

## RESOURCE CONSERVATION AND RECOVERY - A WORLDWIDE CALL TO ACTION<sup>1</sup>

by

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**Abstract:** The World Health Organization reports that over 14,000 children die daily, mostly from malnutrition. Concurrently, the United States of America wastes over 200,000,000 tons annually of bio-organic materials, such as domestic wastewater sludge, food processing wastes, yard wastes, animal manures, etc. Moreover, an additional 50,000,000 tons of alkaline by-products are wasted annually. Our worldwide challenge must be to convert natural waste resources into safe, valuable, and environmentally friendly products, to be used as components in sustainable food production.

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This spring, I read the book The Crisis Years, 1960-1963, by Michael Beschloss. This excellent historical work reveals the world's terrible proximity to thermonuclear war during the building of the Berlin Wall, and during the Cuban Missile Crisis. Two men of peace, John Kennedy and Nikita Khrushchev, were hard pressed to keep their respective militant leaders from actions that easily could have triggered a worldwide nuclear calamity. How can man be so ignorant?

Unfortunately and tragically, it is not hard to understand. Mankind can be terribly ignorant. How else can one explain today's world leadership's abject failure to recognize the perilous dangers inherent with the wanton destruction of the ozone layer, with the oncoming global warming crisis, with the destruction of the rain forests, with the terrible

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pollution of our air by acid rain and unnecessary combustion processes such as incinerators; and pollution of our lakes and streams by uncontrolled point and non-point source discharge, the pollution of our ground waters by irresponsible land use disposal programs, and foolish use of chemical fertilizers and pesticides. Mankind must recognize the immensity of the problem now, and must act now to prevent the destruction of civilization!

At the 1991 Searching for Success Conference, sponsored by the National Environmental Awards Council, an organization of respected environmentally active public interest groups such as the Sierra Club, Natural Resource Defense Council, National Wildlife Federation, National Audubon Society, Institute of Self-Reliance, and many others, under the leadership of Renew America, the film The Blue Planet, prepared by the Smithsonian Institute, and the National Air and Space Administration (NASA), was a conference highlight. I cannot recommend any film more highly! The film demonstrates very effectively the world crisis caused by our failure to recognize the critical damage being done by mankind's abuse of the ecology and environment of this planet. The film is shown daily at the National Air and Space Museum in Washington, D.C.

We, in the U.S.A., are the leaders in this terrible environmental, ecological, and sociological abuse. A great American President said, "The buck stops here". Well, the buck must stop here and now. We, this generation of leaders, have the watch! It is our responsibility to meet this challenge now - not pass the crisis on to our children, as we have so tragically done in the U.S.A., with our national debt. The U.S.A. is the biggest worldwide user of resources, and as such, we as a government, first must meet our own responsibilities before we seek to advise others. However, as individuals, we must speak out today so that all nations may see this critical problem and immense opportunity.

Yes, you heard me right. This ecological and environmental problem can, indeed, be converted to a magnificent opportunity. Science and technology exist today to convert and to recycle waste resources into critically necessary products, that in and of themselves, can greatly benefit the world. We can make use of wastes in economical and safe scientific ways to reduce chemical dependency, to improve our worldwide ecology and environment, and to help feed the world.

Mankind does not need to look to the future to see the folly of its actions, or more precisely, its inactions. The World Health Organization, and other respected public health institutions, are dedicated to forcing so-called intelligent industrial nations to recognize the terrible third world devastation caused primarily by food shortages. Is society responding to this terrible human tragedy? Just barely! Malnutrition is the major contributing cause in the deaths of over 14,000 children per day.

Organic by-product materials, such as domestic wastewater residuals, agricultural by-products, food processing by-products, and alkaline by-product wastes, such as fluidized bed residue sulphur scrubbing residue, cement and lime kiln dusts, and certain fly ashes, have tremendous value as organic and aglime products in third world countries that desperately need these materials to cost effectively utilize either chemical or alternative farming technologies. Does it make any sense for New York City or other large municipalities to ask industry to spend hundreds of millions

of dollars for pretreatment programs, and then spend as much as \$1,000.00 per dry ton to destroy these resources. Until third world countries can treat and develop their own organic residuals resources, the by-product resources of industrialized nations are desperately needed in many parts of the world. The U.S. government should strongly support actions that safely and economically can aid in generating great increases in food supplies throughout the world.

