment will not be abandoned, but perpetuated in the Environmental Quality Citizens Council proposed herein.

15* "Environmental Watchdogs: Some Lessons from a 'Study' Council," Stanford Law Review, Volume 23, No. 4, April 1971, pg 675.

V/ APPENDICES

APPENDIX A / SCHEDULE OF COUNCIL AND COMMITTEE ACTIVITIES, 1971

Date	Activity	Location
January 7	Twentieth Regular EQSC Meeting	Sacramento
January 21	Public Hearing -- Nuclear Energy	Sacramento
February 18	Public Hearing -- Coastline Management; Power Plant Siting Problems	Santa Cruz
February 25	Twenty-first Regular EQSC Meeting; Session with Community and Conservation Leaders re EQSC Legislative Proposals	San Francisco
March 18	Twenty-second Regular EQSC Meeting	Sacramento
April 16	Public Hearing -- Problems and Issues of North Coastal Region	Eureka
April 29	Public Hearing -- Airport Expansion	San Jose
May 27	Twenty-third Regular EQSC Meeting	Sacramento
June 24	Twenty-fourth Regular EQSC Meeting	Sacramento
July 22	Twenty-fifth Regular EQSC Meeting; Session re Environmental Problems of the South Coastal Area	Santa Barbara
August 18	Tour of the Geysers, Sonoma County	Lakeport and vicinity
August 19	Twenty-sixth Regular EQSC Meeting; Session re Geothermal Development	
September 8	Meeting, Scientific Advisory Group on Noise	Los Angeles
September 22	Meeting, Scientific Advisory Group on Noise	Berkeley
October 7	Twenty-seventh Regular EQSC Meeting	Sacramento
October 27	Public Hearing -- Sonoma -Marin Aqueduct	San Rafael
November 9	Meeting, Air Quality Committee	Riverside
November 10	Meeting, Scientific Advisory Group on Noise	Los Angeles
December 9	Twenty-eighth Regular EQSC Meeting	Sacramento
December 17	Public Hearing -- Energy Use	Los Angeles
December 28	Meeting, Water Resources Committee	Sacramento

NUCLEAR ENERGY

Date: January 21, 1971
Place: Sacramento

Participants

Honorable James T. Ramey, Commissioner, U.S. Atomic Energy Commission
Dr. Robert Rex, Director of Geothermal Resources Project, University of California, Riverside
Mr. David E. Pesonen, Executive Secretary, Northern California Association to Preserve Bodega Head and Harbor
Mr. Walter L. Cavagnaro, Chief Electrical Engineer, Utilities Division, State Public Utilities Commission
Mr. W. B. Murray, Vice President, Business Development, Atomics International Division of North American Rockwell
Mr. B. W. Shackelford, Chief Civil Engineer, Pacific Gas and Electric Company
Dr. Charles A. Washburn, Professor of Mechanical Engineering, Sacramento State College
Dr. Arthur F. Tamplin, Lawrence Radiation Laboratory, Livermore
Dr. Harvey Amster, Nuclear Engineering Department, University of California, Berkeley
Mr. Alexander Grendon, Biophysicist; Consultant
Dr. Don Erman, Professor of Wildlife Fisheries, University of California, Berkeley
Dr. Wheeler North, Marine Biologist, California Institute of Technology
Dr. Everett D. Howe, Professor Emeritus
Dr. Simon Kinsman, Chief, Bureau of Radiological Health, State Department of Public Health
Donald E. Watson, M.D., Chairman, Clean Air Coordinating Committee

COASTLINE MANAGEMENT

Date: February 18, 1971
Place: Santa Cruz

Participants

Mr. Harold D. Bissell, Program Manager, Comprehensive Ocean Area Plan, State Department of Navigation and Ocean Development
Dr. Charles Washburn, Professor of Mechanical Engineering, Sacramento State College
Mrs. Celia Von der Muhll, California Coastal Alliance
Mr. Louis B. Muhly, Planning Consultant, University of California, Santa Cruz
Mr. B. W. Shackelford, Chief Civil Engineer, Pacific Gas and Electric Company
Mr. Ryland E. Kelly, President, Hare, Brewer and Kelly, Inc.
Mr. Sidney Liebes, Professor of Physics, Stanford University
Mr. Carl M. Wentworth, Jr., Research Geologist, U.S. Geological Survey
Mr. Gary Griggs, Assistant Professor of Earth Sciences, University of California, Santa Cruz

