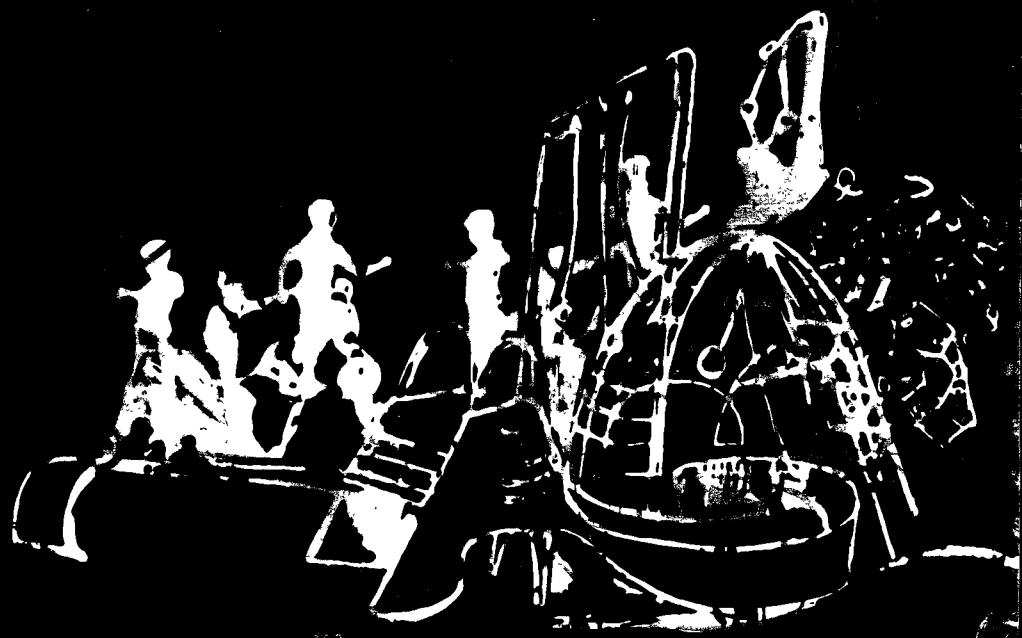
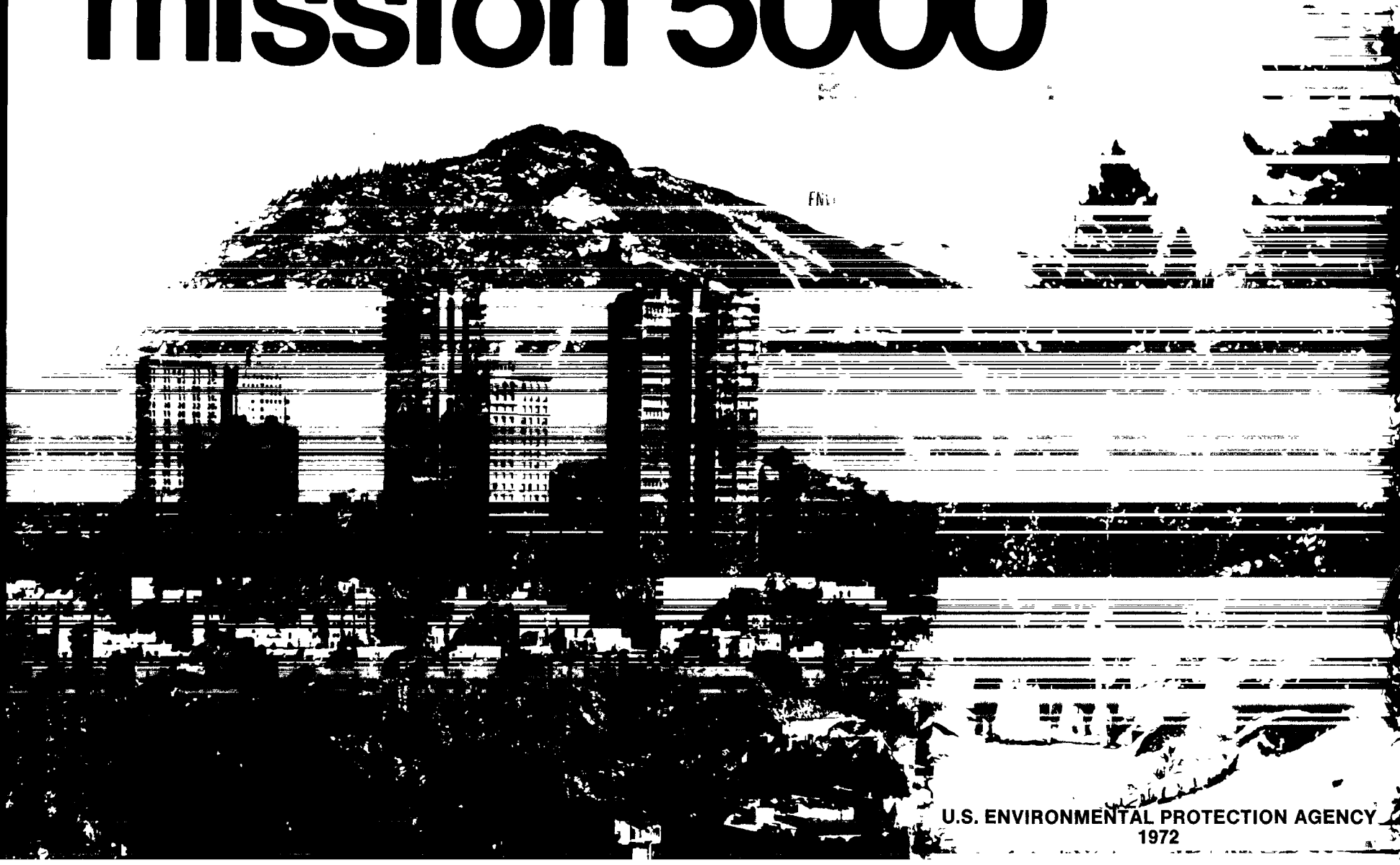
a citizens' solid waste management project