Agricultural scientists are unanimous in their concern for the problems of soil erosion, chemical dependency, and organic, mineral, and microbial deficiencies in soils throughout the world. Many, many of the organic wastes that we now relegate to the oceans, to incineration, to landfills, or otherwise destroy are desperately needed in our worldwide effort to economically provide food for civilization without destroying the soil, the surface waters, and the ground waters near agricultural land.

Sludges are extremely beneficial, however, toxic metals and organics are a concern. Pathogens are a concern. Today, technology exists, either in pre-treatment or in fixation, to reduce toxic concerns to scientifically acceptable levels, and to pasteurize these wastes to eliminate pathogens, while concurrently providing for the survival of microflora, i.e. indigenous soil microorganisms so necessary to plant growth. The importance of organics, minerals, and microbes to all soils, whether chemically or organically fertilized, is well known.

These technologies make possible the safe use of many organic wastes so desperately important to both industrial and developing nations. These technologies exist today! Why is society so slow in providing the necessary technology transfer? American industry spends hundreds of millions of dollars annually to pretreat sludges to reduce toxicity concerns. Why is our society so slow in taking advantage of this effort through worldwide beneficial utilization? We must bridge the gap between the over supply of organic by-products and the critical demand for low cost worldwide food production.

In a recent speech to the Institution of Water and Environmental Management in England, the Prince of Wales stated, "(Incineration) is seems to me, violates the most profound ecological principle of all, which is to 'close the loop', minimizing resource use and energy wastage at every stage of every economic process. There is no reason at all, surely, why the various beneficial uses: agricultural, forestry, land reclamation, horticulture, amenity land, should not absorb most of U.K. sludge production by the end of the decade. It will only require a leap of the imagination on the part of producers and users, and a guarantee of microbiological and toxicological safety, for an embarrassing sludge to be turned into an embarrassment of riches. Once again, new technology has a part to play. And there are already examples such as the Simon-N-Viro process to show what is actually possible."

If mankind uses its organic wastes, and if that use safely provides critically needed nutrients, organics, minerals, and microbes to our agricultural soils while concurrently reducing our chemical dependency, are we not achieving two critical goals with a single effort? Two for the price of one! Can anything make more sense?

Alternative agriculture is a practice that is being recommended by the Rodale Institute, and other concerned agricultural citizens in the U.S.A. Alternative agriculture is a back-to-the-future approach, in which low input sustainable agriculture (LISA) and/or organic farming methods are used. These efforts to encourage economic and environmental agricultural practices have been constrained by the tremendous political clout of the chemical industry.

In 1989, the Board of Agriculture of the National Research Council published their thorough study of Alternative Agriculture. The following quotes are from that important report.

"Well-managed alternative farming systems nearly always use less synthetic chemical pesticides, fertilizers, and antibiotics per unit of production than comparable conventional farms. Reduced use of these inputs lowers

production costs and lessens agriculture's potential for adverse environmental and health effects without necessarily decreasing - and in some cases increasing - per acre crop yields and the productivity of livestock management systems."

"Many federal policies discourage adoption of alternative practices and systems by economically penalizing those who adopt rotations, apply certain soil conservation systems, or attempt to reduce pesticide applications. Federal programs often tolerate and sometimes encourage unrealistically high yield goals, inefficient fertilizer and pesticide use, and unsustainable use of land and water. Many farmers in these programs manage their farms to maximize present and future program benefits, sometimes at the expense of environmental quality."

"Fertilizers and pesticides are often applied at rates that cannot be justified economically without consideration of present or future farm program payments."

"Government policies that discourage the adoption of alternative practices must be reformed."

"Ultimately, farmers will be the ones to decide. However, significant adoption of alternative practices will not occur until economic incentives change. This change will require fundamental reforms in agricultural programs and policies. If these conditions are met, today's alternative farming practices could become tomorrow's conventional practices, with significant benefits for farmers, the economy, and the environment."