PROBLEMS AND ISSUES OF NORTH COASTAL REGION

Date: April 16, 1971
Place: Eureka

Participants

Honorable Gilbert S. Trood, Mayor of Eureka
Mr. Jack Civil, Director of Planning, City of Eureka
Honorable Raymond Peart, Supervisor, County of Humboldt
Mr. H.G. Larsen, District Engineer, District 1, State Division of Highways
Mr. C. Raymond Hudson, Environmental Quality Coalition, Redwood Valley
Mr. David Van de Mark, Consultant to Sierra Club, Trinidad
Mrs. Virginia Hechtman, California Coastal Alliance
Mr. Dwight O'Dell, Executive Board, Humboldt County; Eel River Water Council
Mr. John H. Grobey, Department of Economics, Humboldt State College
Mr. Michael W. Johnston, Publisher, Eureka-Times Standard
Dr. W.F. Murison, Dean of Public Services, Humboldt State College
Mr. John Yarnell, Humboldt Bay Ecological Society
Mrs. Nancy Hilfiker, President, League of Women Voters, Eureka
Mr. Glenn E. Delisle, State Department of Fish and Game
Mr. William Van Fleet, Architect, Eureka
Mr. Albert Rasmussen, Humboldt Bay Ecological Society
Mrs. Jacqueline Casson, Economist, Humboldt State College
Mr. Gary Smith, Humboldt State College

AIRPORT EXPANSION

Date: April 29, 1971
Place: San Jose

Participants

Honorable Norman Y. Mineta, Mayor-elect, City of San Jose
Mr. James Nissen, Manager, San Jose Municipal Airport
Mr. Walter Gifillan, Study Director, Bay Area Study of Aviation Requirements
Mr. Don Woodside, Manager for Economic Development, Association of Metropolitan San Jose
Dr. Kenneth Hayes, Save Our Valley Action Committee
Mr. Carl Hand, Federal Aviation Administration
Mr. Eberhard Thiele, San Jose State College; Executive Director, United New Conservationists
Mr. Jerome Smith, Vice Chairman, Planning Policy Committee of Santa Clara County
Mr. Daniel Kane, Attorney at Law, San Francisco
Mr. C.E. Schmale, Assistant Superintendent of Schools, San Jose Unified School District
Mr. Victor Calvo, Chairman, Bay Area Air Pollution Control District
Mr. Richard Dyer, State Department of Aeronautics
Captain Herbert Sherman, Airline Pilots Association
Mrs. Janet Grey Hayes, Councilman-elect, City of San Jose
Mrs. Edith Braley, League of Women Voters
Mr. Godfrey Baumgartner, United Taxpayers
Mr. Robert L. Gray

SONOMA-MARIN AQUEDUCT

Date: October 27, 1971
Place: San Rafael

Participants

Mr. Gordon Miller, Chief Engineer, Sonoma County Flood Control and Water Conservation District
Mr. William R. Seeger, General Manager and Chief Engineer, Marin Municipal Water District
Mr. Robert Nicholson, Assistant Planning Director, Sonoma County
Mr. Sol Silver, Acting Chief, Advance Planning, Marin County
Mr. Tom Thorner, Marin Alternative
Mr. Rex Silvernail, Chairman, Citizens Committee for Measure "B"
Mr. Harold Gregg, President, Marin Conservation League
Mr. Eugene Huggins, U.S. Army Corps of Engineers, San Francisco District
Mr. Patrick Hefferman, Marin Alternative
Honorable Skip Stewart, Coucilman, City of San Anselmo
Dr. John Lee, Marin County (Environmental Health Committee of County Medical Society)
Mesdames Iva Warner, Helen Libeu, and Virginia Hechtman, and Dr. Brad Lundborg, Sonoma County Coalition
Messrs. Fred Smith, William Kortum, Richard Lee, and Trent, unscheduled participants from the audience

ENERGY USE

Date: December 17, 1971
Place: Los Angeles

Participants

Drs. Lester Lees, E.J. List, and Jerome Weingart, Environmental Quality Laboratory, California Institute of Technology
Mr. David J. Fogarty, Vice President in Charge of Electric Systems and Environmental Planning, Southern California Edison Company
Mr. James Hopper, Black Mesa Fund, Santa Fe, New Mexico
Mrs. Miriam Crawford, Navajo Tribe, "Four Corners" Area
Dr. Michael Williams, New Mexico State Environmental Council
Mr. Larry Moss, Southern California Representative, Sierra Club
Honorable Thomas Bradley, Councilman, City of Los Angeles
Dr. James N. Pitts, Jr., Statewide Air Research Center, University of California, Riverside
Mr. Ralph Knowles, School of Architecture, University of Southern California
Dr. Ronald Doctor and Mr. Deane N. Morris, The Rand Corporation
Mr. William Cole, Vice President, Gas Supply Department, Pacific Lighting Service Company
Mr. William Sells, Assistant Chief, Electrical Engineering, Los Angeles Department of Water and Power