mission 5000



a citizens' solid waste management project

mission 5000

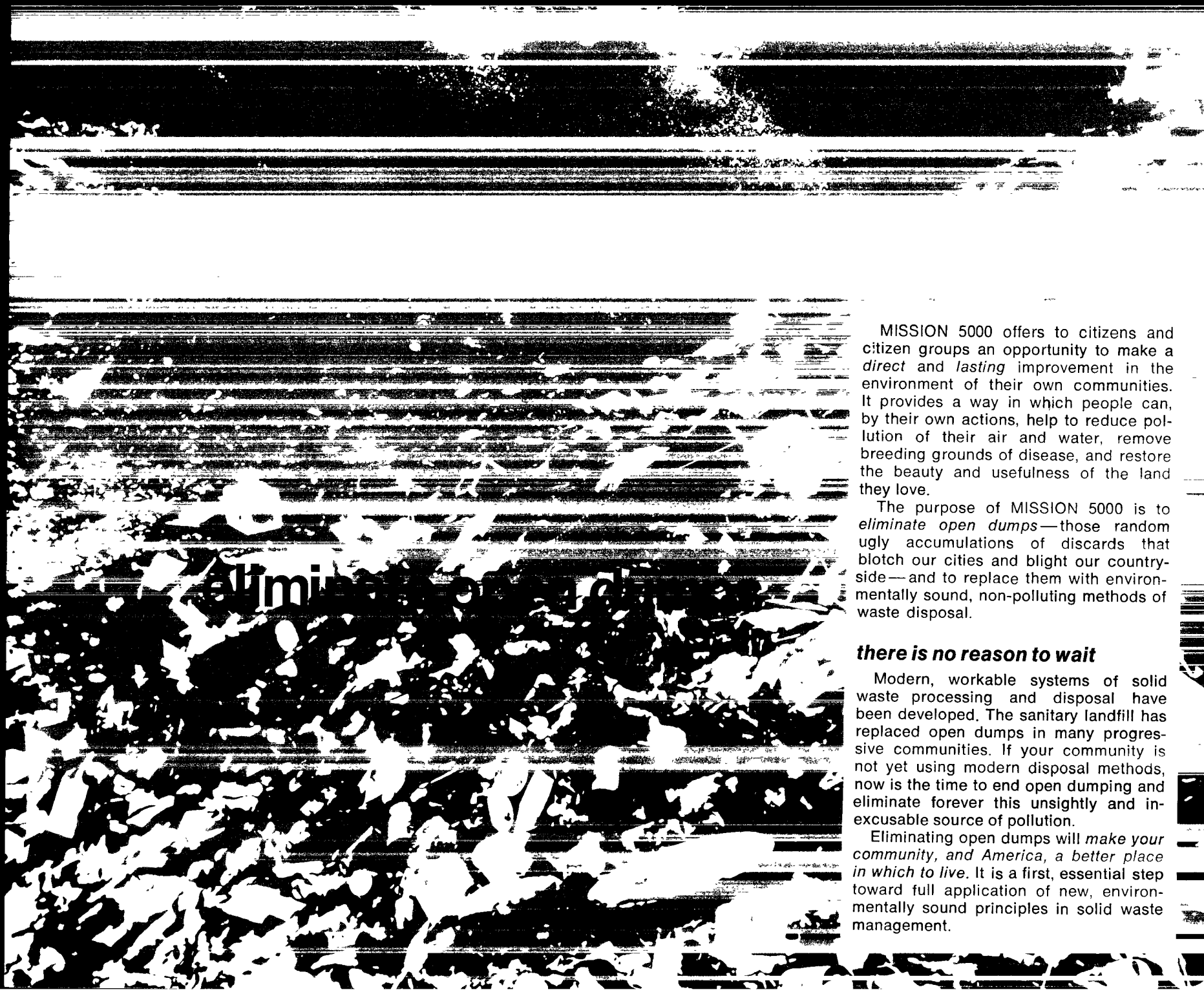


U.S. ENVIRONMENTAL PROTECTION AGENCY
1972

- ***to reduce pollution of land, air, and water***
- ***to make your community a better place in which to live***
- ***take the first step toward modern solid waste management . . .***

An environmental protection publication in the solid waste management series (SW-115ts)

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402 - Price 50 cents
Stock Number 5502-0087



MISSION 5000 offers to citizens and citizen groups an opportunity to make a *direct* and *lasting* improvement in the environment of their own communities. It provides a way in which people can, by their own actions, help to reduce pollution of their air and water, remove breeding grounds of disease, and restore the beauty and usefulness of the land they love.

The purpose of MISSION 5000 is to *eliminate open dumps*—those random ugly accumulations of discards that blotch our cities and blight our countryside—and to replace them with environmentally sound, non-polluting methods of waste disposal.

there is no reason to wait

Modern, workable systems of solid waste processing and disposal have been developed. The sanitary landfill has replaced open dumps in many progressive communities. If your community is not yet using modern disposal methods, now is the time to end open dumping and eliminate forever this unsightly and inexcusable source of pollution.

Eliminating open dumps will *make your community, and America, a better place in which to live.* It is a first, essential step toward full application of new, environmentally sound principles in solid waste management.

Each year, we produce, consume, and throw away more and more. Multiple packaging, built-in obsolescence, and the convenience items of a 'use-it-once, throw-it-away' society—all these contribute to enormous amounts of waste.

Today, Americans, with only 7 percent of the world's population, consume nearly half the earth's industrial raw materials. And most of these, in the form out outworn equipment, discarded bottles, cans, packaging, and yesterday's newspaper, end up sooner or later on the Nation's trash heaps.