One of the foremost proponents of alternative agriculture in the U.S.A. is Richard Thompson, of Boone, Iowa. His farm is highlighted in the Alternative Agriculture report. For many years, Dick Thompson's primary fertilizer has been a blend of Boone, Iowa, wastewater sludge and cement kiln dust, our N-Viro Soil technology.

We believe in a reasonable and scientific blending of traditional and alternative agricultural practices.

Agricultural science, not government subsidies, must dictate safe and economical agricultural practices, particularly in third world countries where subsidies are not available, where by-product organic materials are readily available, and where the high cost of chemical fertilizers and pesticides creates a huge economic burdens.

We fully recognize and respect the important scientific and technological contributions of the chemical industry to food and fiber production in the world. We also understand the immediate environmental problem and future soil problems that are the direct results of over dependence on chemical fertilizers and pesticides. Sensible alternative agriculture practices can reduce chemical dependency by increasing the effectiveness of chemicals. World food and fiber production policies must be driven by good science, sound economics, and reasonable respect for the environment, not by political power!

**DOES IT MAKE ANY SENSE TO DESTROY ORGANIC WASTES THROUGH OCEAN DUMPING AND LANDFILLS, CONCURRENTLY CREATING SERIOUS AND UNNECESSARY ECOLOGICAL AND ENVIRONMENTAL PROBLEMS, WHEN TECHNOLOGY EXISTS TO USE THESE RESOURCES TO REPLACE OR REDUCE THE NEED FOR COSTLY AND DANGEROUS CHEMICALS, ESPECIALLY WHEN THESE ORGANIC PRODUCTS ARE SO DESPERATELY NEEDED IN THIRD WORLD COUNTRIES?**

**DOES IT MAKE ANY SENSE TO INCINERATE ORGANIC WASTES, UNNECESSARILY USING ENERGY, UNNECESSARILY ADDING CO<sub>2</sub> TO THE ATMOSPHERE, UNNECESSARILY POLLUTING THE AIR, AND UNNECESSARILY CREATING REAL PUBLIC CONCERNS IN THE LOCAL COMMUNITY, WHEN TECHNOLOGY EXISTS THAT CAN SAFELY CONVERT THOSE ORGANIC WASTES TO CRITICALLY IMPORTANT ORGANIC FERTILIZER PRODUCTS?**

We salute the environmental and public interest groups that are providing the worldwide leadership to make civilization realize that waste management is best accomplished through a scientific combination of waste reduction, waste recycling, and waste reuse.

It is right to reuse! Seventy-five years ago, oil refineries had a major disposal problem. That waste was then called "refinery bottoms" or "sludge". Today, that waste is known as asphalt, and its importance in road and roofing construction is well documented. Hundreds of additional products, such as plastics, resins, polymers, etc., have been derived from refinery waste by the oil industry. These development required great efforts, research, risk, investment, and commitment, all important aspects of the free enterprise system. It is amazing what business can accomplish without government interference! Japan has clearly demonstrated the immense value of government and business pulling together.

Unfortunately, a great many of our most valuable organic wastes are generated by government agencies. We know the constraints and limitations of public agencies. It takes real leadership to look beyond today. U.S. municipal wastewater leaders are beginning to recognize the importance of recycling and real beneficial reuse.

They are making large public investments in converting organic wastewater residuals into products with real value, such as Milorganite (Milwaukee's pelletization product), composts, and N-Viro Soil (our own organic aglime product). We particularly wish to salute the Middlesex, New Jersey, County Utility Authority, and its Executive Director, Fred Kurtz, who resisted the strong incinerator lobby, and chose to replace ocean dumping with the conversion of their 200,000 annual tons of sludge to an organic aglime product using by-product alkaline materials. Here again, two problems (i.e. the management of organic wastes, and the management of alkaline by-products such as kiln dusts or sulphur scrubbing residues), were converted into a major opportunity - the production of an organic aglime agricultural and topsoil product (N-Viro Soil).