EQSC LEGISLATIVE PROPOSAL

Date: February 25, 1971
Place: San Francisco

Participants

Mr. Larry Bryan
Zero Population Growth
Mr. James D. Somers
Stamp Out Smog, Orange County
Dr. Donald E. Watson, and
Mr. C. William Moore
Clean Air Coordinating Committee, Livermore
Mr. Daniel Jones
Clean Air Now, Riverside
Mr. Wayne M. Swan
American Institute of Planners
Mrs. Grant B. Mursch
League of Women Voters, Bay Area
Mrs. Ann Cotman
Friends of Newport Bay
Mrs. Claire Dedrick
Peninsula Conservation Center
Mrs. Dorothy W. Erskine
Open Space Action
Mr. Gerald W. Gleason
Planning and Conservation League
Mr. Anthony Anderson
Group Against Smog Pollution (GASP)
Mrs. Ruth Church Gupta
California Federation of Business and Professional Women's Club
Mr. William Roberts
Tuberculosis and Respiratory Diseases Association
Dr. Robert Girard
Santa Clara County Committee on Open Space and the Environment
Mrs. Janet K. Adams, and
Mr. William W. Schultz
California Coastal Alliance
Mrs. Leona Egeland
Environmental Task Force
Mrs. Suzanne Kuehl
American Association of University Women
Mr. Roger Sperling
University of California, Berkeley
Mr. Jon Livingston
Mr. Dan Rosenberg,
Mr. Lowell Smith, and
Mr. John H. Zierold
Sierra Club
Mr. Ralph McGill
California Refuse Removal Council

ENVIRONMENTAL PROBLEMS OF THE SOUTH CENTRAL COASTAL AREA

Date: July 22, 1971
Place: Santa Barbara

Participants

Mr. Richard Bozung (re Las Posas Valley Development)
Mrs. Arnetta Crossman, PLUS (re Harris Grade Freeway)
Miss Eileen Kadesh, Ecology Action, UC, Santa Barbara (re recycling of solid waste)
Mr. E.D. Marshall (re proposal to build oil tanker unloading facility off Ormand Beach)
Mrs. Patricia D. Weinberger, Environmental Coalition
Mrs. Ann Van Tyne,
Mr. Fred Eissler, Sierra Club; and
Mr. Robert Easton, Santa Barbara Trails Advisory Committee (re phosphate mining in Los Padres National Forest)
Mr. Thomas R. Mitchell (re environmental problems, Goleta airport)

ENVIRONMENTAL IMPLICATIONS OF GEOTHERMAL DEVELOPMENT

Date: August 19, 1971
Place: Lakeport

Participants

Honorable Junior C. Wilds
Chairman, Lake County Board of Supervisors

Mr. David N. Anderson,
Supervisor of Geothermal Operations, Division of Oil and Gas, State Department of Conservation

Dr. Robert W. Rex, Director,
Geothermal Resources Project
University of California, Riverside

Dr. John T. O'Rourke,
Engineering Geologist

Mrs. Carol White
Chairman,
Lakeport County Geothermal Control Council

Dr. John A. Brookes, Biology Department, San Diego State College

Dr. Carel Otte
Manager,
Geothermal Division
Union Oil Company

Mr. Harry W. Falk, Jr.,
Vice President
Magma Power Company

AIR QUALITY COMMITTEE MEETING

Date: November 9, 1971
Place: Riverside

Participants

Mr. Donald Bauer, Clean Air Now (CAN)

Colonel Art Krause, Assistant to the Mayor, Riverside

Mr. Arthur L. Littleworth,
President, Riverside Unified School District

Mr. James F. McCarty, Project Engineer, TRW Systems

Mr. Donald F. Zimmer, Ad Hoc Environmental Protection Committee

Mrs. Marian Carpelan, Citizens Committee on Freeways and Transportation

Mr. James Somers, Stamp Out Smog, Orange County

Dr. Ward Elliott, Coalition for Clean Air

Gerschen L. Schaefer, M.D.
Riverside County Medical Association

Dr. W.A. Schuck, Assistant Director, Air Pollution Research Center, University of California, Riverside

Mr. Terry Winckler,
Tuberculosis and Respiratory Diseases Association

Mr. William Spindler,
Comprehensive Health Planning Association

Mr. Lyle Gaston, San Gorgonio Chapter, Sierra Club

Report Design Consultant: George Louie, Designer