In the past, blessed with a vast country, a low population, and seemingly endless natural resources, we Americans had little concern for what we threw away or where we threw it. The easiest disposal method, usually an open dump, seemed adequate.

Over the years, we were intent on converting the wealth of America into an abundance of consumer goods. And we succeeded. We applied the best technology and the finest management skills to every step in the *production, marketing,* and *distribution* of consumer products. We made these systems the most efficient and economical in the world, so that today we can pick and choose from an amazing array of goods—use, discard, and replace them almost at will.

But, we forgot to take into account the *final, and increasingly important, step in* the process. We failed to apply either modern technology or modern management to the *ultimate disposition* of this abundance. We neglected to 'close the circle' in the intricate chain of production and consumption. The most efficient, productive, and technologically advanced industrial giant in the world is hobbled by a chaotic non-system of solid waste control and disposal. As a result of this non-system, valuable, irreplaceable resources that could be reclaimed and reused are consigned to the trash heap; irresponsible dumping and open burning of refuse foul our land and pollute our air and water; and nearly every community is *faced with the problem of finding better* ways to dispose of its solid waste.

Now, with the evidence of our past errors piling up all around us, a new concept of solid waste management is emerging. It assumes that a real, workable system for managing the Nation's solid waste can be devised by making necessary changes in both the social and economic spheres. This involves:

- **Controlling** the quantity and characteristics of wastes.
- **Recycling** those than can be reused.
- **Collecting** and processing efficiently those that must be removed.
- **Disposing** properly of those that have no further use.


controlling
collecting
recycling
disposing

why focus on closing dumps?

