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Dear Dr. Tukey:

* I want to thank you for your service as a member of the Task Force on Environmental Pollution. I can appreciate the sacrifice such service entailed.

Your Task Force set forth clearly the magnitude of the pollution problem, and the urgency of increased attention to prevention and abatement of pollution of our soils, air and waters. Your continued deliberations as a Panel of my Science Advisory Committee will undoubtedly lead to clearer definition of these problems and more specific recommendations for action.

In the years immediately ahead we have, I believe, an unparalleled opportunity to take some major steps toward creating the Great Society. You and your colleagues on the Environmental Pollution Task Force have made a major contribution toward that goal. Your ideas and suggestions will be of great help to me in formulating the program of this Administration now and in the years ahead.

Sincerely,

IDENTICAL LTR. SENT TO ALL MEMBERS

Dr. John W. ^XTukey
Professor of Mathematics
Princeton University
Princeton, New Jersey
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THE WHITE HOUSE

WASHINGTON

January 13, 1965

MEMORANDUM FOR

The President

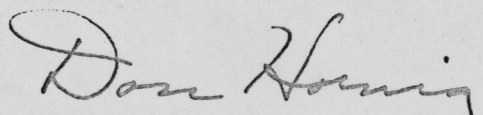

The Task Force on Environmental Pollution, which did such an outstanding job, was different from your other task forces, in that it was also a Panel of your Science Advisory Committee. It is continuing, as a Panel to consider a series of questions related to Environmental Pollution. The topics presently under consideration include:

- Manpower
- Effects of pollutants directly on man
- Effects of pollutants on living organisms other than man
- Soil pollution
- Disposal of solid wastes, including junk cars
- Monitoring
- Biological control of pests
- Supersonic transport and cloud formation
- The effects of carbon-dioxide on climate
- Improvement of equipment useful in pollution control
- Separation of sanitary wastes and storm water run-off
- Nitrogen and phosphorus enrichment of waters

The subpanels will report in May, and a final Panel report will be finished in the Fall.

May I suggest letters of thanks to the Task Force members, even though they are continuing work on the problem as members of a PSAC Panel.

LYNDON B. JOHNSON
Carbons stamped in
Mr. Thomas' office


Donald F. Hornig
Special Assistant for
Science and Technology 

The Pollution of the Environment

America is a bountiful land--rich in its people, its ability to produce, and its resources. We have been, among the nations of the earth, more than fortunate. The settlers who came here found vast forests, pure running streams, and sparkling air. Our history has been made beside our great rivers: the Hudson, the Savannah, the Potomac, the Ohio, the Mississippi, the Colorado, the Columbia--names which bring to life the adventure of the opening of a continent.

The fertile soils of America have pured forth an abundance of food and fiber sufficient to make us the best nourished Nation in the history of the world, and scientific progress has truly "made the desert bloom." The rich black muck lands of the Northeast, the cotton and tobacco farm of the South, the corn and wheat belt of the Midwest, and the citrus groves of California represent a diversified and productive agriculture.

But over the fertile valleys and farms hangs a pall of polluted air; the great rivers run dark with pollution; the soil is heavy with increasing quantities of chemicals.

We are today an industrial nation--an urban nation--a nation choking in its waste products.

Every day we need 350 billion gallons of fresh water to sustain our economy and our lives--by 1980, we will need 600 billion. And in 1980, we will only have available slightly over 500 billion gallons. We will have to use, reuse, and conserve every available gallons of fresh water.

We need 640 cubic miles of air each year just to burn the gasoline we use in our motor cars. Automobiles burn as much air as our total population breathes. Burning our fossil fuels releases nearly 50,000 tons of sulfur dioxide into the air every day.

We are applying 700 million pounds of agricultural chemicals to our soil every year.