Dr. Anson Bertrand, Director of Science and Education, U.S. Department of Agriculture, told a 1980 conference that the annual need for aglime, in the U.S.A. alone, exceeded 90,000,000 tons. By combining organic waste with alkaline by-products, an organic aglime is being produced with amazing soil and fertilizer value. The potential worldwide use of such a product, particularly on acid soils caused by acid rain, chemical fertilizers, or natural causes, is unlimited. The combination of microbes, nutrients, and organics contained in wastewater sludge with the calcium carbonate and minerals of alkaline by-products creates a low cost product with high performance ag and soil value.

The conversion of waste material to valuable products makes sense. In 1976, the Congress of the U.S.A. passed the Resource Conservation and Recovery Act, which strongly supported recycling and beneficial utilization policies. In 1977, Congress passed the Clean Water Act, which instituted America's pre-treatment program, a program implemented to ensure the safe utilization of wastewater sludges.

Today, fifteen years later, the government of the U.S.A. is just beginning to implement programs and regulations that support and encourage recycling and beneficial utilization! Why the delay?

Let's face the truth! Resource conservation and recovery, recycling and beneficial utilization, make sense to everyone except the industries who do not benefit from such concepts. The disposal industry, the incinerator industry, the chemical fertilizer industry, the paper industry, and many other entrenched private interests, have done and will continue to do everything possible to discredit and stop reduction, recycling, and reuse policies and programs in the U.S.A. and throughout the world. Many of these industries do not worry about the world tomorrow. They worry about their profitability today! Our challenge is to find a safer and better way to meet our responsibilities, now and in the future!

The implementation of resource conservation and recovery policies and practices requires real courage and commitment. Such commitment is not unusual for you as leaders of the wastewater industry. We know from personal experience the value of your efforts. We live on Lake Erie. Twenty years ago Lake Erie was called a dead lake. Today, Lake Erie is a swimmer's and fisherman's paradise, thanks to dedicated wastewater point source discharge clean-up efforts by our wastewater leaders and by our government.

During the past two years, the Bush administration, particularly the EPA, under Administrator Reilly, have begun serious efforts to encourage meaningful resource conservation and recovery efforts. We strongly applaud the leadership by U.S. EPA to develop a "clean sludge protocol", whereby sludges or sludge products with very low toxic levels, that are pasteurized or sterilized, will be classified as products with no further regulatory requirements. This protocol, which will dramatically increase community perception and awareness of reuse opportunities, is long over due! The international ramifications are obvious!

On October 31, 1992, our firm, N-Viro Energy Systems Ltd., was one of a small number of Americans honored by the President of the United States in the Rose Garden of the White House. We received one of the first "President's Environment and Conservation Challenge Award Citations for Excellence in Innovative Technology". In 1990, U.S. EPA recognized our organic aglime process and product as the "#1 Sludge Use Technology in the U.S.A." Similar recognition was given to N-Viro Soil by the National Environmental Awards Council, and by the Friends of the United Nations Environment Programme. Winning awards does not make our product perfect, but it does suggest significant demonstrated credibility. The selection committees for the above awards include such groups as the Sierra Club, World Wildlife Fund, Natural Resources Defense Council, the Soil and Water Conservation Society, Renew America, and other dedicated and respected environmental and conservation organizations. Soil and agricultural professionals in New

England and in Northwestern Ohio have developed documented evidence that use of N-Viro Soil has positively reduced farm input costs, and increased farm yield at a value exceeding \$40.00 per acre. The importance of such a material, particularly for third world countries, cannot be overstated!

In his 1968 tragic pursuit of the Presidency of the United States, Senator Robert Kennedy concluded his speeches by quoting the poet George Bernard Shaw, "Some people see things as they are and ask 'Why?'" I dream of things that have never been and ask, 'Why not!'"

I dream of a bridge between waste generators of this world and the food and fiber producers of this world. I dream that over that bridge will pass science, technology, understanding, communication and cooperation. I dream that because of that bridge we will greatly reduce starvation and the dangers that face the world now, and that will face our children and our children's children in the future. Moreover, because of that bridge, each of us will enjoy the ultimate satisfaction of knowing that we did our best!

The buck stops here!