In the last few years, Americans have begun to recognize the enormity of the problems posed by our reckless generation and careless disposal of solid wastes. Now, at last, we are beginning to grapple with the difficult, long-range problems of curtailing solid waste, both to reduce pollution caused by improper waste disposal and to conserve resources for our own and future generations. Yet, even as this more enlightened view of waste management gains acceptance and as the first faltering steps are being taken to increase recycling and reuse of waste resources, many communities have not even begun to tackle the most elementary part of the solid waste problem, the problem of disposal.

In thousands of American communities, the most primitive and unsanitary means of disposal, the open dump, is still receiving the mountains of solid waste discarded and collected daily. Unless better methods of disposal are adopted now, enormous amounts of waste will, in the years ahead, wind up in the same way, adding an intolerable burden of environmental pollution.

Altogether, Americans discard 360 million tons of residential, commercial, and industrial solid wastes each year, of which about 190 million tons are picked up by some collection agency and hauled away for disposal. By 1980, it is expected that wastes collected will mount to over 340 million tons per year, or 8 pounds per person per day.

The annual throwaway includes 71 billion cans, 38 billion bottles and jars, 4 million tons of plastic, 7.6 million television sets, 7 million cars and trucks, and 35 million tons of paper. What we throw away does not, however, really "go away" at all. Many products of our advanced technology defy destruction by natural processes. If dumps are allowed to burn, they pollute the air. Liquids leaching into the soil may contaminate surface and groundwaters.

Of all land disposal sites (authorized for use by regular collection services), only 5 percent meet accepted standards. This is what the others do to the environment:

- *Nearly half contribute to water pollution.*
- *Three-fourths pollute the air.*
- *Many provide food and harborage for rats, flies, and other pests and are breeding grounds for disease and accidents.*
- *All are ugly, degrading features of the American landscape.*

In 1970, there were some 16,000 authorized land disposal sites, and perhaps 10 times that many unauthorized dumping grounds. For many cities and towns, there is literally no more space for open dumping that is not in someone's backyard.

Replacing the open dump with acceptable methods of treatment and disposal presents problems, it is true. In all probability, it will cost more than open dumping, and new methods of financing may have to be explored. New solid waste management systems may require realigning of local departments of government or establishing new forms of cooperation between neighboring cities and counties. But these are the kinds of problems that informed, concerned citizens, working in their own communities, can help to solve. The important thing is that the basic technology and the basic management systems for eliminating indiscriminate dumping have been developed. They can be put into practice in any community whose citizens are determined to have a healthful, pollution-free environment.

For the next several years, even allowing for substantial success in our efforts to reduce waste, the total tonnage for disposal may be expected to increase, rather than decrease, as our population and our production grow. Even the most complete and effective systems of resource recovery that can be envisioned for the future will still leave large residues of unuseable wastes which must be disposed of, *on land,* and in ways that do not pollute. The open dump is not only intolerable now, but unthinkable as a disposal method for the future!

The sanitary landfill must rapidly become the disposal choice for the entire Nation. It is technologically and economically feasible now, and it can be employed by virtually all communities, whether rural or urban.

This engineered method of disposing of solid waste on land involves spreading the waste in thin layers, compacting it to the smallest practical volume, and covering it with soil by the end of each working day. The sanitary landfill can be used to create valuable new land for parks or other recreational uses. Quarries, strip mines, gravel pits, and canyons can be used for solid waste disposal and, if they are used properly for this purpose, they become sanitary landfills. Neighboring communities may join forces to create regional sanitary landfills; such joint enterprises usually lower operating costs and permit the closing of numbers of open dumps.

Incinerators have long played a significant role in solid waste management. They are sometimes regarded as an alternative to the sanitary landfill as a disposal method but, strictly speaking, this is not true.

Although the conventional incinerator does reduce the volume of solid waste that it processes on the order of 95 percent, there is always a residue. In addition, there is always a portion of the normal solid waste stream, so-called bulky wastes, that are not generally incinerated because of operational problems. These typically include such large discarded items as washing machines, refrigerators, water heater tanks, stoves, and large auto parts. Hence, there is always a need for sanitary landfill as the ultimate disposal method. Incineration, however, can be a desirable part of a community's waste management system. Considering the total solid waste stream, it can reduce landfill space needed by about 50 percent. This is particularly important where land suitable for sanitary landfill is scarce.