The great benefits of industrial might, of urbanization, of increased agricultural production have been accompanied with serious problems. Our generation has managed to alter the composition of the atmosphere on a global scale through the emission of radioactive material and a steady increase in carbon dioxide from the burning of our fossil fuels. The impact on our existence is unknown. Mass death of fishes have occurred in our rivers over-burdened with waste water and lately polluted with pesticides. Air pollution is not any longer confined to isolated areas. Whole areas--regional airsheds and river basins--are laden with noxious materials.

In spite of the great efforts and accomplishments of the past, water pollution problems are increasing and spreading. New kinds of problems are being added to the old. Fertilizing elements, not removed in conventional sewage treatment plants, are causing rank growths of algae and plants in

lakes and natural waterways. Water borne viruses, particularly hepatitis, are replacing typhoid fever as a significant health hazard. Increasing salinities are interfering with agricultural and other uses of water. New and sometimes toxic synthetic chemicals are finding their way in increasing amounts into natural waters.

Each day, a half billion pounds of solid wastes must be disposed of. Cans, bottles and papers litter our parks and highways; abandoned cars are found in the streets of our cities; auto graveyards disfigure the countryside. The accumulation of waste material threatens to overwhelm us. "America the Beautiful" is on the way to becoming "America the Waste-filled."

These wastes are almost entirely unwanted results of activities carried out for the benefit of man; they are the penalty we pay for the crowding and technology we espouse. We must not sit idly by while the quality of our surroundings and of life itself deteriorates. Surely the same ingenuity and intellect that have provided us with our present wealth can be used to assure that we need not question--affluence for what?

It has been and must continue to be our national policy to shield our nation's air, water, soil and living resources from pollution and its consequences and, with this aim in mind, to take such measures as may be necessary to protect these priceless heritages for the benefit of the nation as a whole.

Our long-term goal must be to achieve and maintain in our surroundings a level of cleanliness and purity that is pleasing to the senses; and with contamination well below the levels that would cause overt damage to our health or possessions.

We can control pollution. The smelly diesel fumes, the burning dumps, the oil-covered rivers, the algae-covered lakes are all subject to the application of techniques now at hand.

We do not have all the answers, but there is no reason not to apply the knowledge and skills we have to restore a livable and beautiful environment. At the same time, we must add to our store of knowledge and find more effective ways to control pollution.

We need to control pollution because of its serious economic effect. Air pollution alone may cause as much as \$11 billion a year in damage to crops, paint, automobiles, city parks, and structures.

Some soils are so contaminated with persistent chemicals that their capacity to produce food crops is severely limited. The costs of water pollution are reflected in increased cost of treatment, damage to fish and stream life, and shortage of useable water.

We need to understand the causes and effects of pollution better than we do now; for the effects of pollution will be more severely felt by generations to follow us--and we cannot wait for history to judge our efforts.

We hope to leave a nation to our children which will be better than we knew--a nation with pleasant surroundings and free from toxic substances in the environment.

Our environment is still livable--even if uncomfortable in certain areas and at certain times. Most of us can turn the tap and draw safe, drinkable water. Our daily accumulation of trash is somehow carried off.

But the accumulation of pollution is accelerating. If we are to preserve and protect our heritage of beauty and plenty, we must act now.

To accomplish these goals, I propose a program of action--supported by the necessary buildup of scientific resources and manpower. I intend to bring the full weight of the Federal policy and philosophy to bear on the reduction of pollution. As immediate steps, I have directed the following action to be taken in the Executive Branch:

The Secretary of Health, Education, and Welfare will undertake a program leading to the cleanup of the 90 most polluted rivers in the Nation. I urge the cooperation of the Governors and their State water agencies in bringing pollution under control. The 90 rivers program can be accomplished by an effective combination of Federal-State regulatory authority, incentive grants, and the wholehearted participation of private enterprise.

The Secretary of the Interior will develop a national fuel policy leading to the reduction of sulfur emission from fossil fuels in areas of dense population.

An expanded program to prevent acid mine drainage and clean up abandoned strip mines will be established by the Interior Department.

The Secretary of Agriculture will intensify research, regulatory, control and educational programs to determine the degree of soil contamination with chemicals, and to reduce the use of hazardous chemicals by developing alternative methods and non-hazardous chemical techniques.

I have directed the Secretaries of the three agencies to increase their research efforts in the field of pollution control; to give special attention to the flow of representative pollutants through the environment; to examine the mechanisms of natural degradation; and to develop effective and coordinated national monitoring systems to keep a constant check on the quality of our water, air, soil, and food supply.

Executive Orders will shortly be issued requiring adequate pollution control in all installations of the Federal Government. We cannot permit practices within the government which we find objectionable outside the government.

I have directed that all automotive vehicles purchased by the Federal Government meet standards of exhaust emission to be prescribed by the Secretary of Health, Education, and Welfare.

Discussions with our northern neighbor, Canada, will be commenced to develop a pollution control program for the Great Lakes. I have asked the Secretary of Health, Education, and Welfare to intensify the efforts now being made in the Great Lakes Area. As a first step, the Governors of the States bordering the Great Lakes are being asked to join in a concerted program.

The problem of salt waters in the West and Southwest is of great concern not only to the United States, but to the Republic of Mexico. The agencies now involved in water programs in the area will continue to seek a solution to this complicated problem.

The Director of the Budget has been requested to explore with the heads of concerned agencies, the adequacy of the present organization of pollution control and research activities. We are especially concerned with the relationship of the research and development activities to the investigation and enforcement activities of the program. We must be sure that the organization of pollution programs reflects the high priority placed on them by this Administration.

An effective national pollution control program will require new authorities and new activities. A legislative program is essential if we are to begin to control the problem. Over the past four years, the Congress enacted significant legislation in the field, which has given a base from which to proceed. This base must now be expanded and strengthened. To that end, I am transmitting proposals to the Congress in the following areas:

1. An immediate increase in the waste treatment facilities construction program to \$200 million in 1966, with subsequent increases to \$500 million. The project ceilings should be revised upward, and special incentives should be provided for projects of a well-planned multi-municipal nature.
2. The enforcement authorities of the Federal Water Pollution Control Act and the Clean Air Act should be strengthened to provide:

Federal enforcement authority when pollution crosses international boundaries.

Authority to set standards of air and water quality, and authority to enforce such standards

Establish Federal regulation of automobile and truck exhaust emissions

3. Strengthen controls over the manufacture and use of agricultural chemicals, including licensing and factory inspection of manufacturers, and clearly placing the burden of proof of safety on the proponent of the chemical, rather than the government.
4. Provide a program of grants, including construction, demonstration and research, for the disposal of solid wastes.
5. Provide research grant and training authority to the Departments of Agriculture and Interior.
6. An increase in the authorized ceilings for grants to state water pollution control agencies, the ceilings for research programs in the Interior Department, and ceilings under the Clean Air Act.
7. Provide incentives for private construction of industrial pollution control works by considering expenditures for this purpose as operating expense rather than capital investment.
8. Establish a new research and demonstration program leading to a solution of the combined sewers problem.
9. Provide authority to the Departments of Agriculture; Health, Education, and Welfare; and Interior for the construction and operation of Federal centers for fundamental research on pollution problems, with emphasis on the flow of pollutants through the environment and then long-term effects on biological systems.
10. Improve and expand programs to support training and professional development of scientists and engineers in the environmental health and pollution control fields and the underlying basic sciences.
11. Establish a new Federal program to assist the States in controlling acid mine drainage and restoring worked-out strip mines.

In addition to these needed actions, other proposals will undergo active study. We need careful consideration of the relative responsibilities of the public and the private interests. We need to determine the best way to spread the cost of pollution control over the economy.