Of course, incineration can be used to reduce the volume of waste to be disposed of today only if the process meets current stringent air quality standards, which will become even more stringent by the middle of this decade. Most municipal incinerators in the United States are obsolete, and many have recently been closed. In the next few years, many more will have to be closed unless they are equipped with pollution control devices. In some instances, this may be feasible. But in many others, the cost of meeting air quality standards by modifying physical facilities designed for an era when such standards were virtually nonexistent will prove prohibitive.

Modern incinerators, designed at the outset to meet air quality standards, particularly if also designed to recover the potential energy of the combustible portion of solid waste, could be a highly desirable step in solid waste processing. Currently, many communities in Europe use the incineration process to produce steam for heating and electrical power generation. This practice helps to offset the costs of incineration and is, in effect, a resource recovery technique, since the excess heat of combustion, normally wasted through the stack, is transformed into useful energy.

resource recovery ... today and tomorrow

Recycling and reuse of materials is clearly the sensible way to reduce waste, conserve valuable resources, and cut our waste disposal problems down to manageable size.

Yet, despite sharply increased attention in recent years to rectifying traditional errors in our ecological behavior, we are recycling, overall, a lower percentage of our resources than we were a decade ago. Including industrial scrap and waste—where large amounts of the same material can be economically and efficiently handled—the greater part of what we discard does not find its way back into the production stream.

An estimated 52 percent of our lead wastes are recovered, 45 percent of our copper and brass, 30 percent of our aluminum, 26 percent of our steel, 20 percent of our paper, and 20 percent of our zinc. Only a miniscule portion of this comes from residential and municipal refuse Thirty million tons of paper are annually consigned to the trash heap and constitute 50 percent of the waste load. Current efforts are reclaiming only 770 million aluminum cans a year, of the 6 billion manufactured annually. More than 100 glass-container manufacturing plants are redeeming and recycling used bottles and jars, yet 26 billion are thrown away every year.

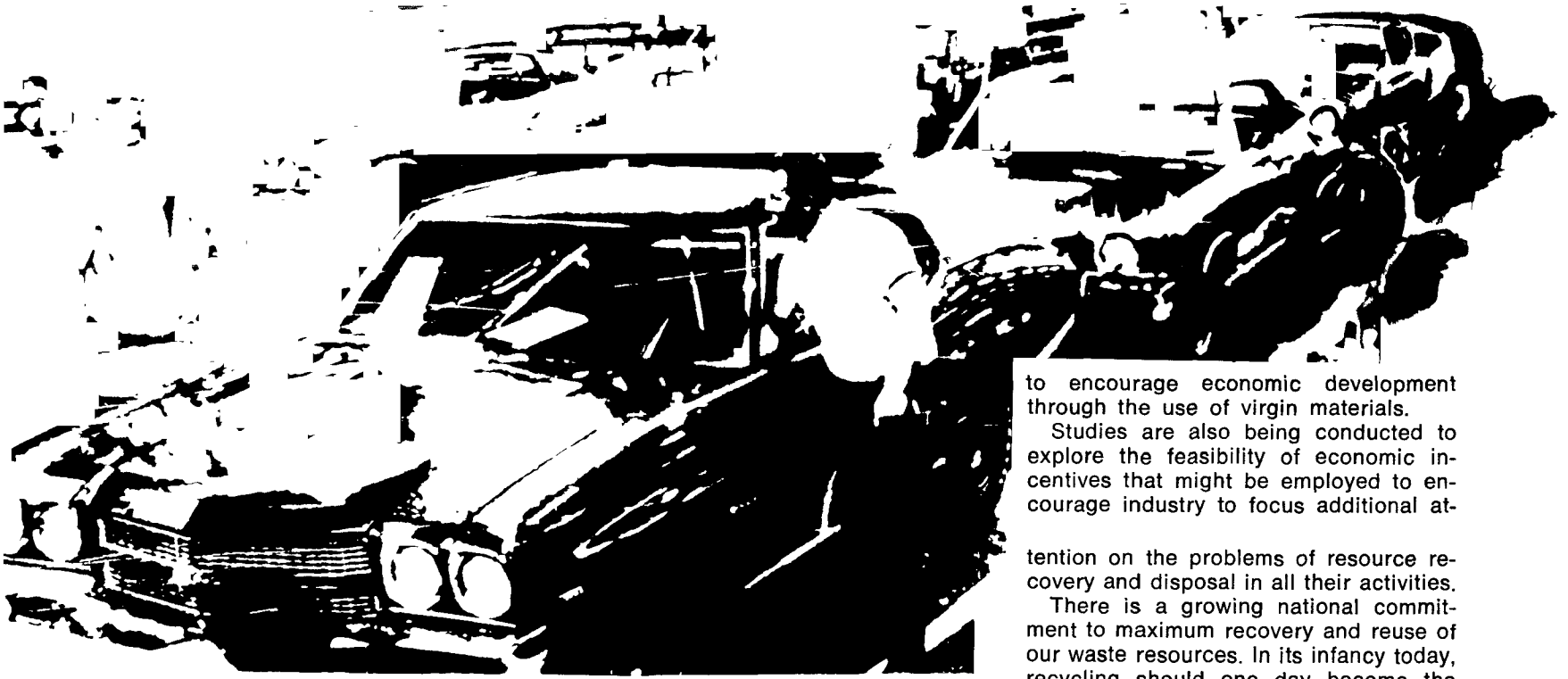
A major factor in our present solid waste problem is the changed composition of the average household "garbage." Today's trash can contains less and less of the food wastes and coal ashes which once made up its contents and which, though unappealing, would eventually return to the soil through decomposition. Two-thirds of what we discard in this day of convenience foods, multiple packaging, and household garbage grinders, is likely to be paper, metals, glass, and plastics.

It is this rapidly growing volume and changed composition of household wastes that so aggravates the disposal problem and places such an unacceptable drain on our natural resources. Fortunately, the grave implications of this change have stimulated a healthy citizen concern about resource recovery and have caused industry to take a closer look at its production practices and raw material needs.

Recycling of solid wastes from community sources is hampered by the necessity for sorting or separation *before* collection or, alternatively, by the lack of practical systems for separating, classifying, and decontaminating this fantastically "mixed bag" of solid waste *after* collection. A more serious constraint than any technological factor, however, is the lack of markets for salvage in an economy long oriented to the use of virgin materials. *This is the principal reason that widespread resource recovery is not an immediate solution to our solid waste management problem.*

Today, in thousands of communities, public-spirited citizens are determined to overcome these barriers to recovery of resources in the interest of environmental quality. Industry is cooperating by stepping up its use of salvage and establishing depots to redeem such materials as glass, aluminum, and paper.

Despite many difficulties, local recycling projects, manned by dedicated volunteers, are striving to make resource recovery from household wastes a current reality. Spurred by citizen enthusiasm, some municipal officials, who may have once regarded their solid waste problem solely in terms of collection, compaction, and disposal, are expanding their views to include at least limited resource recovery. In some communities, householders are now required to separate out



certain items, such as newspapers, before collection, so that they may be reclaimed. In a few places, waste management agencies are experimenting with methods for extracting reusable materials after trash collection, such as "mining" with magnetic devices to retrieve ferrous metals.

The Resource Recovery Act, enacted by the Congress in 1970, made resource recovery a prime focus of the Federal solid waste management program carried out by the U.S. Environmental Protection Agency (EPA). A national effort is now being made to overcome the barriers to massive recycling of our waste resources.

Spurred by Federal research, private firms are now giving attention to the development of systems to automatically separate and salvage huge amounts of household wastes after collection. Such mechanical techniques, if proved practical, could theoretically serve large cities or groups of cities, funnel back into production sizeable quantities of reusable materials, and reduce the residue to be disposed of to a minimum. Some reclaimed materials, such as bottles, might be reused in their present form. Others could be recycled in the manufacturing process or transformed by chemical processes into new resources.

Energy recovery, through the burning of solid waste to produce heat or power, is perhaps the most immediately available technique for widespread use. Thus far, utilization of the heat of combustion that would otherwise be wasted has been practiced by only a few communities in this country.

In addition to its technological and scientific research and demonstration efforts, EPA is conducting studies on the various economic constraints that now inhibit resource recovery. These studies may indicate a need for changes in tax policies, subsidies, freight rates, or other economic measures originally designed to encourage economic development through the use of virgin materials.

Studies are also being conducted to explore the feasibility of economic incentives that might be employed to encourage industry to focus additional attention on the problems of resource recovery and disposal in all their activities.

There is a growing national commitment to maximum recovery and reuse of our waste resources. In its infancy today, recycling should one day become the keystone of solid waste management.

We must all recognize that learning how to process and dispose of waste that our society currently fails to recover is today one of our most pressing environmental needs. The sanitary landfill or a combination of sanitary landfill with efficient incineration are infinitely superior to the open dump; these modern disposal methods, properly designed and operated, will be fundamental parts of any future system of *total* resource recovery—including direct recycling, energy recovery, and the reclamation of marginal lands—all from what we now throw away.