But a beautiful and clean America will not be achieved by the Federal Government alone. The research, all the enforcement, all the grants we can make will not clean up a single stream or clear the air over one community without the active and constant participation by every citizen, by every industry and city and county and State.

Only citizen cooperation can control the littering your parks and highways--only citizen interest can force a clean up of our streams--only citizen support can make our local programs effective. Without it, we risk an ugly, dirty, unhealthful America. With it, we can leave for our children a happy, beautiful nation--truly America the beautiful.

II. Outline of a Proposed National Program for a Livable World

General

Outline the nature and extent of the pollution problem (air, water, soil).

Status of efforts to deal with the problem.

Long-term goals:

An orderly reduction in the quantities of pollutants.

Special attention to larger reductions in amounts (or elimination) of highly toxic or persistent pollutants

- to preserve these renewable resources (air, water, soil),
- to improve the livability of our environment so as to maximize health and welfare,
- and certainly to prevent long-term damage to such resources.

Specific goals for immediate action:

Water

1. The 90 most polluted rivers in the Nation will be well on the way to being cleaned up through a combination of construction, enforcement, private incentive, and effective Federal-State cooperation.
2. A major improvement in the quality of the Great Lakes will be made through a U.S.-Canada joint program.
3. The water quality problems in the Southwest will be resolved in a manner satisfactory to the Mexican Government and to the water resource needs of that area.

4. The waste treatment facilities construction program will be accelerated so that we will eliminate the backlog and be on a current basis by 1970.
5. Water pollution caused by Federally owned or operated installations will be abated through a special program.
6. Contamination of waters by soil sediment and persistent chemicals contained in soils eroded from agricultural fields, range lands, and forests devastated by fire will be reduced through accelerated Federal and cooperative programs of erosion prevention, run-off reduction, and soil stabilization nationwide.
7. A start will be made on a program to solve the problem of combined storm and sanitary sewer systems.
8. State and interstate pollution control programs will be expanded and improved through an increase in the Federal grant program.
9. Standards of water quality will be developed and applied to all interstate or navigable streams in the U. S.
10. A National Water Quality Network will be in full operation by 1975.
11. Incentives for the construction of pollution control works by private industry will be provided.
12. A Federal permit system will be provided to regulate discharges into interstate or navigable waters.
13. Programs for the control of acid mine drainage will be developed.

Air

1. A national fuels policy will be developed to reduce the amount of toxicants and irritants in metropolitan, agricultural and for rest areas.
2. Pollutant emissions from motor vehicles will be reduced to acceptable levels by such methods as voluntary action of manufacturers, Federal standards and regulations, and State and local government inspection and enforcement.
3. Installations of the Federal Government will be equipped with adequate air pollution control devices, and exemplary practices in air pollution control will be observed.
4. Comprehensive air pollution investigation and control programs will be initiated in three great interstate air basins - the East Coast, from Boston to Norfolk; the Midwest, from Wisconsin to Northern Indiana; and the West Coast.
5. Financial incentives to industry will be provided to stimulate research and development and the installation of equipment for air pollution control.
6. Regulatory programs for air pollution control will be implemented in all States and in all cities of over 50,000 population.
7. Monitoring of pollutants in the air or urban communities will be significantly expanded in order to provide data on air quality trends and means of rationally directing pollution control efforts.

8. A start will be made on a comprehensive program of development of air quality criteria for guidance of State and local agencies and Federal operations; specific criteria for several common pollutants will be promulgated within three years.
9. A scientific and technical information center to service the needs of research and air pollution control personnel throughout the Nation will be developed and put in operation.
10. Research will be intensified (a) to improve scientific understanding of the causes and effects of air pollution, (b) to improve technical capability for controlling pollutant emissions.