Despite the sharply rising public demand for environmental sanity, the ugly open dumping, judged by what we do, not by what we say, is still overwhelmingly the people's choice. MISSION 5000 is your opportunity to help your country make a new, a more intelligent, choice for environmentally sound disposal practices now.


how does
mission 5000
work?

MISSION 5000 was launched in the summer of 1970. A cooperative project, it was the creation of all levels of government—local, State, and Federal—and scores of civic, service, trade, health, and conservation organizations. As a result of MISSION 5000, over 1,600 dumps have been closed and hundreds of others are scheduled for early replacement.

The success of MISSION 5000 in these hundreds of communities shows that *it can be done.* So MISSION 5000 is being continued, to help and encourage other communities to eliminate their open dumps.

MISSION 5000 is a citizen effort. For thousands of local officials, the intolerable build-up of solid waste has become one of the most urgent, difficult, and frustrating problems they face. In some jurisdictions, fragmentation of responsibility among various departments of government may hamper effective action. In many cases, efficient disposal can only be attained by regional effort, involving cooperation with neighboring jurisdictions. In almost every instance, improvement is blocked by lack of resources, and lack of a system for adequately financing waste disposal through user charges or other means. All too often, citizens are indifferent to the problem or are poorly informed as to its complexity. *Local officials need, and will welcome, the support of concerned, informed citizens* for the measures required to eliminate dumps and to establish new and better systems of waste disposal.

Every State has adopted, or is now developing, a Statewide or an interstate regional plan for managing solid wastes in ways that will avoid environmental damage. Many States have passed laws banning open burning or dumping. Their solid waste management agencies are spearheading State drives to close dumps; these agencies can provide citizens and local officials with information and technical assistance. *State officials need, and will welcome, citizen support* for improved waste disposal.

The U.S. Environmental Protection Agency plays a coordinating role in MISSION 5000, but it has no direct authority over local disposal practices. What EPA does have is knowledge and expertise about better methods of managing solid wastes. Its solid waste management programs can provide recommended standards and model legislation, systems of "user charges" or other methods for financing waste disposal, "how-to-do-it" reports on conventional or innovative methods being successfully used in communities of various sizes, technical assistance in solving problems, and special training for operators, supervisors, and public officials. *EPA needs, and welcomes, informed citizen support* in taking the first, important step toward a modern system of solid waste management.

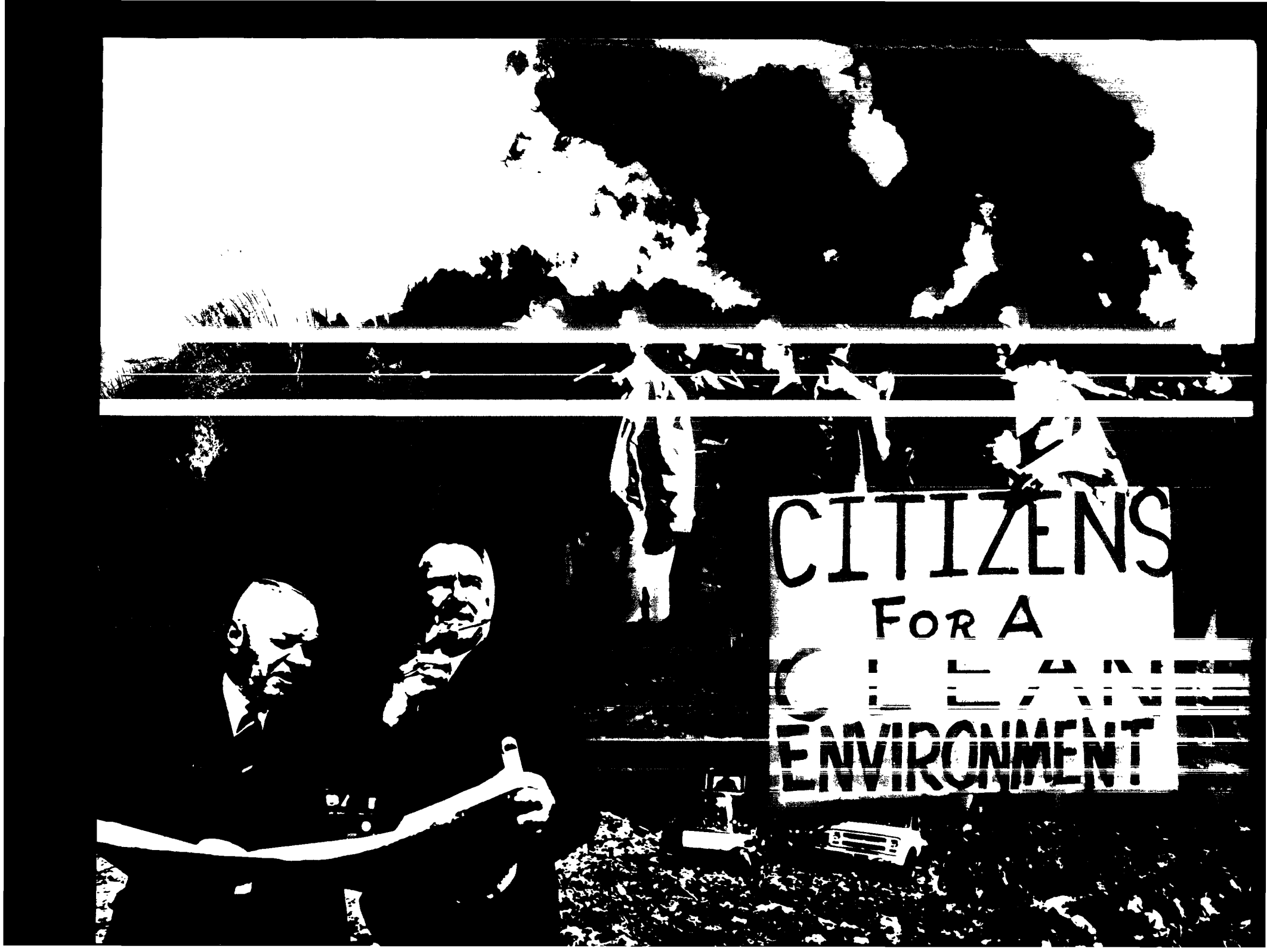
You can help by finding out what must be done to eliminate open dumps and to improve solid waste management in your community, helping others to understand how change can be effected, and leading citizen support for the measures required.

Many people feel that the ordinary citizen has no voice in decisions being made every day that determine the kind of world he, and his children, will inhabit. MISSION 5000 gives citizens not only a chance to be heard, but an opportunity to play a decisive role in environmental improvement.

If you are willing to become involved in improving the environment, *you can see to it that your community dump is among the first 5,000 to be erased from the Nation's landscape.*

- Go and see how solid wastes are disposed of in your community.
- Determine if your community's methods meet accepted standards.
- If they do not, ask local officials what special problems are preventing your community from adopting modern disposal techniques. Offer local officials your support. They need it.
- Ask your State solid waste management agency what plans the State has for eliminating dumps, what enforcement responsibility it has to carry out its plans, and what resources are available to accomplish this.
- Find out what State or local laws are needed, what institutional or jurisdictional changes must be made, what resources are required to eliminate open dumps.
- Get your community action or service group to join the fight against dumps and actively support the measures needed to convert to clean, nonpolluting waste disposal.
- Let responsible officials and the local press know that the citizens of your community are ready to assume the costs, and reap the benefits, of solid waste management.

For further information, write MISSION 5000, U.S. Environmental Protection Agency, Washington, D.C. 20460.


CITIZENS
FOR A
CLEAN
ENVIRONMENT

make mission 5000 your mission

and make your community a better place in which to live

Among the organizations supporting MISSION 5000 are:

- AFL-CIO
- American Association of University Women
- American Institute of Chemical Engineers
- The American Institute of Architects
- The American Legion
- The American Public Health Association
- American Public Works Association
- The American National Red Cross
- American Society of Civil Engineers
- The American Society of Landscape Architects
- American Society of Planning Officials
- Conference of State Sanitary Engineers
- The Council of State Governments
- General Federation of Women's Clubs
- Girl Scouts of America
- The Izaak Walton League of America
- Keep America Beautiful Inc.
- League of Women Voters
- The National Association of Conservation Districts
- National Association of Counties
- National Audubon Society
- National Congress of Parents and Teachers
- National Education Association
- National Engineers Commission on Air Resources
- National Environmental Health Association
- National League of Cities
- National Pest Control Association, Inc.
- National Solid Waste Management Association
- National Tuberculosis and Respiratory Disease Association
- Soil Conservation Society of America

☆ U.S. GOVERNMENT PRINTING OFFICE: 1972 O—470-842