Solid wastes

1. Institution of a Federal program of research, technical assistance, program and demonstration grants in relation to solid wastes. (Consider also financial aid for public works to improve municipal solid wastes disposal practices?)
2. Elimination of open burning on dumps as a community solid wastes disposal practice.
3. Control of air and water pollution and of health hazards and nuisances arising from solid wastes disposal operations.
4. Improvement of municipal solid wastes disposal operations so as to
 - control air and water pollution arising therefrom,
 - control health hazards (e.g. from rodents and insects) and nuisances,

- reclaim or otherwise improve the utility of land used for disposal operations,
- improve efficiency and economy of solid waste disposal activities by local government,
- provide a special program for the disposal of junked automobiles. (See page 15-A.)

Soils

1. Research, regulatory and educational program in the Department of Agriculture to determine the degree of soil contamination with chemicals, and to reduce or control the use of hazardous chemicals by developing alternative methods and safe chemical techniques.
2. Controls over the use of these chemicals will be strengthened.
3. Federal agencies conducting programs will redouble their efforts to control or prevent environmental contamination.

Food

Research, regulatory, control, and educational programs to prevent contamination of food will be strengthened and expanded.

Specific long-term goals:

1. Strengthening of the Taft Sanitary Engineering Center for applied engineering studies; development of Federal special purpose regional laboratories for continuing study and surveillance of pollution problems and their control.

2. Development of one or more Federal centers for fundamental research on pollution problems - including all chemical, physical, and biological aspects.
3. Expansion of programs to support training and professional development of scientists and engineers in the environmental health and pollution control fields and the underlying basic sciences.
4. Development of comprehensive water pollution control programs in all the major river basins of the Nation.
5. Establishment of effective air pollution control programs throughout the Nation.
6. Development of a national policy that, through Federal, State, and local control programs, will reverse the trend toward increasing build-up of contaminants in the environment by abatement of existing pollution and the prevention of new potential pollution.

To carry out these goals:

A. A series of Executive Orders and Presidential Directives:

1. A policy statement regarding pollution control in Federal departments and agencies, including installations, vehicles, procurement and contract procedures. The statement would be supplemented by the issuance of Federal Codes of Good Practice.
2. Centralization of agency appropriations requests for pollution control so that a government-wide program can be presented to the Congress.

3. Directives establishing the

"90 Rivers Project"

"Save the Great Lakes"

Southwest water program

Comprehensive air pollution programs in the three major air-sheds.

B. Legislation

1. Amend the Federal Water Pollution Control Act to:

- a. Expand the waste treatment construction grant program to an eventual \$500 million, eliminate or raise project ceilings, raise Federal matching, provide incentives for regional projects.
- b. Provide a \$20 million research-demonstration program for combined wastes problems.
- c. Expand grant assistance for State and Interstate Water Pollution Control Programs.
- d. Provide for establishment of water quality standards and their enforcement.

2. Extend and revise the Clean Air Act

- to eliminate or substantially raise the existing appropriation ceilings,
- to provide for promulgation of national standards for allowable pollutant emissions from new motor vehicles and to require manufacturers and importers to comply therewith,
- to provide for continuing grant support for State and local air pollution regulatory control programs on a cost-sharing basis.

3. Authorization for a Federal solid wastes disposal program - research, technical assistance, demonstrations construction grants.
4. Provide authority for research and training facility grants in the environmental health field.
5. Provide financial incentives to industry for research and development facilities and activities and for installation of pollution control equipment through such means as tax credits and permission to treat, for tax purposes, such costs as current expenditures (rather than capital costs subject to amortization).
6. Extend Federal enforcement jurisdiction for air and water pollution control
 - to international problems
 - to intrastate problems (constitutional?),
 - to selected types of large industries which operate nationally, or whose products are distributed nationally, and to provide jurisdiction for potential as well as actual pollution.
- 7.a) Strengthen controls over the manufacture and use of agricultural chemicals, especially pesticides.
 - b) Revise registration and reregistration authorities.
 - c) Provide for licensing and factory inspection.
 - d) Provide licensing of commercial pesticide applicators.
 - e) Extend and expand training programs for use of chemicals.